

Design & Production for Public Relations

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ANDREW FRANK



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Contents

Adaptation Statement	1
About this Book	1
Andrew Frank	
<u>Part I. Introduction to Design & Production for Public Relations</u>	
1. What Is Public Relations?	13
2. Public Relations Planning and The Design Process	31
<u>Part II. Design History</u>	
3. 1.1 Introduction	37
Alex Hass	
4. 1.2 William Morris and the Arts & Crafts Movement	43
Alex Hass	
5. 1.3 Deutscher Werkbund	47
Alex Hass	
6. 1.4 Bauhaus	49
Alex Hass	
7. 1.5 Dada	51
Alex Hass	
8. 1.6 International Typographic Style	53
Alex Hass	

9.	1.7 Late Modern New York Style	56
	Alex Hass	
10.	1.8 Post Modern	58
	Alex Hass	
11.	1.9 Summary	61
	Alex Hass	
 Part III. Design Process		
12.	2.1 Introduction	67
	Alex Hass	
13.	2.2 Design Research and Concept Generation	72
	Alex Hass	
14.	2.3 Define	73
	Alex Hass	
15.	2.4 Research	75
	Alex Hass	
16.	2.5 Develop Concepts	81
	Alex Hass	
17.	2.6 Implement Solutions	92
	Alex Hass	
18.	2.7 Summary	96
	Alex Hass	
 Part IV. Design Elements, Design Principles, and Compositional Organization		
19.	3.1 Introduction	101
	Alex Hass	

20.	3.2 Visual Elements – Basic Things That Can be Seen	103
	Alex Hass	
21.	3.3 Compositional Principles – Strategies for Arranging Things Better	125
	Alex Hass	
22.	3.4 Organizational Principles	146
	Alex Hass	
23.	3.5 Summary	158
	Alex Hass	

[Part V. ACC Chapter 1: The Metaphor of Using Graphics Applications](#)

1.1	Exercise 1: Working with files and folders	171
	xtine burrough and Michael Mandiberg	
1.2	Exercise 2: Creating a new file in Adobe Illustrator	179
	xtine burrough and Michael Mandiberg	
1.3	Exercise 3: Creating a dynamic composition	182
	xtine burrough and Michael Mandiberg	
1.4	Exercise 4: Saving a file	194
	xtine burrough and Michael Mandiberg	

[Part VI. ACC Chapter 2: Searching and Sampling – Becoming an Expert Web User](#)

2.1	Exercise 1: Advanced searching in Google	203
	xtine burrough and Michael Mandiberg	
2.2	Exercise 2: Searching in the public domain	208
	xtine burrough and Michael Mandiberg	

<u>2.3 Exercise 3: Searching in stock photography websites</u>	219
<u>xtine burrough and Michael Mandiberg</u>	
<u>2.4 Exercise 4: Searching and using Creative Commons or Public Domain work for your projects</u>	223
<u>xtine burrough and Michael Mandiberg</u>	
 <u>Part VII. ACC Chapter 3: Symmetry</u>	
<u>3.1 Exercise 1: Creating symmetry and asymmetry with your body</u>	233
<u>xtine burrough and Michael Mandiberg</u>	
<u>3.2 Exercise 2: Symmetry with passive negative space</u>	235
<u>xtine burrough and Michael Mandiberg</u>	
<u>3.3 Exercise 3: Symmetry with less passive negative space</u>	243
<u>xtine burrough and Michael Mandiberg</u>	
<u>3.4 Exercise 4: Balanced asymmetry</u>	246
<u>xtine burrough and Michael Mandiberg</u>	
24. <u>3.5 Exercise 5: Asymmetry with imbalanced visual weight</u>	248
<u>xtine burrough and Michael Mandiberg</u>	
<u>3.6 Exercise 6: Symmetry with patterning</u>	252
<u>xtine burrough and Michael Mandiberg</u>	
<u>3.7 Exercise 7: A focal point is defined within symmetric patterning</u>	254
<u>xtine burrough and Michael Mandiberg</u>	

Part VIII. ACC Chapter 4: Type on a Grid

<u>4.1 Exercise 1: Using guides to create a grid</u>	263
<u>xtine burrough and Michael Mandiberg</u>	
<u>4.2 Exercise 2: Lines</u>	268
<u>xtine burrough and Michael Mandiberg</u>	
<u>4.3 Exercise 3: Using the Type Tool to create a headline</u>	271
<u>xtine burrough and Michael Mandiberg</u>	
<u>4.4 Exercise 4: Creating body copy with the Type Tool</u>	277
<u>xtine burrough and Michael Mandiberg</u>	
<u>4.5 Exercise 5: Using color to direct the viewer</u>	282
<u>xtine burrough and Michael Mandiberg</u>	
<u>4.6 Exercise 6: Adjusting shapes with the Direct Select Tool</u>	287
<u>xtine burrough and Michael Mandiberg</u>	

Part IX. ACC Chapter 5: Color Theory & Basic Shapes

<u>5.1 Exercise 1: Hue has value!</u>	301
<u>xtine burrough and Michael Mandiberg</u>	
<u>5.2 Exercise 2: Top or bottom?</u>	306
<u>xtine burrough and Michael Mandiberg</u>	
<u>5.3 Exercise 3: Interaction of values</u>	314
<u>xtine burrough and Michael Mandiberg</u>	
<u>5.4 Exercise 4: Interaction of colors</u>	318
<u>xtine burrough and Michael Mandiberg</u>	

Part X. ACC Chapter 6: Line Art and Flat Graphics

<u>6.1 Exercise 1: Gesture drawings on a template layer</u>	327
<u>xtine burrough and Michael Mandiberg</u>	
<u>6.2 Exercise 2: Recreating straight lines with the Pen Tool</u>	331
<u>xtine burrough and Michael Mandiberg</u>	
<u>6.3 Exercise 3: Curves</u>	338
<u>xtine burrough and Michael Mandiberg</u>	
<u>6.4 Exercise 4: Curves and angles</u>	343
<u>xtine burrough and Michael Mandiberg</u>	
<u>6.5 Exercise 5: Tracing an image and creating a clipping mask</u>	346
<u>xtine burrough and Michael Mandiberg</u>	

Part XI. ACC Chapter 7: Scanning

<u>7.1 Exercise 1: Creating a scanogram and understanding file resolution</u>	357
<u>xtine burrough and Michael Mandiberg</u>	
<u>7.2 Exercise 2: A brief tour of tools and palettes in Photoshop</u>	365
<u>xtine burrough and Michael Mandiberg</u>	
<u>7.3 Exercise 3: Image Size, file size, and resolution</u>	372
<u>xtine burrough and Michael Mandiberg</u>	
<u>7.4 Exercise 4: Basic adjustments to contrast, hue and saturation levels</u>	379
<u>xtine burrough and Michael Mandiberg</u>	

Part XII. ACC Chapter 8: Tonal Scale

8.1 Exercise 1: Minor adjustments to the original file	391
xtine burrough and Michael Mandiberg	
8.2 Exercise 2: Understanding the histogram	398
xtine burrough and Michael Mandiberg	
8.3 Exercise 3: Adjusting the histogram in Levels or Curves	401
xtine burrough and Michael Mandiberg	
8.4 Exercise 4: Targeting saturation levels	409
xtine burrough and Michael Mandiberg	

Part XIII. ACC Chapter 9: Layering and Collage

9.1 Exercise 1: Using layers to create a double-exposure	417
xtine burrough and Michael Mandiberg	
9.2 Exercise 2: Cropping and adjusting the hue	428
xtine burrough and Michael Mandiberg	
9.3 Creating and manipulating layers	434
xtine burrough and Michael Mandiberg	
9.4 Exercise 4: Adding an adjustment to specific layers	438
xtine burrough and Michael Mandiberg	

Part XIV. ACC Chapter 10: Repetition and

Cloning

10.1 Exercise 1: Replace part of one image using the Clone Stamp Tool	449
xtine burrough and Michael Mandiberg	

<u>10.2 Exercise 2: Add Amelia Earhart to the image of the crew</u>	460
<u>xtine burrough and Michael Mandiberg</u>	
<u>10.3 Exercise 3: Add a layer mask</u>	462
<u>xtine burrough and Michael Mandiberg</u>	
<u>10.4 Exercise 4: Matching levels and image quality</u>	466
<u>xtine burrough and Michael Mandiberg</u>	
<u>Part XV. ACC Chapter 11: Non-Destructive Editing</u>	
<u>11.1 Exercise 1: Using Quick Masks and Alpha Channels</u>	485
<u>xtine burrough and Michael Mandiberg</u>	
<u>11.2 Exercise 2: Saving a selection on a layer mask</u>	493
<u>xtine burrough and Michael Mandiberg</u>	
<u>11.3 Exercise 3: Adding an adjustment layer and organizing layers with groups</u>	504
<u>xtine burrough and Michael Mandiberg</u>	
<u>11.4 Exercise 4: Adding a shape layer</u>	509
<u>xtine burrough and Michael Mandiberg</u>	
<u>Part XVI. ACC Chapter 12: Getting It Out – Digital Output for Web</u>	
<u>12.1 Exercise 1: From digital input to web ready</u>	521
<u>xtine burrough and Michael Mandiberg</u>	
<u>12.2 Exercise 2: PNG & GIF vs JPEG</u>	534
<u>xtine burrough and Michael Mandiberg</u>	

Part XVII. ACC Chapter 13: Multiple Pages: Unity

<u>13.1 Exercise 1: Unity through repetition – master pages</u>	543
<u>xtine burrough and Michael Mandiberg</u>	
<u>13.2 Exercise 2: Creating B-Master</u>	552
<u>xtine burrough and Michael Mandiberg</u>	
<u>13.3 Exercise 3: Linking text frames</u>	558
<u>xtine burrough and Michael Mandiberg</u>	
<u>13.4 Exercise 4: Creating shapes</u>	564
<u>xtine burrough and Michael Mandiberg</u>	
<u>13.5 Exercise 5: Exporting a PDF</u>	566
<u>xtine burrough and Michael Mandiberg</u>	

Part XVIII. ACC Chapter 14: Two-Page Spreads

<u>14.1 Exercise 1: Image Preparation</u>	573
<u>xtine burrough and Michael Mandiberg</u>	
<u>14.2 Exercise 2: Fundamentals for the Layout</u>	575
<u>xtine burrough and Michael Mandiberg</u>	
<u>14.3 Exercise 3: Adding Variety and Visual Interest</u>	585
<u>xtine burrough and Michael Mandiberg</u>	
<u>14.4 Exercise 4: Add Your Byline</u>	587
<u>xtine burrough and Michael Mandiberg</u>	
<u>14.5 Exercise 5: Export and Package</u>	589
<u>xtine burrough and Michael Mandiberg</u>	

Part XIX. Photography

- | | | |
|-----|--|-----|
| 25. | <u>Introduction</u> | 597 |
| | <u>Richard Adams and Reem el Asaleh, Martin Habekost, Jason Lisi, and Art Seto</u> | |
| 26. | <u>Camera Equipment</u> | 601 |
| | <u>Richard Adams and Reem el Asaleh, Martin Habekost, Jason Lisi, and Art Seto</u> | |
| 27. | <u>File Formats and Applications</u> | 612 |
| | <u>Richard Adams and Reem el Asaleh, Martin Habekost, Jason Lisi, and Art Seto</u> | |
| 28. | <u>Working with Printers, Web, and eBook Publishers</u> | 624 |
| | <u>Richard Adams and Reem el Asaleh, Martin Habekost, Jason Lisi, and Art Seto</u> | |
| 29. | <u>Photoshop</u> | 632 |
| | <u>Richard Adams and Reem el Asaleh, Martin Habekost, Jason Lisi, and Art Seto</u> | |

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In *Design & Production for Public Relations*, content has been adapted for a Canadian public relations context. While general ideas and content may remain unchanged from the sources on which this adapted version is based, word choice, phrasing, and organization may have changed to reflect the author's preferences.

This book was written and edited on the unceded territory of the Kwantlen and Musqueam nations.

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Open textbooks this textbook is based on:

[Digital Foundations – Intro to Media Design](#)

[Graphic Design and Print Production Fundamentals](#)

[Digital Photography for Graphic Communications](#)

About this Book

ANDREW FRANK

About this book

This open textbook takes a “jack of all trades” approach to covering the basic design and production skillsets that a PR practitioner, or other communications or marketing professional, should ideally have in the field. This means the level of skill taught is not mastery, but rather general proficiency.

In my own work as a communications consultant, I am aware of the many design and production tasks that fall on the shoulders of PR and communications specialists. It is expected that we can complete these tasks on our own, or competently oversee projects involving other professionals like graphic designers and video producers. As PR and communications specialists, we often end up functioning as one-person communication armies, and this book is written for us.

Additionally, this book can benefit anyone who is seeking to develop or upgrade their design and production skills.

Covering the wide range of basic design and production skillsets that a PR or other communications or marketing professional is expected to have in the field, in a single book (and single course), is challenging, but my goal is to teach you just enough to be dangerous in multiple mediums, and to also know when and where you may need the help of a specialist (e.g. graphic designer).

To cover this wide range of content, this book draws significantly from three other open textbooks, for its core material: [Digital Foundations – Intro to Media Design](#), [Graphic Design and Print Production Fundamentals](#), and [Digital Photography for Graphic Communications](#). I have written additional content, and have adapted and incorporated other content where attributed.

About parts II, III and IV of this book



Figure I.1 Car graphics are an example of modern day print design

On any given day, you can look around your surroundings and come in contact with print design. Information comes to you in many forms: the graphics on the front of a cereal box, or on the packaging in your cupboards; the information on the billboards and bus shelter posters you pass on your way to work; the graphics on the outside of the cup that holds your double latte; and the printed numbers on the dial of the speedometer in your car. Information is communicated by the numbers on the buttons in an elevator; on the signage hanging in stores; or on the amusing graphics on the front of your friend's T-shirt. So many items in your life hold an image that is created to convey information. And all of these things are designed by someone.



Figure I.2 Times Square has many examples of print design

Traditionally referred to as graphic design, communication design is the process by which messages and images are used to convey information to a targeted audience. It is within this spectrum that the print design portion of this book will address the many steps of creating and then producing physical, printed, or other imaged products that people interact with on a daily basis. Design itself is only the first step. It is important when conceiving of a new design that the entire workflow through to production is taken into consideration. And while most modern graphic design is created on computers, using design software such as the Adobe suite of products, the ideas and concepts don't stay on the computer. To create in-store signage, for instance, the ideas need to be completed in the computer software, then progress to an imaging (traditionally referred to as printing) process. This is a very wide-reaching and varied group of disciplines, and the goal of this text is to specifically focus on different aspects of the design process, from creation to production.

First, we start with some history. By examining the history of design, we are able to be inspired by, and learn from, those who have worked before us. Graphic design has a very rich and interesting

heritage, with inspirations drawn from schools and movements such as the Werkbund, Bauhaus, Dada, International Typographic Style (ITS), as well as other influences still seen in the designs of today.



Figure I.3 Johannes Itten was a designer associated with the Bauhaus school

We now work in an age where the computer has had an influence on the era of Post Modernism. Is this a new age? Are we ushering in an era unseen before? Or are modern-day designs simply a retelling of the same tropes we have seen for hundreds of years?

Next, we follow with a discussion about the design process. Contrary to what we tend to see in popular television shows and movies where advertising executives are struck with instant, usable, and bold ideas, design strategies are seldom insights gained through such a sudden outburst of inspiration. The design process is a deliberate, constructive, and prescriptive process that is guided by specific strategies. For example, before any piece of designed

communication can be started, some very detailed research needs to be performed. This happens well before any graphic design or layout software is opened on a computer. Designing is a form of problem solving, where a system is created to communicate a specific and targeted message. The design process is the way that a designer breaks the problem into discrete creative activities. First is an exploration of what is trying to be achieved. Facts are gathered about the problem, and the problem itself is often defined very specifically. The idea phase is where brainstorming and ideation occurs, often without judgment, as a way to gather as many different ideas and directions as possible. From this, solutions are evaluated, both for their perceived impact on the target audience and for their perceived effectiveness in portraying the desired message. Finally, all of this information is distilled into an accepted solution. Designers do not sit around waiting for ideas to just happen; they follow a process in order to make it happen.

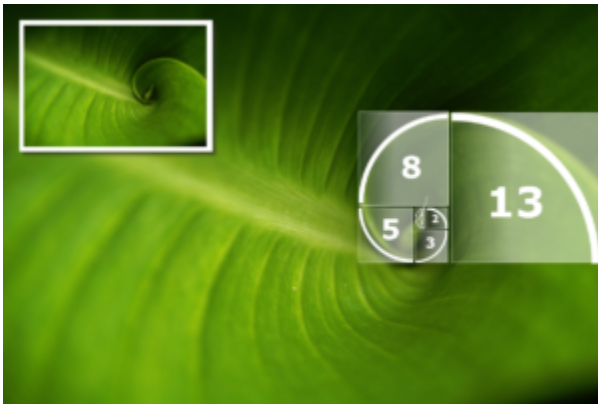


Figure 1.4 The golden ratio is a constant that appears in nature

Before we move on to practical application of software, we review the most important and necessary design elements required for effective graphic layout and design. When designing a layout, the

designer cannot just ‘throw’ all of the information onto the page. Design is a thoughtful process that makes use of many different skills to create a design that is both appealing and legible. We discuss the grid in its many forms, including different types of grid such as the ITS grid, the golden ratio, and even strategies for using no grid at all. Space is an important design element, with different items on the page requiring more or less area to be effective. We also talk about the density, or ‘colour’ of type on the page, along with a number of different typographical conventions for making the most of the collection of words on the layout.

The goal of this portion of the text is to bridge the diverse disciplines of communication design and production, outlining the design process in this modern, computer-driven age. While it is common, or perhaps easy, to surmise that design and production are solely computer-driven pursuits, when we take a step back, and look at the entire process, we see that computer-aided design and production is only one part of a larger picture. And by including this larger perspective in our studies, we can truly gain an appreciation for the influences and strategies needed to be successful.

About the Adobe Creative Cloud-focused part of this book

The Adobe Creative Cloud-focused portion of this book was written by two artists who also happen to be educators teaching studio foundation classes in digital art and design (Xtine Burroughs and Michael Mandiberg). While teaching classes that meet in software laboratories, they noticed that many of their students expected to learn software but gave little consideration to aesthetics of history. A typical first day question might be, “Are we going to learn Photoshop® in this class?” At first they were tempted to oblige their students’ thirst for so-called practical knowledge, but they recognized that in the absence of visual, theoretical, and historical

frameworks, practical knowledge is practically useless. To teach their classes they used the very best of the software training manuals, and supplemented them with all the visual and historical material that was missing. They tired of fighting against these books as they attempted to reframe the technical learning inside of visual principles and historical examples. After settling on a book that didn't really encapsulate a class for years, they finally decided to write the book that they thought all introductory media design students should be using. That book forms the core of this textbook's approach to Adobe Creative Cloud. They have created small bites of history, followed by visual references, and then digital exercises that explore the Adobe® Creative Suite in a manner that extends learning design principles to the realm of the software demonstration.

One way to think of the design portion of this book is as a mashup of the Bauhaus Basic Course and the Adobe® Creative Cloud®. It takes the visual principles and exercises from the Bauhaus Basic Course and teaches them in the Adobe® Creative Cloud®. The Bauhaus was an influential art, design and architectural school in Germany. It operated from 1919 to 1933, during which time it transformed art education, through its integration of art, craft, architecture and design, its emphasis on modern materials, and the creation of the Basic Course. The Basic Course was a year long course in which first year students learned composition, color theory, and how to use a variety of basic materials. When many of the instructors fled Nazi Germany, arriving in the United States and other countries, they brought this education model with them in the guise of the Studio Foundation course. This book takes its inspiration from the Bauhaus model, transforming those traditional lessons into the digital exercises in the Adobe® Creative Cloud®.

This book is written around the core principles of the Adobe® Creative Cloud® design applications. The latest bells and whistles are not that important, and frankly, they are usually a marketing tool. What matters are the core principles that do not change from version to version, or operating system to operating system. While

the design component of this book was initially written using Adobe® Creative Suite® 3 on Mac OS 10.5, and has subsequently been updated to Adobe® Creative Suite® 4, and most recently to Adobe® Creative Suite® 6*, it has been written to be version independent. The content will still be just as useful if you were using Adobe® Creative Suite® 2 on Windows XP, Photoshop® 7 on Mac OS 9, or future versions of the software that will be released in the years to come.

***Note:** All content and exercises have been updated to use with Adobe® Creative Cloud® 2017.

MAC or PC?

Within this book all shortcuts are referred to using the MacOS protocol. If you are using this book with Windows, simply translate the Command key (or CMD) to the Control key (CTR) on your keypad and the Option key (OPT) to the Alt key (ALT). Everything else remains the same.

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PART I
INTRODUCTION TO
DESIGN & PRODUCTION
FOR PUBLIC RELATIONS

I. What Is Public Relations?

Learning Objectives

1. Describe the four models of public relations and the four stages of a typical public relations campaign.
2. Analyze the role of public relations in media and culture.
3. Analyze the ways public relations is taking the place of traditional advertising.
4. Explain the concept of branding.
5. Describe the uses of public relations in politics, government, and news media.

According to the Canadian Public Relations Society (CPRS), “Public relations is the strategic management of relationships between an organization and its diverse publics, through the use of communication, to achieve mutual understanding, realize organizational goals and serve the public interest.” Practically, PR campaigns strive to use all forms of media and communication channels to encourage favorable media coverage and to build beneficial relationships with stakeholders.

This short video, titled “What is public relations?” helps to visualize public relations (note, this is also a shameless plug for the PR Diploma program I teach in):



A YouTube element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/designandproductionforpr/?p=1427>

In their book *The Fall of Advertising and the Rise of PR*, Al and Laura Ries make the point that the public trusts the media far more than they trust advertisements. Because of this, PR efforts that get products and brands into the media are far more valuable than a simple advertisement. Their book details the ways in which modern companies use public relations to far greater benefit than they use advertising (Ries & Ries, 2004). Regardless of the fate of advertising, PR has clearly come to have an increasing role in marketing and ad campaigns.

The Four Models of PR

Table 12.1 Grunig and Hunt's Four PR Models

Type of Model	Description	Example
Traditional publicity model (the press agency model)	Professional agents seek media coverage for a client, product, or event.	Thong-clad actor Sacha Baron Cohen promotes <i>Bruno</i> by landing in Eminem's lap at the 2009 MTV Video Music Awards.
Public information model	Businesses communicate information to gain desired results.	Colleges send informational brochures to potential students; a company includes an "about" section on its website.
Persuasive communication model (the two-way asymmetric model)	Organizations attempt to persuade an audience to take a certain point of view.	Public service announcements like the one that shows "your brain" and "your brain on drugs."
Two-way symmetric model	Both parties make use of a back-and-forth discussion.	A company sends out customer satisfaction surveys; company Facebook groups and message boards.

Source: James E. Grunig and Todd Hunt, *Managing Public Relations* (Belmont, CA: Wadsworth Publishing, 1984).

Todd Hunt and James Grunig developed a theory of four models of PR. This model has held up in the years since its development and is a good introduction to PR concepts (Grunig & Hunt, 1984).

Traditional Publicity Model

Under the traditional publicity model, PR professionals seek to create media coverage for a client, product, or event. These efforts can range from wild publicity stunts to simple news conferences to celebrity interviews in fashion magazines. P. T. Barnum was an early practitioner of this kind of PR. His outrageous attempts at publicity worked because he was not worried about receiving negative press; instead, he believed that any coverage was a valuable asset. More recent examples of this style of extreme publicity include controversy-courting musicians such as Lady Gaga and Marilyn Manson. More restrained examples of this type of PR include the modern phenomenon of faded celebrities appearing on TV shows, such as Paula Abdul's long-running appearances on *American Idol*.

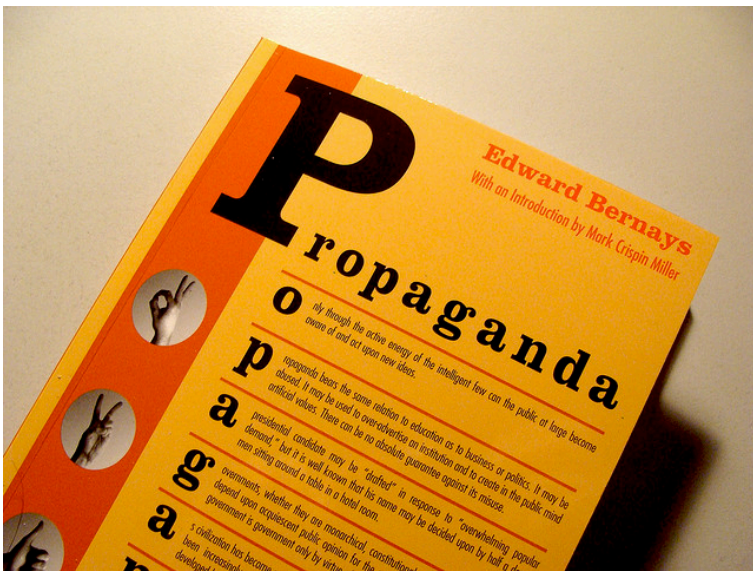
Public Information Model

The goal of the public information model is to release information to a constituency. This model is less concerned with obtaining dramatic, extensive media coverage than with disseminating information in a way that ensures adequate reception. For example, utility companies often include fliers about energy efficiency with customers' bills, and government agencies such as the CRA issue press releases to explain changes to the tax code. In addition, public interest groups release the results of research studies for use by policy makers and the public.

Persuasive Communication: Two-Way Asymmetric

The persuasive communication model, or the two-way asymmetric, works to persuade a specific audience to adopt a certain behavior or point of view. To be considered effective, this model requires a measured response from its intended audience.

Figure 12.12



Edward Bernays created campaigns using the persuasive communication model.
chrisch_ – [Rule the World!](#) – CC BY-NC 2.0.

Government propaganda is a good example of this model. Propaganda is the organized spreading of information to assist or weaken a cause (Dictionary). Edward Bernays has been called the founder of modern PR for his work during World War I promoting the sale of war bonds. One of the first professional PR experts,

Bernays made the two-way asymmetric model his early hallmark. In a famous campaign for Lucky Strike cigarettes, he convinced a group of well-known celebrities to walk in the New York Easter parade smoking Lucky Strikes. Most modern corporations employ the persuasive communication model.

Two-Way Symmetric Model

The two-way symmetric model requires true communication between the parties involved. By facilitating a back-and-forth discussion that results in mutual understanding and an agreement that respects the wishes of both parties, this PR model is often practiced in town hall meetings and other public forums in which the public has a real effect on the results. In an ideal democracy, government representatives strictly employ this model. Many nonprofit groups that are run by boards and have public service mandates use this model to ensure continued public support.

Commercial ventures also rely on this model. PR can generate media attention or attract customers, and it can also ease communication between a company and its investors, partners, employees and other stakeholders. Controversial development projects often see developers and/or project agencies seeking to consult extensively with stakeholders (e.g. Port of Vancouver terminal expansions). The two-way symmetric model is useful in communicating within an organization because it helps employees feel they are an important part of the company. Investor relations are also often carried out under this model.

PR Functions

Either private PR companies and agencies, or in-house

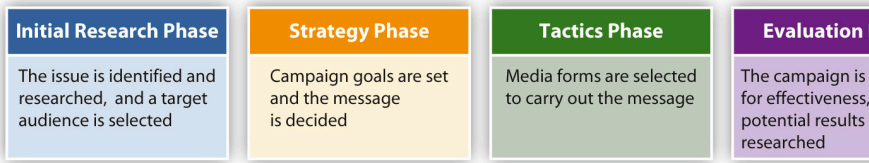
communications staffers carry out PR functions. A PR group generally handles all aspects of an organization's or individual's media presence, including company publications and news releases. Such a group can range from just one person to dozens of employees depending on the size and scope of the organization.

PR functions include the following:

- **Media relations:** takes place with media outlets and includes news releases, news conferences, interviews, op-eds and editorial board meetings
- **Organizational communications:** occurs within a company between management and employees, and among subsidiaries of the same company
- **Business-to-business:** happens between businesses that are in partnership
- **Public affairs:** takes place with community leaders, opinion formers, and those involved in public issues (includes government lobbying)
- **Investor relations:** occurs with investors and shareholders
- **Strategic communication:** intended to accomplish a specific goal
- **Issues management:** keeping tabs on public issues important to the organization
- **Crisis management:** handling events that could damage an organization's image and reputation¹

Anatomy of a PR Campaign

Figure 12.13



Anatomy of a PR campaign

PR campaigns occur for any number of reasons. They can be a quick response to a crisis or emerging issue, or they can stem from a long-term strategy tied in with other marketing efforts. Regardless of its purpose, a typical campaign often involves four phases.

The Canadian Public Relations Society often references a similar model of campaign development called the R-A-C-E formula (**R**esearch, **A**nalysis, **C**ommunication, **E**valuation). See how Electra Communications [applies it to their work](#) in health marketing.

Initial Research Phase (Research in the RACE formula)

The first step of many PR campaigns is the initial research phase. First, practitioners identify and qualify the issue to be addressed/problem to be solved. Then, they research the organization itself to clarify issues of public perception, positioning, and internal dynamics. Strategists can also research the potential audience of the campaign. This audience may include media outlets, constituents, consumers, and competitors. Finally, the context of the campaign is often researched, including the possible consequences of the campaign and the potential effects on the organization. After considering all of these factors, practitioners are better educated to select the best type of campaign.

Strategy Phase (Analysis in the RACE formula)

During the strategy phase, PR professionals usually determine objectives focused on the desired goal of the campaign and formulate strategies to meet those objectives. Broad strategies such as deciding on the overall message of a campaign and the best way to communicate the message can be finalized at this time.

Tactics Phase (Communication in the RACE formula)

During the tactics phase, the PR group decides on the means to implement the strategies they formulated during the strategy phase. This process can involve devising specific communication techniques and selecting the forms of media that suit the message best. This phase may also address budgetary restrictions and possibilities. In the RACE formula, this phase include the actual implementation of tactics in the form of communication.

Evaluation Phase (Evaluation in the RACE formula)

After the overall campaign has been determined, PR practitioners enter the evaluation phase. The group can review their campaign plan and evaluate its potential effectiveness. They may also conduct research on the potential results to better understand the cost and benefits of the campaign. Specific criteria for evaluating the campaign when it is completed are also established at this time (Smith, 2002).In the RACE formula, evaluation is conducted after

communication has taken place to determine results and improve future efforts.

Branding

While advertising is an essential aspect of initial brand creation, PR campaigns are vital to developing the more abstract aspects of a brand. These campaigns work to position a brand in the public arena in order to give it a sense of cultural importance.

Shift From Advertising to PR

Pioneered by such companies as Procter & Gamble during the 1930s, the older, advertising-centric model of branding focused on the product, using advertisements to associate a particular branded good with quality or some other positive cultural value. Yet, as consumers became exposed to ever-increasing numbers of advertisements, traditional advertising's effectiveness dwindled. The ubiquity of modern advertising means the public is skeptical of—or even ignores—claims advertisers make about their products. This credibility gap can be overcome, however, when PR professionals using good promotional strategies step in.

The new PR-oriented model of branding focuses on the overall image of the company rather than on the specific merits of the product. This branding model seeks to associate a company with specific personal and cultural values that hold meaning for consumers.

Recently Toyota faced a marketing crisis when it instituted a massive recall based on safety issues. To counter the bad press, the company launched a series of commercials featuring top Toyota executives, urging the public to keep their faith in the brand

(Bernstein, 2010). Much like the Volkswagen ads half a century before, Toyota used a style of self-awareness to market its automobiles. The positive PR campaign presented Toyotas as cars with a high standard of excellence, backed by a company striving to meet customers' needs.

Studies in Success: Apple and Nike

Apple has also employed this type of branding with great effectiveness. By focusing on a consistent design style in which every product reinforces the Apple experience, the computer company has managed to position itself as a mark of individuality. Despite the cynical outlook of many Americans regarding commercial claims, the notion that Apple is a symbol of individualism has been adopted with very little irony. Douglas Atkin, who has written about brands as a form of cult, readily admits and embraces his own brand loyalty to Apple:

I'm a self-confessed Apple loyalist. I go to a cafe around the corner to do some thinking and writing, away from the hurly-burly of the office, and everyone in that cafe has a Mac. We never mention the fact that we all have Macs. The other people in the cafe are writers and professors and in the media, and the feeling of cohesion and community in that cafe becomes very apparent if someone comes in with a PC. There's almost an observable shiver of consternation in the cafe, and it must be discernable to the person with the PC, because they never come back.

Brand managers that once focused on the product now find themselves in the role of community leaders, responsible for the well-being of a cultural image (Atkin, 2004).

Kevin Roberts, the current CEO of Saatchi & Saatchi Worldwide, a branding-focused creative organization, has used the term "lovemark" as an alternative to trademark. This term encompasses brands that have created "loyalty beyond reason," meaning that

consumers feel loyal to a brand in much the same way they would toward friends or family members. Creating a sense of mystery around a brand generates an aura that bypasses the usual cynical take on commercial icons. A great deal of Apple's success comes from the company's mystique. Apple has successfully developed PR campaigns surrounding product releases that leak selected rumors to various press outlets but maintain secrecy over essential details, encouraging speculation by bloggers and mainstream journalists on the next product. All this combines to create a sense of mystery and an emotional anticipation for the product's release.

Emotional connections are crucial to building a brand or lovemark. An early example of this kind of branding was Nike's product endorsement deal with Michael Jordan during the 1990s. Jordan's amazing, seemingly magical performances on the basketball court created his immense popularity, which was then further built up by a host of press outlets and fans who developed an emotional attachment to Jordan. As this connection spread throughout the country, Nike associated itself with Jordan and also with the emotional reaction he inspired in people. Essentially, the company inherited a PR machine that had been built around Jordan and that continues to function long after his retirement (Roberts, 2003).

Branding Backlashes

An important part of maintaining a consistent brand is preserving the emotional attachment consumers have to that brand. Just as PR campaigns build brands, PR crises can damage them. For example, the massive Gulf of Mexico oil spill in 2010 became a PR nightmare for BP, an oil company that had been using PR to rebrand itself as an environmentally friendly energy company.

In 2000, BP began a campaign presenting itself as "Beyond Petroleum," rather than British Petroleum, the company's original

name. By acquiring a major solar company, BP became the world leader in solar production and in 2005 announced it would invest \$8 billion in alternative energy over the following 10 years. BP's marketing firm developed a PR campaign that, at least on the surface, emulated the forward-looking two-way symmetric PR model. The campaign conducted interviews with consumers, giving them an opportunity to air their grievances and publicize energy policy issues. BP's website featured a carbon footprint calculator consumers could use to calculate the size of their environmental impact (Solman, 2008). The single explosion on BP's deep-water oil rig in the Gulf of Mexico essentially nullified the PR work of the previous 10 years, immediately putting BP at the bottom of the list of environmentally concerned companies.

Other branding backlashes have plagued companies such as Nike and Starbucks. By building their brands into global symbols, both companies also came to represent unfettered capitalist greed to those who opposed them. During the 1999 World Trade Organization protests in Seattle, activists targeted Starbucks and Nike stores for physical attacks such as window smashing. Labor activists have also condemned Nike over the company's use of sweatshops to manufacture shoes. Eventually, Nike created a vice president for corporate responsibility to deal with sweatshop issues.²

Blackspot: The Antibrand Brand

Adbusters, a publication devoted to reducing advertising's influence on global culture, added action to its criticisms of Nike by creating its own shoe. Manufactured in union shops, Blackspot shoes contain recycled tire rubber and hemp fabric. The Blackspot logo is a simple round dot that

looks like it has been scribbled with white paint, as if a typical logo had been covered over. The shoes also include a symbolic red dot on the toe with which to kick Nike. Blackspot shoes use the Nike brand to create their own antibrand, symbolizing progressive labor reform and environmentally sustainable business practices (New York Times, 2004).

Figure 12.16



Blackspot shoes developed as an antibrand alternative to regular sneakers.

Geoff Stearns - [Black spot sneakers](#) - CC BY 2.0.

Relationship With Politics and Government

Politics and PR have gone hand in hand since the dawn of political activity. Politicians communicate with their constituents and make their message known using PR strategies. An early example of political PR that followed the publicity model is Benjamin Franklin's trip as US ambassador to France during the American Revolution. At the time of his trip, Franklin was an international celebrity, and the fashionable society of Paris celebrated his arrival; his choice of a symbolic American-style fur cap immediately inspired a new style of women's wigs. Franklin also took a printing press with him to produce leaflets and publicity notices that circulated through Paris's intellectual and fashionable circles. Such PR efforts eventually led to a treaty with France that helped the colonists win their freedom from Great Britain (Isaacson, 2003).

A recent and notable Canadian political PR effort is Prime Minister Justin Trudeau's daily press conferences during the COVID-19 pandemic (a mix of crisis communication, issues management, and publicity). The photogenic Trudeau has combined his strength in public speaking and projection of empathy (though not in making occasional gaffes e.g. "[Speaking Moistly](#)") with the medium of daily live video press conferences to help his government [dominate the airwaves](#), and be seen as taking action, thereby bolstering his government's reputation in the eyes of voters, and improving its future election prospects.

Lobbyists also attempt to influence public policy using PR campaigns. In 2013, I worked with the Coastal First Nations [to produce a television and online ad campaign](#) to sensitize viewers to the dangers of an oil spill. The Coastal First Nations were actively opposing the proposed Enbridge Northern Gateway pipeline which would bring oil tankers to the north coast of British Columbia, and were seeking to sway the federal government to cancel the project. Using archival footage of the Exxon Valdez oil spill from the Alaskan government archives, and pairing it with an iconic song from Simon

& Garfunkel (The Sound of Silence). We created a commercial that visualized the horrors of an oil spill and connected with our target audience (baby boomers). The message was this is the sounds of an oil spills (silence) after marine life and ocean-dependent industries are closed. The ad racked up significant views on YouTube, but even more significantly, [earned additional media coverage](#) from television, newspapers, radio, and social media, helping us to reach a much larger audience on our small budget. The Globe and Mail called it a “hit” and it [won an award](#).

Key Takeaways

- The four models of PR include traditional publicity, public information, persuasive communication, and two-way symmetrical models.
- PR campaigns begin with a research phase, develop objectives during a strategy phase, formulate ways to meet objectives during the tactics phase, and assess the proposed campaign during the evaluation phase.
- Branding focuses on the lifestyles and values inherent in a brand's image as opposed to the products that are manufactured. It can be quickly undone by PR crises such as the BP oil spill.
- PR has always been an important part of political campaigning and activity. In recent years, branding has become an important part of national political campaigns.

¹Theaker, 7.

²Klein, 366.

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2. Public Relations Planning and The Design Process

Every public relations campaign begins with a well-researched plan. This plan may be called a communications plan, media relations plan, social media strategy, and other titles, depending on the purpose. Spitfire Strategies [offers a very effective communications planning tool](#) called the SMART Chart. By Googling the terms, “communications plan” and “.pdf” you can find several publicly available examples of communications plans, often from public-facing organizations and governments. These plans can range from short focused plans for specific campaigns or initiatives, to much larger plans covering all of the communications activities and channels of an organization. Corporate communications plans can be harder to find online because they are proprietary in nature.

While the format of communications plans often differs, they generally include the same content areas and are major undertakings in their own right (for the purposes of this text, we will already assume the creation of a communications plan). Regardless of purpose, a communications plan should be developed using the R-A-C-E formula (**R**esearch, **A**nalysis, **C**ommunication, **E**valuation), or a similar strategic planning approach emphasizing research and evaluation. An effective plan will include SMART objectives (**S**pecific, **M**easurable, **A**chievable, **R**ealistic, **T**ime Bound) and clear identification of audiences, tactics, deliverables and timelines.



It is in the subsequent development of these specific tactics/communications deliverables that we move into the world of design and production. It's one thing to say a tourism campaign should include an Instagram story targeting foodie millennials in Surrey, BC. It's another thing to actually create the concept for that story, and to then bring it to life using specific messaging, fonts, images, colours and then publishing it using appropriate resolution, file size and format – everything that is created through the design and production process.

The Creative Brief/Design Brief

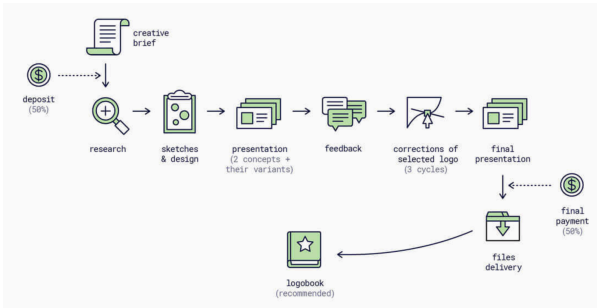
In many ways, the design process mirrors the public relations planning process. Good design begins with and is dependent on a detailed and well-researched **creative brief** (also called a **design brief** in the context of design), which functions like a mini-

communications plan for a specific communication deliverable. Its purpose is two fold:

1. To get client approval of the terms of reference and general creative approach to a specific design problem.
2. To guide the creative/design team who are creating the deliverable that is intended to solve the design problem.

A detailed and well-researched communications plan will already provide much of the information required to create the brief, however the brief will be even more customized for the specific deliverable (e.g. social media graphic, brochure, website banner, YouTube video), which functions as a guiding document for the design by clearly identifying the design problem and the context in which it is being approached. The designer will also conduct their own research based on the design brief in order to develop concepts. This process is described in detail in the [Design Process](#) chapter of this book.

Design Process based on Creative Brief (includes designer's personal approach to drafts, payment and delivery)



Iryna
Nezhynska, a
Senior Visual
Designer,
[shares her
design
process.](#)

Public Relations and Design Go Hand-in-Hand

Public relations is about creating beneficial relationships between organizations and their diverse publics through the use of creative and strategic communication. Design is the art of communication and problem solving through imagery.

At smaller organizations, PR and communications professionals

are often expected to have the basic graphic design, audio and video production skills necessary to create different forms of communication to connect with audiences and help build beneficial relationships. At a minimum, it is expected that they are able to understand and communicate effectively with specialists like graphic designers and video producers who might be contracted to produce a specific communication product. A clear understanding of the communications planning process, and the role of the creative brief (design brief) for producing specific deliverables, is the pre-requisite for developing this understanding and skill set.

PART II
DESIGN HISTORY

3. 1.1 Introduction

ALEX HASS

Learning Objectives

- Identify the unique attributes of major modern graphic design styles, beginning with William Morris. The design styles discussed will be those that have a presence or an influence in our current visual culture:
 - Morris
 - Werkbund
 - Bauhaus
 - Dada
 - International Typographic Style (ITS)
 - Late Modern
 - Post Modern
- Evaluate the influence of past design styles on one another
- Explain the influence of culture on major modern graphic design styles
- Identify the cross-cultural influences of visual culture that impacted graphic design style
- Identify the technological influences that affected

and advanced graphic design

Industrial Revolution Overview

The Craftsperson

In the Western world, before the Industrial Revolution (1760-1840 in Britain) most aspects of design and all aspects of production were commonly united in the craftsperson. The tailor, seamstress, mason, cobbler, potter and any other kind of craftsperson integrated their personal design aesthetic into each stage of product development. In print, this meant that the printer designed the fonts, the page size, and the layout of the book or broadsheet; the printer chose (even at times made) the paper and ran the press and bindery. Unity of design was implicit.

Typography in this pre-industrial era was predominantly used for books and broadsheets. The visual flavour of the fonts was based on the historic styles of western cultural tradition – roman, black letter, italic, and grotesque fonts were the mainstay of the industry. Typography was naturally small scale – needed only for sheets and pages – and was only large when it was chiseled into buildings and monuments.

Technological Shift

The Industrial Revolution radically changed the structure of society,

socially and economically, by moving vast numbers of the population from agrarian-based subsistence living to cities where manufacturing anchored and dominated employment and wealth. Agrarian-based society was tied to an aristocracy overseeing the land and controlling and directing production through the use of human labour. In contrast, urban production, though still very much in need of human labour (female and child labour in particular was in huge demand), was dominated by the mechanized production of goods, directed and controlled by industrialists instead of the aristocracy. The factories were powered initially by steam, and eventually by gasoline and electricity. These new manufacturing models were dominated by an engineering mentality that valued optimization of mechanical processes for high yields and introduced a compartmentalized approach to production.

Design and Production Separate

The design process was separated from the production-based process for a number of reasons. Primary was the efficiency-oriented mindset of the manufacturers who were focused on creating products with low unit costs and high yield outcomes, rather than on pleasing aesthetics or high-quality materials. Design process is time consuming and was considered unnecessary for each production stage of manufactured goods.

Manufactured products were intended for the working and middle classes, and high-quality output was not a goal. These products were never intended to vie for the attention of the upper classes – enticing them away from the services and bespoke products of the craftsperson (a contemporary example is Tip Top Tailors attracting Savile Row customers). Rather, they supplied common people with goods they had not been able to afford before. This efficient line of thinking created the still existing equation

of minimal design plus low material integrity equalling low-cost products.

Design, rather than being a part of each step of production (implicit in the craftsman's approach), was added for form development and when a product needed more appeal for the masses – usually during the later stages of production through decorative additions. Design was now directed by the parameters and constraints of the manufacturing process and its needs.

Advertising Emerges

Despite low product standards, the high quantities and low costs of manufactured goods “stimulated a mass market and even greater demand” (Meggs & Purvis, 2011, p. 127). The historic role of graphic design for broadsheets and books expanded at this point to include advertising. Each company and product needed exposure to sell these manufactured products to the mass market – no earlier method of promotion could communicate to this number of people.

The design aesthetic of these times was relatively untouched by stylistic cohesion or design philosophy. Industrialists used a pastiche of historic styles that aspired to make their products look more upscale, but did not go as far as to create a new visual language. This was a strategy that made sense and has since been repeated (consider early computer design aesthetics). Usually, when a new medium or communication strategy is developed (advertising in print and the posters of the Industrial Revolution), it uses visual and language styles that people are already familiar with, and introduces a new way to deliver the message. Too much change alienates, but novelty of delivery works by adding a twist on the shoulders of an already familiar form.

Font Explosion

In addition to its new role in promoting products to the mass market, graphic design moved forward with an explosion of new font designs as well as new production methods. The design of fonts had earlier been linked to the pragmatic and cultural objectives of producing books and broadsheets. With large format posters and numerous other print components, text needed to do much more than represent a phonetic symbol. Innovations in production affected – perhaps infected – printers with the pioneer spirit of the times, and all products and their potential were examined and re-evaluated. This attitude naturally included the function and design of fonts and the methods used to reproduce them. Text was often the only material used to promote its subject and became integral to a visual communication. Jobbing printers who used either letterpress or lithographic presses pushed the boundaries of both, competing with each other by introducing innovations and, in turn, pushing artists and type foundries to create more products they could use. An entirely new font category, slab serif – sometimes called Egyptian – was created. Thousands of new fonts emerged to meet the demand of the marketplace.

Photography

In addition to font development, the Industrial Age also contributed the photograph and ultimately its use in books and advertising. Photography (for print design) was originally used as a research tool in developing engravings, but this was costly and time consuming. Numerous inventors searched for ways to integrate photography into the press process since the early years of its development in the 1830s. Photo engraving eventually arrived in 1871 using negatives and plates. From that time forward, photography has been used

to conceptually and contextually support the communication of graphic design in its many forms.

4. 1.2 William Morris and the Arts & Crafts Movement

ALEX HASS

Conditions and Products of the Industrial Age

The Arts & Crafts movement emerged in the second half of the 19th century in reaction to the social, moral, and aesthetic chaos created by the Industrial Revolution. William Morris was its founder and leader. He abhorred the cheap and cheerful products of manufacturing, the terrible working and living conditions of the poor, and the lack of guiding moral principles of the times. Morris “called for a fitness of purpose, truth to the nature of the materials and methods of production, and individual expression by both artist and worker” (Meggs & Purvis, 2011, p. 160). These philosophical points are still pivotal to the expression of design style and practice to this day. Design styles from the Arts & Crafts movement and on have emphasized, in varying degrees, either fitness of purpose and material integrity, or individual expression and the need for visual subjectivity. Morris based his philosophy on the writings of John Ruskin, a critic of the Industrial Age, and a man who felt that society should work toward promoting the happiness and well-being of every one of its members, by creating a union of art and labour in the service of society. Ruskin admired the medieval Gothic style for these qualities, as well as the Italian aesthetic of medieval art because of its direct and uncomplicated depiction of nature.

Many artists, architects, and designers were attracted to Ruskin’s philosophy and began to integrate components of them into their work. Morris, influenced by his upbringing in an agrarian

countryside, was profoundly moved by Ruskin's stance on fusing work and creativity, and became determined to find a way to make it a reality for society. This path became his life's work.

Pre-Raphaelite Brotherhood

Morris met Edward Burne-Jones at Exeter College when both were studying there. They both read extensively the medieval history, chronicles, and poetry available to them and wrote every day. Morris published his first volume of poetry when he was 24, and continued to write and publish for the rest of his life. After graduation, Morris and Burne-Jones tried a few occupations, and eventually decided to become artists. Both became followers of Dante Gabriel Rossetti who founded the Pre-Raphaelite brotherhood that was based on many of Ruskin's principles. Morris did not last long as a painter, eventually finding his design vocation while creating a home for himself and his new wife (Rossetti's muse and model).

Discovering the lack of design integrity in Victorian home furnishings and various additional deficiencies in other aspects of home products, he chose to not only design his home, but all its furniture, tapestries, and stained glass.

Morris & Co.

In 1860, Morris established an interior design firm with friends based on the knowledge and experiences he had in crafting and building his home. He began transforming not only the look of home interiors but also the design studio. He brought together craftspeople of all kinds under the umbrella of his studio and began

to implement Ruskin's philosophy of combining art and craft. In Morris's case, this was focused on making beautiful objects for the home. The craftspeople were encouraged to study principles of art and design, not just production, so they could reintegrate design principles into the production of their products. The objects they created were made and designed with an integrity a craftsman could feel proud of and find joy in creating, while the eventual owner would consider these products on par with works of art (an existing example is the Morris chair). The look of the work coming out of the Morris studio was based specifically on an English medieval aesthetic that the British public could connect to. The English look and its integrity of production made Morris's work very successful and sought after. His organizational innovations and principled approach gained attention with craftspeople and artisans, and became a model for a number of craft guilds and art societies, which eventually changed the British design landscape.

William Morris and the Kelmscott Press

Morris's interest in writing never waned and made him acutely aware of how the book publishing industry had been negatively affected by industrialization. One of his many pursuits included the revitalization of the book form and its design components through the establishment of the Kelmscott Press. The press was created in 1888 after Morris, inspired by a lecture about medieval manuscripts and incunabula publications, began the design of his first font, Golden, which was based on the Venetian roman face created originally by Nicolas Jenson.

In his reinterpretation of this earlier font, Morris strove to optimize readability while retaining aesthetic integrity – in the process reviving interest in font design of earlier periods. Morris used this font in his first book, *The Story of Glittering Plain*, which he illustrated, printed, and bound at his press. The design approach

of this publication and all others Kelmscott produced in its eight years was based on recreating the integrated approach and beauty of the incunabula books and manuscripts of the medieval period. All aspects of the publication were considered and carefully determined to create a cohesive whole. The press itself used hand-operated machinery, the paper was handmade, and the illustrations, fonts, and page design were all created and unified by the same person to make the book a cohesive, beautiful object of design. Morris did not wholly reject mechanization, however, as he recognized the advantages of mechanical process. He considered, redesigned, and improved all aspects of design and production to increase physical and aesthetic quality.

Kelmscott Press produced over 18,000 volumes in the eight years of its existence and inspired a revival of book design on two continents. In addition, Morris inspired a reinterpretation of design and design practice with his steadfast commitment to Ruskin's principles. Future generations of designers held to Morris's goals of material integrity – striving for beautiful utilitarian object design and carefully considered functionality.

5. 1.3 Deutscher Werkbund

ALEX HASS

In the early years of the 20th century, the German Hermann Muthesius returned to Germany from England with Morris's Arts & Crafts concepts. Muthesius published the *The English House* in 1905, a book wholly devoted to the positive outcomes of the English Arts & Crafts movement. Muthesius was a sometime cultural ambassador, possibly an industrial spy, for Germany in England. His interest in the Arts & Crafts movement was not based on returning German culture to the romantic values of an earlier pre-manufacturing era. He was focused on infusing the machine-made products of Germany with high-quality design and material integrity. Muthesius believed manufacturing was here to stay. He was one of the original members of the state-sponsored Deutscher Werkbund – an association that promoted the union of art and technology. The Werkbund integrated traditional crafts and industrial mass-production techniques, and put Germany on a competitive footing with England and the United States. Its motto “Vom Sofakissen zum Städtebau” (from sofa cushions to city-building) reveals its range.

Design Embraces the Manufacturing Process

Peter Behrens and Henry van de Velde were also part of the original leadership, and with Muthesius developed the philosophy of *Gesamtkultur* – a cohesive cultural vision where design was the driving force of a wholly fresh, human-made environment. Every aspect of the culture and its products was examined and redefined

for maximum use of mechanization in its production. The new visual language of *Gesamtkultur* was a style stripped of ornament in favour of simplicity and function. All areas of cultural production were affected by this new philosophy – graphic design, architecture, industrial design, textiles, and so forth – and all were reconfigured and optimized. Sans serif fonts dominated the reductive graphic design style as did standardization of sizes and forms in architecture and industrial design. Optimization of materials and mechanical processes affected every area. Germany embraced this new philosophy and visual style for its simplicity and exactness. In 1919, Walter Gropius, a modernist architect whose work was inspired by Werkbund ideals, was finally successful in opening a school he called the Bauhaus (in Weimar where artists, industrialists, and technicians would develop their products in collaboration). These products would then build a new future for German exports by virtue of their high level of functional utility and beauty.

6. I.4 Bauhaus

ALEX HASS

The Bauhaus philosophy has become famous for its integrated approach to design education; “it precipitated a revolution in art education whose influence is still felt today” (Whitford, 1995, p. 10). Most Western art colleges and universities still base much of their foundational curriculum on its fundamental ideas.

The Bauhaus school was founded with the idea of creating a ‘total’ work of art in which all arts, including architecture, would eventually be brought together. The first iteration of the school brought together instructors from all over Europe working within the latest art and design styles, manufacturing ideologies, and technologies. An example of this new teaching style can be found in its first-year curriculum. This foundation year exposed all students to the basic elements and principles of design and colour theory, and experimented with a range of materials and processes. This allowed every student the scope to create projects within any discipline rather than focus solely on a specialty. This approach to design education became a common feature of architectural and design schools in many countries.

In addition to its influence on art and design education, the Bauhaus style was to become a profound influence upon subsequent developments and practices in art, architecture, graphic design, interior design, industrial design, and typography.

The school itself had three iterations in its 14-year run. With each iteration, the core concepts and romantic ideals were modified and watered down to work within the realities of the difficult Nazi culture. When the school was finally closed by its own leadership under pressure from the Nazi-led government, most of the faculty left the country to teach in less difficult circumstances and continued to spread Bauhaus precepts all over the world. Many of its artists and intellectuals fled to the United States. Because

the Bauhaus approach was so innovative and invigorating, the institutions that were exposed to the Bauhaus methodology embraced its principles. This is why the Bauhaus had a major impact on art and architecture trends in Western Europe, the United States, and Canada.

Later evaluation of the Bauhaus design philosophy was critical of its bias against the organic markings of a human element, an acknowledgment of “... the dated, unattractive aspects of the Bauhaus as a projection of utopia marked by mechanistic views of human nature” (Schjeldahl, 2009, para. 6). And as Ernst Kállai proposed in the magazine *Die Weltbühne* in 1930, “Home hygiene without home atmosphere” (as cited in Bergdoll & Dickerman, 2009, p. 41).

The very machine-oriented and unadorned aesthetic of the Bauhaus refined and evolved, eventually informing the clean, idealistic, and rigorous design approach of the International Typographic Style.

7. 1.5 Dada

ALEX HASS

Dada does not mean anything. We read in the papers that the...Kroo race...call the tail of the sacred cow: dada. A cube, and a mother, in certain regions of Italy, are called: Dada. The word for a hobby-horse, a children's nurse, a double affirmative in Russian and Rumanian, is also: Dada. (Tzara, 1992)

– Tristan Tzara, *Dada Manifesto*

Dada was an artistic and literary movement that began in 1916 in Zurich, Switzerland. It arose as a reaction to World War I, and the nationalism and rationalism, which many thought had brought war about. Influenced by ideas and innovations from several early avant-gardes – Cubism, Futurism, Constructivism, and Expressionism – its influence in the arts was incredibly diverse, ranging from performance art to poetry, sculpture, and painting, to photography and photographic and painterly collage.

Dada's aesthetic, marked by its mockery of materialistic and nationalistic attitudes, became a powerful inspiration for artists and designers in many cities, including Berlin, Paris, and New York, all of which generated their own groups. The movement radically changed typographic ideals and created fresh approaches to text. Unburdened of its rules and conventions, type was allowed to become expressive and subjective. The poetic output of the group was fresh and different, and needed its typography to be as expressive and innovative as its content. Dada, in combination with aspects of Constructivist and Suprematist typography, balanced the cultural discipline created and applied to typography by other streams of contemporary design like the Bauhaus. This movement in particular advanced typography as a medium of its own. It promoted the use of typography as an art material that could be manipulated

by artists and designers expressively and without preordained rules and structural principles.

Words emerge, shoulders of words, legs, arms, hands of words. Au, oi, uh. One shouldn't let too many words out. A line of poetry is a chance to get rid of all the filth that clings to this accursed language, as if put there by stockbrokers' hands, hands worn smooth by coins. I want the word where it ends and begins. Dada is the heart of words. (Ball, 1996)

– *Hugo Ball's manifesto*, read at Zunfthaus zur Waag on July 14, 1916

8. 1.6 International Typographic Style

ALEX HASS

International Typographic Style (ITS), also known as the Swiss Style, emerged in Switzerland and Germany in the 1950s. ITS became known for design that emphasized objective clarity through the use of compositional grids and sans serif typography as the primary design material (or element).

Guiding Principles

ITS was built on the shoulders of the 'less is more' ideal of the German Werkbund and the Bauhaus school. But its pioneers pursued ideologies that had much more depth and subtlety. Ernst Keller, whose work in design spanned over four decades, brought an approach to problem solving that was unique. His contribution to design was in defining the problem. For Keller, the solution to a design problem rested in its content. Content-driven design is now a standard practice.

Max Bill, another pioneer, brought a purist approach to design that he had been developing since the 1930s. He was instrumental in forming Germany's Ulm School of Design, famous for its ITS approach. The school introduced Greek rhetorical devices to amplify concept generation and produce greater conceptual work, while the study of semiotics (creating and understanding symbols and the study of sending and receiving visual messages) allowed its design students to understand the parameters of communication

in a more scientific and studied way. At this time, there was also a greater interest in visual complexity.

Max Huber, a designer known for his excellent manipulation of presses and inks, layered intense colours and composed chaotic compositions while maintaining harmony through the use of complex grids that structured and unified the elements. He was one of many designers who began using grids in strategic ways. ITS design is now known for its use of anchored elements within a mathematical grid. A grid is the “most legible and harmonious means for structuring information” (Meggs & Purvis, 2011, p. 355).

Visual composition changed in many ways due to the grid. Design was already moving toward asymmetrical compositions, but now even the design of text blocks changed – from justified text to aligned flush left, ragged right. Fonts chosen for the text changed from serif fonts to sans serif, a type style believed to “express the spirit of a more progressive age” by early designers in the movement. Sans-serif typefaces like Helvetica, Univers, and Akzidenz Grotesk were favoured because they reflected the ideals of a progressive culture more than traditional serif fonts like Times or Garamond. ITS balanced the stabilizing visual qualities of cleanliness, readability, and objectivity with the dynamic use of negative space, asymmetrical composition, and full background photography.

Photography

ITS did not use illustrations and drawings because of their inherent subjectivity. Photography was preferred because of its objective qualities, and was heavily used to balance and organically complement the typography and its structured organizational grid. Often the photograph sat in the background with the type designed to sit within it; the two composed to strengthen each other to create a cohesive whole. ITS refined the presentation of information

to allow the content to be understood clearly and cleanly, without persuading influences of any kind. A strong focus on order and clarity was desirable as design was seen to be a “socially useful and important activity ... the designers define their roles not as artists but as objective conduits for spreading important information between components of society” (Meggs & Purvis, 2011, p. 355).

Josef Müller-Brockmann, another one of its pioneers, “sought an absolute and universal form of graphic expression through objective and impersonal presentation, communicating to the audience without the interference of the designer’s subjective feelings or propagandistic techniques of persuasion” (Schneider, 2011). Müller-Brockmann’s posters and design works feature large photographs as objective symbols meant to convey his ideas in particularly clear and powerful ways.

After World War II, international trade began to increase and relations between countries grew steadily stronger. Typography and design were crucial to helping these relationships progress – multiple languages had to be factored into a design. While clarity, objectivity, region-less glyphs, and symbols were essential to communication between international partners, ITS found its niche in this communicative climate and expanded beyond Switzerland, to America.

ITS is still very popular and commonly used for its clarity and functionality. However, there is a fine line between clean and simple, and simply boring. As the style became universal, its visual language became less innovative and was perceived to be too restrictive. Designers wanted the freedom to be expressive, and the culture itself was moving from cultural idealism to celebratory consumerism. ITS can be a very successful design strategy to adopt if there is a strong concept binding all of the design components together, or when there is a vast amount of complexity in the content and a visual hierarchy is needed to calm the design to make it accessible.

9. 1.7 Late Modern | New York Style

ALEX HASS

Late Modernism encompasses the period from the end of World War II to the early 21st century. Late Modernism describes a movement that arose from and reacted to trends in ITS and Modernism. The Late Modern period was dominated by American innovations spurred on by America's new-found wealth. The need for more advertising, marketing, and packaging was matched by a new mood in the culture – a mood that was exuberant and playful, not rigid and rule-oriented.

Late Modern was inspired by European avant-garde immigrants. These immigrants found work in design and quickly introduced Americans to early modern principles of an idealistic and theoretical nature. American design at this point had been pragmatic, intuitive, and organic in composition. The fusion of these two methodologies in a highly competitive and creative climate produced design work that was original in concept, witty, and provocative and, as personal expression was highly prized, full of a variety of visual styles. Paul Rand is one of the great innovators of this style. Rand was adept at using ITS when its rules and principles were called for, but he was also very influenced by European art movements of the times. In his work, he fused the two and made works that were accessible, simple, engaging, and witty. His work was inspirational, but his writing and teaching were as important, if not more, to redefining the practice of design. He restructured the design department at Yale and published books on design practice informed by ITS principles, softened by wit, and espoused the value of the organic look of handmade marks. As a result, artists and designers began to merge organic shapes with simple geometry.

The look of graphic design also changed through advancements

in photography, typesetting, and printing techniques. Designers felt confident in exploring and experimenting with the new technologies as they were well supported by the expertise of the print industry. Designers began to cut up type and images and compose directly on mechanical boards, which were then photographed and manipulated on the press for colour experimentation. As well, illustration was once again prized. Conceptual typography also became a popular form of expression.

Push Pin Studios

An excellent example of this expansive style can be found in the design output of New York's Push Pin Studios. Formed by Milton Glaser and Seymour Chwast, Push Pin was a studio that created innovative typographic solutions – I♥NY– brand identities, political posters, books, and albums (such as Bob Dylan's album *Dylan*). It was adept at using and mixing illustration, photography, collage, and typography for unexpected and innovative visual results that were always fresh and interesting as well as for its excellent conceptual solutions. The influence of Push Pin and Late Modern is still alive and has recently experienced a resurgence. Many young designers have adopted this style because of its fresh colours, fine wit, and spontaneous compositions.

10. 1.8 Post Modern

ALEX HASS

By the early 1970s, the idealistic principles of Modernism were fading and felt flat and lifeless. Pluralism was again emerging as people craved variety as a reaction to the reductivist qualities that modernism espoused.

Punk

In the late 1970s in Britain, Australia, and parts of the United States, a youthful rebellious culture of anger and disdain arose against the establishment. In many ways, the design language of Punk echoed the Dadaist style, though Punk was anchored with a pointed, political message against the tyranny of society and the disenfranchisement of youth. A use of aggressive collages, colours, and experimental photography were its hallmarks. These free-form, spontaneous design works incorporated pithy tag lines and seethed with anger in a way that Dada work never attempted to achieve. Punk actively moved away from the conformities of design, and was anti-patriotic and anti-establishment. Punk established the do-it-yourself (DIY) ethos and stylized it with the angry anti-establishment mood of the mid 1970s, a time of political and social turbulence. DIY style was considered shocking and uncontrolled. However, the influence on design has been far reaching and subsequently widely emulated.

Jamie Reid, a pioneer of the Punk style, developed the visual signature look for the Sex Pistols and many other punk bands. His personal signature style was known for a collaged 'ransom note' typography that became a typographic style of its own. Reid cut letters out of newspapers and magazines, and collaged them

together to be photographed. By doing this, he could see what he was creating as he went along, trying out different font styles and sizes and seeing the results instantly. Treating type as if it were a photograph also freed him from the restrictions of typesetting within a structured grid and allowed him to develop his ideas and concepts as he created. This unguided, process-free approach to design became a part of the Post Modern experimentation that was to come.

When Punk first exploded in the 1970s, it was deemed a youthful rebellion. In actuality, it was one of the many forms of visual expression that manifested as part of the Postmodernist movement that began as a reaction to the rigid restrictions of Modernism.

Early Post Modernism

Early Swiss Post Modern design was driven by the experimentations and teachings of Wolfgang Weingart who taught at the Basel School of design in Basel, Switzerland. Weingart was taught ITS by the masters of the style, Emil Ruder and Armin Hofmann at the Basel School. But once he became an instructor there, he questioned the “value of the absolute cleanliness and order” (Meggs & Purvis, 2011, p. 465) of the style. He experimented vigorously with breaking all typographic and organizational rules to see what the effect on the audience would be. He invigorated typography with energy and in turn changed the viewer’s response to the visual information. Instead of a simple fast reading, the reader now faced dynamic complexity free of any rules or hierarchies. The viewer was now compelled to spend more time with a design piece to understand its message and parse the meaning of its symbolism.

One of his American students, April Greiman, brought this new design language back to California with her and heavily influenced the youth culture there. David Carson, a self-taught designer working in the surf magazine world, took the ideas of the style and

adopted them to his own typographic experiments in the surfing magazines he designed. For Carson, Post Modern design reflected the free spirit of the surf community.

Post Modernism is actually an umbrella term for many visual styles that came about after the 1980s. They are unified by their reaction to Modernism's guiding principles – particularly that of objectivity. A key feature of Post Modern design is the subjective bias and individual style of the designers that practise it. Additional defining stylistic characteristics can be summarized in the idea of 'de-construction.' The style often incorporates many different typefaces breaking every traditional rule of hierarchy and composition. Visual organization becomes more varied and complicated with the use of layers and overlapping. The use of image appropriation and culture jamming is a key feature. Dramatic layouts that do not conform to traditional compositions are another common characteristic. A traditional grid is not used to organize the layout of the elements, making composition look 'free-style.' Other organizational systems for the elements developed – axial, dilatational, modular, and transitional systems created a fresh way to organize the information. The combination of multiple geometric shapes layered with photographs created depth that worked well on the computer monitor – now a component of contemporary society.

Post Modernism is still in use today, though selectively. The chaos created by our technological advancements needs to be balanced with the ease of accessing information. The Apple brand is a good example of a contemporary design approach that feels fresh and current, while delivering massive amounts of information in a clean and simple way. The Post Modern methods of built-in visual difficulty are less welcome in our data-saturated culture.

II. I.9 Summary

ALEX HASS

The technological revolution of the 1990s brought the mobile phone and computer to every home and office and changed the structure of our current society much as manufacturing in the 1800s changed Britain and the Western world. As with the Industrial Revolution, the change in technology over the last 20 years has affected us environmentally, socially, and economically. Manufacturing has slowly been moved offshore and replaced with technology-based companies. Data has replaced material as the substance we must understand and use effectively and efficiently. The technological development sectors have also begun to dominate employment and wealth sectors and overtake manufacturing's dominance. These changes are ongoing and fast-paced. The design community has responded in many novel ways, but usually its response is anchored by a look and strategy that reduce ornament and overt style while focusing on clean lines and concise messaging. The role of design today is often as a way-finder to help people keep abreast of changes, and to provide instruction. Designers are once again relying on established, historic styles and methods like ITS to connect to audiences because the message is being delivered in a complex visual system. Once the technological shifts we are experiencing settle down, and design is no longer adapting to new forms of delivery, it will begin to develop original and unique design approaches that complement and speak to the new urban landscape.

Questions to consider after completing this chapter:

1. What design principles do Dada and Punk have in common?
2. What influence does ITS have on Post Modern design?
3. What influence does ITS have on current design practice?
4. How did World War II influence design education?
5. How did Morris and the Arts & Crafts movement help to create the Bauhaus design philosophy?
6. How did technology influence early German design?
7. How does technology influence contemporary design practice?

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PART III
DESIGN PROCESS

12. 2.1 Introduction

ALEX HASS

Learning Objectives

- Explain the role of communication design in print and media
- Describe how the creative process relates to strategic problem solving
- Contrast how the creative process relates to the design process
- Define critical phases of the design process
- Discover how project research helps to define a communication problem
- Give examples of brainstorming techniques that generate multiple concepts based on a common message
- Learn about metaphors and other rhetorical devices to generate concepts
- Explore how concepts translate into messages within a visual form

Communication Design and The Design Process

The practice of graphic or communication design is founded on crafting visual communications between clients and their audience. The communication must carry a specific message to a specific audience on behalf of the client, and do so effectively – usually within the container of a concept that creates context and builds interest for the project in the viewer.

See an illustrated model of the design process here: [A Model of the Creative Process](#)

Overview of the Design Process

The process of developing effective design is complex. It begins with research and the definition of project goals. Defining goals allows you to home in on precisely what to communicate and who the audience is. You can then appropriately craft the message you are trying to communicate to them. Additional information regarding how to deliver your message and why it's necessary are also clarified in the research stage. Often the preferred medium becomes clear (i.e., web, social media, print, or advertising) as does the action you want your audience to take. Asking a millennial to donate to a cause is a good example. Research reveals that transparency of donation use, donor recognition, and ease of making the donation are vital to successfully engaging a millennial audience (Grossnickle, Feldmann, White, & Parkevich, 2010). Research also reveals that millennials resist negative advertising, so the message must be crafted in positive terms that are anchored to a realistic environment (Tanyel, Stuart, & Griffin, 2013). Knowing this information before the concept development begins is vital to crafting a message that will generate

the response your client needs. Critiquing and analysis allow you to evaluate the effectiveness of the design approach as it develops through the stages of an iterative process.

In order to design visual materials that communicate effectively, designers must understand and work with the syntax of visual language. Meaning is expressed not only through content but through form as well, and will include both intellectual and emotional messages in varying degrees.

Developing Concepts into Design Solutions

Designers are responsible for the development of the creative concepts that express the message. A **concept** is an idea that supports and reinforces communication of key messages by presenting them in interesting, unique, and memorable ways on both intellectual and emotional levels. A good concept provides a framework for design decisions at every stage of development and for every design piece in a brand or ad campaign. An early example of this is the witty and playful ‘think small’ Volkswagen Beetle (VW) advertising campaign of the 1960s. By amplifying the smallness of its car in a ‘big’ car culture, VW was able to create a unique niche in the car market and a strong bond between the VW bug and its audience (see Figure 2.1).



Figure 2.1 Volkswagen Beetle

When you implement solutions, you put concepts into a form that communicates effectively and appropriately. In communication design, form should follow and support function. This means that what you are saying determines how you say it and in turn how it is delivered to your audience. Design is an **iterative** process that builds the content and its details through critiquing the work as it develops. Critiquing regularly keeps the project on point creatively and compositionally. Critiquing and analysis allow you to evaluate the effectiveness of the whole design in relation to the concept and problem. The number of iterations depends on the skill of the designer in developing the content and composition as well as properly evaluating its components in critique. In addition, all of this must occur in the context of understanding the technologies of design and production.

As you begin to build and realize your concepts by developing the content, the elements, and the layouts, you must apply compositional and organizational principles that make sense for the content and support the core concept. Compositional principles are based on psychological principles that describe how human beings process visual information. Designers apply these principles in order to transmit meaning effectively. For example, research has

shown that some kinds of visual elements attract our attention more than others; a designer can apply this knowledge to emphasize certain parts of a layout and give a certain element or message importance. These principles apply to all forms of visual materials, digital media, and print.

When dealing with text, issues of legibility and readability are critical. Designers organize information through the use of formal structures and typographic conventions to make it easier for the viewer to absorb and understand content. The viewer may not consciously see the underlying structures, but will respond positively to the calm clarity good organization brings to the text.

13. 2.2 Design Research and Concept Generation

ALEX HASS

Defining Design Problem Parameters

Many designers define communication design as a problem-solving process. The problem/opportunity is how to deliver information effectively to the desired audience. The process that takes the designer from the initial stages of identifying a communication problem to the final stage of solving it covers a lot of ground, and different models can be used to describe it. Some are very complicated, and some are simple. The following sections break the design problem-solving process into four steps: (1) define, (2) research, (3) develop concepts, and (4) implement solutions.

14. 2.3 Define

ALEX HASS

Step 1: Define the Communication Problem

The inventor Charles Kettering is famously quoted as saying “a problem well-stated is half-solved.”

Clearly the first step in any design activity is to define the communication problem properly. To do this, you will need to meet with clients to establish initial goals and objectives.

Here are some of the questions you should ask:

- What is the business of the client; what products or services does the client offer?
- What are the client’s long-term business goals? (What does the client want its business to have accomplished in 5 or 10 years?)
- What is the purpose of the project? What does the client hope to achieve with it? (The goals of a specific project are usually narrower than overall long-term business goals, but should fit within the larger picture.)
- What are the performance criteria that will be used to evaluate whether project goals are met?
- Who is the target audience?
- What is the client’s message to this audience?
- How does this project fit in with existing corporate materials?
- Does this piece require more than one format or medium?
- What corporate guidelines (if any) must be adhered to?
- Are illustration, photography, or any other special services required?
- Are there any special or unusual considerations around this project?

- What quantity is needed (for print)?
- What distribution method will be used (for print)?
- What is the budget?
- Who will approve the project? Will that person be available for sign-off when required?

Good planning at the beginning can make a project run smoothly and without surprises. Don't assume anything; both the designer and the client should listen closely to each other and ask plenty of questions. Keep in regular communication, document discussions, and ensure that you have written confirmation of decisions.

15. 2.4 Research

ALEX HASS

Step 2: Conduct Research

Gather and analyze information. What else do you need to know? The information you collected in the first stage is just a starting point – now you need to do more research in order to fine-tune your goals and process. Check every assumption, ask more questions, and add detail.

Research practices may involve:

- Competitor analysis: analyzing the competition to see what they do and determine their strengths and weaknesses
- **Ethnographic** research: observing user behaviour and culture
- Site research: observing and understanding the strengths and weaknesses of a space to optimize the effectiveness of the design experience you will be creating; site research is necessary to any design project that is situated in a built environment
- Marketing research: analyzing behaviour in terms of consumer practices, including demographic profiling (grouping people based on variables such as age/income/ethnicity/location to create profiles generally describing their thinking/behaviour)
- User testing: measuring the ability of the product or service to satisfy users' needs
- Co-creation: inviting end-users to **brainstorm** solutions with the design team before the concept phase of design begins

Incorporating Research into the Design Process

Research should be a part of all design process, but what kind of research is done, and who does it, will be determined by the scope and budget of the project. Some information may be publicly available, for example, through corporate publications or previously published marketing studies or market data, but a design company may need to partner with a research firm in order to do targeted in-depth research.

At the very least, design research should include:

- A literature review (gathering and reviewing all existing material that is relevant to your subject)
- Collected details (existing materials, corporate guidelines) of your client's business and the services the client offers
- Information on the **target audience** (What do they want? need? expect?)
- Analysis of competitors (Who are they? how are they different? how are they the same? how do they advertise or make information available?)
- Estimates and technical advice from subcontractors (e.g., printers)

Some things to consider:

- Is a full design audit required? Much like a SWOT analysis, which assesses strengths, weaknesses, opportunities, and threats, a design audit applies the same stringent methodology to analyzing your competitors' visual presence in the marketplace.

A graphic design audit is a fantastic and relatively easy way to get a clear picture of how your competitors are perceived, what key messages they are communicating and how you look when placed alongside them. It's also a valuable

exercise that informs you about the type of communication your customers are receiving on a regular basis from your key competitors. (Clare, 2006)

- What are the implications of the audience profile in relationship to the project goals?
- What is the most appropriate means to communicate with this audience (i.e., what media and marketing tools should you use)?
- How do the goals of this project fit into your client's long-term goals?
- Is your client's message what actually needs to be communicated in order to further the client's business goals?

Research takes time and can cost money, but in the larger picture will save time and money by helping to focus the direction of the design process. It also helps you provide justification for your proposed communication solutions to your client. Remember that all research must be carefully documented and raw sources saved and made available for future reference.

Now that you have gathered all the information, it's time to craft the design problem into a well-defined, succinct statement.

A Problem Well-stated is Half-solved

The writer Mark Levy, in his article [A Problem Well-stated is Half-solved](#), developed six steps you can take to state a design problem so its solutions become clearer:

1. State the problem in a sentence. A single sentence forces you to extract the main problem from a potentially complex situation. An example of a problem statement: "We need to increase revenue by 25%."

2. Make the problem statement into a question. Turning the problem statement into a question opens the mind to possibilities: “How do we increase revenue by 25%?”
3. Restate the question in five ways. If you spin the question from a variety of perspectives, you’ll construct new questions that may provide intriguing answers.
For instance, try asking: “How could we increase revenue by 25% in a month?” “How could we increase it by 25% in an hour?” “How could we increase it by 25% in a minute?” “What could we stop doing that might cause a 25% revenue increase?” “What ways can we use our existing customer base to affect the increase?”
4. Give yourself thinking quotas. An arbitrary production quota gives you a better shot at coming up with something usable, because it keeps you thinking longer and with greater concentration.
When I asked you to “Restate the question five ways,” that was an example of an arbitrary quota. There’s nothing magical about five restatements. In fact, five is low. Ten, or even a hundred, would be far better.
5. Knock your questions. Whatever questions you’ve asked, assume they’re wrong-headed, or that you haven’t taken them far enough.
You might ask, “Why do we need an 25% increase at all? Why not a 5% increase? A 500% increase? A 5,000% increase? What other things in the business might need to change that would be as important as revenue?”
6. Decide upon your new problem-solving question. Based on the thinking you’ve already done, this step may not even be necessary. Often, when you look at your situation from enough angles, solutions pop up without much more effort.

However, if you still need to pick a single question that summarizes your problem, and none seems perfect, force

yourself to choose one that's at least serviceable. Going forward is better than standing still.

Now you can start brainstorming.

Concept Mapping

A good way to begin the process of research and problem definition is to write down everything that you already know about your subject. This brainstorming can be done in a linear way by developing lists, or in a non-linear way, popular with designers, called *concept mapping*. Concept mapping is a non-linear approach that allows a designer to see what is known and what still needs to be researched. Concept mapping is also used to generate concepts and to create associations and themes.

W₅ + I

The first step is to take a sheet of paper and write a central title or topic in the centre. Then surround this central idea with information gathered by answering the following questions, based on the 5 Ws (who, what, where, why, and when), plus one more, how:

- What are you trying to communicate? (the problem)
- Why must communication occur? (what is its purpose?)
- Who is the target audience?
- Where will communication take place? (in what medium and location?)
- When will communication take place?
- How will you implement the concept?
- What if? (what would be ideal?)

Once you've added all the information you have at hand, you will see any assumptions and gaps in that information, and you can begin specific directed research to create a larger, more objective picture.

Here is an example of a concept map (See Figure 2.2). To see a [concept map that details the scope of visual communication](#).

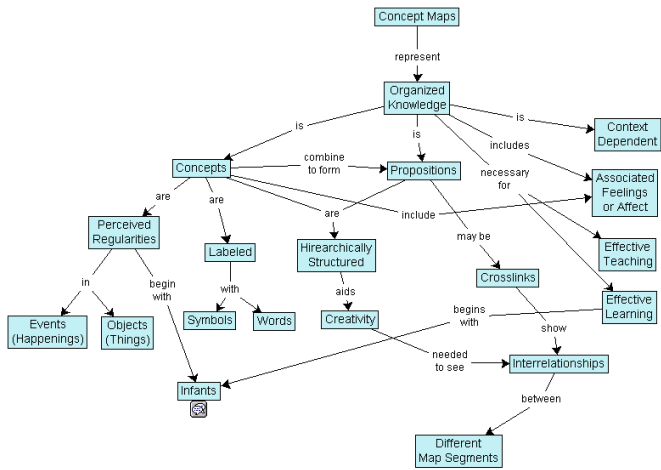


Figure 2.2 Example of a concept map

You can use the information in a concept map to generate other themes and concepts for your project. For example, in the concept map above, you could develop another theme by highlighting in yellow all information from the 1970s. This would reveal the parameters of design practice in the 70s and would additionally reveal what has been added and changed in design practice since.

Text Attributions

[A Problem Well-stated is Half-solved](#) by Mark Levy is used under a [CC BY-NC-ND 3.0 Licence](#).

16. 2.5 Develop Concepts

ALEX HASS

Step 3: Developing Concepts

Concept development is a process of developing ideas to solve specified design problems. The concepts are developed in phases, from formless idea to precise message in an appropriate form with supportive visuals and content. Once you have done your research and understand exactly what you want to achieve and why, you are ready to start working on the actual design. Ideally, you are trying to develop a concept that provides solutions for the design problem, communicates effectively on multiple levels, is unique (different and exciting), and stands out from the materials produced by your client's competitors.

Generate, test, and refine ideas

A good design process is a long process. Designers spend a great deal of time coming up with ideas; editing, revising, and refining them; and then evaluating their results every time they try something. Good design means assessing every concept for effectiveness.

The design process looks roughly like this:

- Generating a concept
- Refining ideas through visual exploration
- Preparing rough layouts detailing design direction(s)
- Setting preliminary specifications for typography and graphic

elements such as photography, illustration, charts or graphs, icons, or symbols

- Presenting design brief and rough layouts for client consideration
- Refining design and comprehensive layouts, if required
- Getting client approval of layouts and text before the next phase

Developing Effective Concepts

A concept is not a message. A concept is an idea that contextualizes a message in interesting, unique, and memorable ways through both form and design content.

A good concept reinforces strategy and brand positioning. It helps to communicate the benefits of the offer and helps with differentiation from the competition. It must be appropriate for the audience, facilitating communication and motivating that audience to take action.

A good concept provides a foundation for making visual design decisions. For example, Nike's basic message, expressed by its tagline, is "Just Do It." The creative concept Nike has used since 1988 has been adapted visually in many ways, but always stays true to the core message by using images of individuals choosing to take action.

"It was a simple thing," Wieden recalls in a 2009 Adweek video interview in which he discusses the effort's genesis. Simplicity is really the secret of all "big ideas," and by extension, great slogans. They must be concisely memorable, yet also suggest something more than their literal meanings. Rather than just putting product notions in people's minds, they must be malleable and open to interpretation, allowing people of all kinds to adapt them as

they see fit, and by doing so, establish a personal connection to the brand (Gianatasio, 2013).

A good concept is creative, but it also must be appropriate. The creativity that helps develop effective, appropriate concepts is what differentiates a designer from a production artist. Very few concepts are up to that standard – but that's what you should always be aiming for.

In 1898, Elias St. Elmo Lewis came up with acronym AIDA for the stages you need to get consumers through in order for them to make a purchase. Modern marketing theory is now more sophisticated, but the acronym also works well to describe what a design needs to do in order to communicate and get people to act.

In order to communicate effectively and motivate your audience, you need to:

A – attract their attention. Your design must attract the attention of your audience. If it doesn't, your message is not connecting and fulfilling its communication intent. Both the concept and the form must stand out.

I – hold their interest. Your design must hold the audience's interest long enough so they can completely absorb the whole communication.

D – create a desire. Your design must make the audience want the product, service, or information.

A – motivate them to take action. Your design must compel the audience to do something related to the product, service, or information.

Your concept works if it makes your audience respond in the above ways.

Generating Ideas and Concepts from Concept Mapping

You can use the information in a concept map to generate additional concepts for your project by reorganizing it. The [concept tree method](#) below comes from the mind-mapping software blog (Frey, 2008)

1. Position your design problem as the central idea of your mind map.
2. Place circles containing your initial concepts for solving the problem around the central topic.
3. Brainstorm related but non-specific concepts, and add them as subtopics for these ideas. All related concepts are relevant. At this stage, every possible concept is valuable and should not be judged.
4. Generate related ideas for each concept you brainstormed in step 3 and add them as subtopics.
5. Repeat steps 3 and 4 until you run out of ideas.

Applying Rhetorical Devices to Concept Mapping

After you have placed all your ideas in the concept map, you can add additional layering to help you refine and explore them further. For example, you can use rhetorical devices to add context to the concepts and make them come alive. **Rhetoric** is the study of effective communication through the use and art of persuasion. Design uses many forms of rhetoric – particularly metaphor. If you applied a metaphor-based approach to each idea in your concept map, you would find many new ways to express your message.

Rhetorical Devices Appropriate for Communication Design

Allusion is an informal and brief reference to a well known person or cultural reference. In the magazine cover linked below, an allusion is used to underline the restrictive nature of the burqa, a full body cloak worn by some Muslim women, by applying it to Sarah Jessica Parker, an actor whose roles are primarily feminist in nature. (Harris, 2013)

Follow the link to see an example: [Marie Claire Cover](#)

Amplification involves the repetition of a concept through words or images, while adding detail to it. This is to emphasize what may not be obvious at first glance. Amplification allows you to expand on an idea to make sure the target audience realizes its importance. (Harris, 2013)

Follow the link to see an example: [Life's too short for the wrong job Marketing Campaign](#)

Analogy compares two similar things in order to explain an otherwise difficult or unfamiliar idea. Analogy draws connections between a new object or idea and an already familiar one. Although related to simile, which tends to employ a more artistic effect, analogy is more practical; explaining a thought process, a line of reasoning, or the abstract in concrete terms. Because of this, analogy may be more insightful. (Harris, 2013)

Follow the link to see an example: [WWF Lungs Before It's Too Late](#)

Hyperbole is counter to understatement. It is a deliberate exaggeration that is presented for emphasis. When used for visual communication, one must be careful to ensure that hyperbole is a clear exaggeration. If hyperbole is limited in its use, and only used occasionally for dramatic effect, then it can be quite attention grabbing.

Follow the link to see an example: [Final Major Project by Mark Studio](#)

Hyperbole can be used to exaggerate one thing to show how it

differs from something to which it is being compared: *This stuff is used motor oil compared to the coffee you make, my love.*

Hyperbole is the most overused rhetorical device in the world (and that is no hyperbole); we are a society of excess and exaggeration. Handle it like dynamite, and do not blow up everything you can find (Harris, 2013).

Metaphor compares two different things by relating to one in the same terms commonly used for the other. Unlike a simile or analogy, metaphor proposes that one thing is another thing, not just that they are similar (Harris, 2013).

Follow the link to see an example: [Ikea Bigger Storage Idea](#)

Metonymy is related to metaphor, where the thing chosen for the metaphorical image is closely related to (but not part of) that with which it is being compared. There is little to distinguish metonymy from synecdoche (as below). Some rhetoricians do not distinguish between the two (Harris, 2013).

Follow the link to see an example: [London Logo](#)

Oxymoron is a paradox presented in two words, in the form of an adjective and noun (“eloquent silence”), or adverb–adjective (“inertly strong”), and is used to impart emphasis, complexity, or wit (Harris, 2013). See Figure 2.3 for another example.

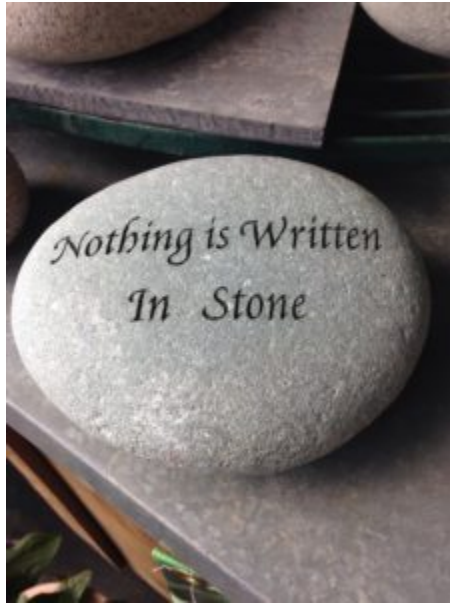


Figure 2.3 Example of an oxymoron

Personification attributes to an animal or inanimate object human characteristics such as form, character, feelings, behaviour, and so on. Ideas and abstractions can also be personified. For example, in the poster series linked below, homeless dogs are placed in environments typical of human homelessness (Harris, 2013).

Follow the link to see an example: [Manchester Dogs' Home Street Life](#)

Simile is a comparison of one thing to another, with the two being similar in at least one way. In formal prose, a simile compares an unfamiliar thing to a familiar thing (an object, event, process, etc.) known to the reader (Harris, 2013).

Follow the link to see an example: [Strong Handle Billboard](#)

Synecdoche is a type of metaphor in which part of something stands for the whole, or the whole stands for a part. It can

encompass many forms such that any portion or quality of a thing is represented by the thing itself, or vice versa (Harris, 2013).

Follow the link to see an example: [A Global Warming Poster](#)

Understatement deliberately expresses a concept or idea with less importance as would be expected. This could be to effect irony, or simply to convey politeness or tact. If the audience is familiar with the facts already, understatement may be employed in order to encourage the readers to draw their own conclusions (Harris, 2013).

Follow the link to see an example: [Nike's Just Do It](#)

An excellent online resource for exploring different rhetorical devices is "[A Handbook of Rhetorical Devices](#)" (Harris, 2013). The definitions above have been paraphrased from this site.

Developmental Stages of Design

No design work should ever be done without going through an iterative development process in which you try out different ideas and visual approaches, compare and evaluate them, and select the best options to proceed with. This applies to both form and content.

The development of the concept starts with brainstorming as wide a range of ideas as possible, and refining them through a number of development stages until you are left with those that solve the communication problem most effectively.

The development of graphic forms starts with exploring a wide range of styles, colours, textures, imagery, and other graphic devices and refining them through development stages until you are left with those that best reinforce the concept and message.

The development process starts with **thumbnails** and works through rough layouts and comprehensives to the final solution. Thumbnails are small, simple hand-drawn sketches, with minimal information. These are intended for the designer's use and, like concept maps, are visuals created for comparison. These are not meant to be shown to clients.

Their uses include:

- Concept development and visualization of ideas
- Preliminary evaluation of content (they allow you to sift and sort ideas quickly and effectively)
- Preliminary evaluation of form (value studies, compositional studies, potential placement of elements)
- Note-taking (a tool to record verbal or visual information quickly and accurately)

Quantity is very important in thumbnails! The idea is to get as many ideas and options down as possible.

Designers typically take one of two approaches when they do thumbnails: they either brainstorm a wide range of ideas without exploring any of them in depth, or they come up with one idea and create many variations of it. If you use only one of these approaches, force yourself to do both. Brainstorm as many ideas as possible, using a mix of words and images. The point here is the quantity of ideas – the more the better. Work fast and don't judge your work yet.

Once you have a lot of ideas, take one you think is good and start exploring it. Try expressing the same idea with different visuals, from different points of view, with different taglines and emotional tones. Make the image the focal point of one variation and the headline the focal point of another. The purpose here is to try as many variations of an idea as possible. The first way of expressing an idea is not necessarily the best way, much like the first pancake is not usually the best.

After you've fully explored one idea, choose another from your brainstorming session and explore it in the same way. Repeat this with every good idea.

Roughs are exactly that – rough renderings of thumbnails that explore the potential of forms, type, composition, and elements of your best concepts. Often a concept is explored through the development of three to five roughs. These are used to determine

exactly how all of the elements will fit together, to provide enough information to make preliminary evaluation possible, and to suggest new directions and approaches.

The rough:

- Uses simple, clean lines and basic colour palettes.
- Accurately renders without much detail (the focus is on design elements, composition, and message)
- Includes all of the visual elements in proper relationship to each other and the page

Comps are created for presenting the final project to the client for evaluation and approval. The comp must provide enough information to make evaluation of your concept possible and to allow final evaluation and proofing of all content.

The comp:

- Is as close as possible to the final form and is usually digital
- May use final materials or preliminary/placeholder content if photographs or illustrations are not yet available

Hand-drawn or Digital?

Comps might be hand-drawn when you are showing a concept for something that doesn't yet exist, such as a product that hasn't been fabricated, a structure that hasn't been built, or to show a photographer how you want material to be laid out in a photograph that has not yet been taken. Although you could create these comps digitally, it's often more cost effective to create a sketch.

Designers sometimes create hand-drawn comps in order to avoid presenting conceptual work that looks too finished to a client, so they will not be locked into a particular approach by the client's expectations.

Even in this digital age, you should draw all thumbnails by hand (using pen, pencil, or tablet) for the following reasons:

- You don't have to make time-wasting decisions that you shouldn't be making at this early stage (e.g., what typeface should I use? what colour should this be?)
- It's much faster than doing it digitally.
- Work done on a computer tends to look finished and professional, and this can trick you into thinking an idea is better than it is.
- The technology of a tool tends to define the way it is used. If you are using a computer, you will tend to come up with solutions that can be executed only on a computer, and that limits your creative options. For example, would you think of creating an illustration from coloured paper if you were using the computer?
- Hand-drawn sketches provide a paper trail that shows your concept development process and can be presented in case studies to reveal your entire design process in a more personal and engaging way.

17. 2.6 Implement Solutions

ALEX HASS

Step 4: Solution Implementation

In this step, we are ready to select the final concept options and carry their application through to completion in producing the final design(s). This part of the process requires that you know how to work with photographers and illustrators, as well as with people in production technologies – primarily, programmers and printers. You may also require project management skills. You should also put a process in place so your final solutions can be evaluated for their effectiveness. Did they work? Did they achieve their goals?

There are many components that require attention during the production phase:

Production and Implementation

- Copy placement and preparation of layouts from approved text
- Liaison with suppliers and subcontractors
- Completion of photography, illustration, charts/graphs, icons/symbols
- Ongoing client liaison for proofreading and corrections
- Scanning and electronic preparation of images (black and white, duotones/tritones, colour); may include colour correction and/or digital manipulation
- Preparation of electronic files in line with press/prepress/web requirements
- Supervision of all prepress materials (final files and proofs)

- Organization, maintenance, and archiving of all digital materials related to the job

Production Supervision

- Discuss production options with client, solicit quotes, and select printer/programmer
- When contract is awarded, liaise with production services to discuss and refine project details
- Prepare or review production specifications
- Liaise with client and production to check proofs
- Oversee production to ensure quality control
- Follow up after production work is complete

Evaluation

Every step of a project should be evaluated in terms of the goals you have defined. Two fundamental questions about every design decision you make are:

- What does this accomplish?
- How does what is accomplished help to meet the project goals?

After the original design challenge has been defined, evaluate every stage of the process in that context. It's surprisingly easy to stray off track when you're designing. If you find yourself designing something brilliant, but it doesn't communicate what it should to the right audience, then all that brilliance is wasted.

Communication

Whether they are in print or multimedia, all design works are intended to communicate to a specific audience, and the design must support that function. All concepts must be evaluated with that end in mind. For example:

- Does the work communicate the key message(s) and support the client's goals?
- Does the work effectively integrate images, design, and text (form and content) to support that communication; create an overall 'look'; make the piece work as a unified whole with no distractions?
- Is the piece physically easy to read and/or understand?
- Do the design choices amplify material (subject matter, mood) in the text?
- Is the piece appropriate to the audience? (children, youth, adults, seniors have particular interests and needs)

Economic Efficiency

- What is possible and most effective within the budget?
- Will this method attract the desired audience/buyer?

Design and Materials

- Are the design choices compatible with technological requirements for production?
- For print materials, is there efficient and economical use of paper?
- Will the materials chosen support the intended use and

method of distribution?

18. 2.7 Summary

ALEX HASS

Communication design can be described as a problem-solving process that can be broken into four steps: (1) define, (2) research, (3) develop concepts, and (4) implement solutions. Research should be a part of all design process determined by the scope and budget of the project. Concept mapping is a non-linear approach that outlines what is known, what is needed, creates associations and themes, and helps generate ideas. Good design takes time that involves generating and assessing concepts. Time is also spent editing, revising, refining, and evaluating ideas.

In conclusion, defining the design process is complicated as it has many stages and involves many steps at each stage. Complicating it further is the reality that every project is unique in its parameters, goals, time period, and participants. This chapter is meant to facilitate the beginning of how you define your individual design process by basing it on general guidelines. If you are still developing an understanding of your personal design strengths and weaknesses, allow extra time for each stage and track your time for each stage. You'll soon discover if you fall into the category of a brainstorming, conceptual, or project development type. Conceptual designers find it easy to develop multiple concepts, but less easy to take the steps to develop them to their full potential. Project development types are the opposite – finding concepts hard to create, but developing projects quite easy. Allow extra time to discover which category you fall into and also to develop strengths in your weaker area. As you gain experience developing design projects, you will start to personalize your design process and be able to estimate how long it takes with a fair degree of accuracy. This will help you to estimate project design costs more accurately and gauge the steps needed to bring a project to a successful conclusion.

Questions to consider after completing this chapter:

1. How does communication design work within the constraints of print and media?
2. How does the creative process relate to strategic problem solving?
3. How is the creative process related to the design process?
4. What are the critical phases of the design process?
5. How does project research help to define a communication problem?
6. What are some examples of brainstorming techniques that generate multiple concepts based on a common message?
7. How does using a rhetorical device generate concepts?
8. How do concepts translate into messages within a visual form?

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PART IV

DESIGN ELEMENTS, DESIGN
PRINCIPLES, AND
COMPOSITIONAL
ORGANIZATION

19. 3.1 Introduction

ALEX HASS

Learning Objectives

- Utilize basic design principles relating to visual composition
- Define design terminology pertaining to form
- Describe organizational systems and core principles for layout grids
- Differentiate between typographic categories
- Establish a visual hierarchy within a layout
- Express ideas using the principles of composition and form

Communication design is essentially the crafting of a message meant for a specific section of the public. This written message is infused with meaningful and relevant visual components. The composition of these components should amplify, clarify, and enhance the message for the viewer. To assist in making sound design choices, a designer applies principles of composition and principles of organization to the design elements selected for a project.

Understanding how to utilize the fundamentals of design elements, principles, and composition is necessary to be able to confidently move through the stages of the design development process and build a project from the initial design brief or creative brief, to the final published design work.

Definitions from various design sources about what comprises a design element are consistent for the most part, but defining design principles is not as consistent and varies from one text to the next. Marvin Bartel's (2012) definitions of these categories are both simple and on point. He defines a visual element as any "basic thing that can be seen," and a design principle as a method for "arranging things better." Also included in this chapter are organizational systems that can focus and direct the overall direction a composition will take.

20. 3.2 Visual Elements — Basic Things That Can be Seen

ALEX HASS

Point, line, and plane are the building blocks of design. From these elements, designers create images, icons, textures, patterns, diagrams, animations, and typographic systems. (Lupton & Phillips, 2014, p. 13)

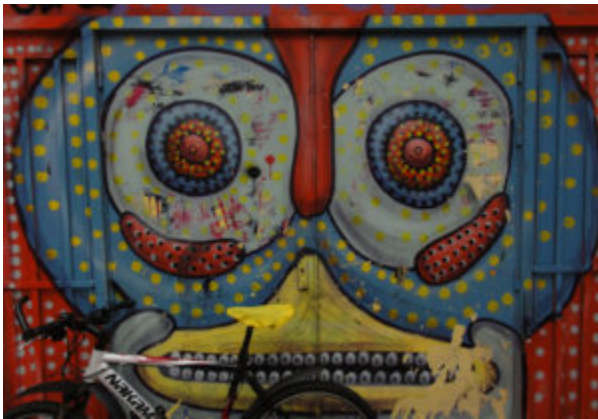


Figure 3.1 Design using points, lines, planes

Point

A point is a precise position or location on a surface. In purely mathematical terms, a point marks a set of coordinates – it has no mass at all. In this objective definition, a point is essentially a place.

Visually, a point is a dot and therefore the basic building block of every variation of line, texture, and plane.

Subjectively, the term *point* has a lot of power. *Point* can direct attention, be the focus of attention, create emphasis, and cut through veiled information. The compositional term *focal point* brings the objective and subjective together by being the first place the eye is drawn to in a composition and usually contains the most important piece of visual communication.

Line



Figure 3.2 Lines (by Ken Jeffery)

A line is the second most basic element of design – a line is a collection of points arranged in a linear manner (see Figure 3.2). A line connects two points, or traces the path of a movement. A line can be actual or implied – for instance, as a composition of two or more objects in a row. Lines in nature act as defining planes

– examples are a horizon or the silhouette of a forest against the sky. Long straight lines do not often occur in nature, and therefore when they are present, they tend to dominate the landscape visually. Natural settings are usually parsed by the eye into shorter sequences of curved or straight lines and organic shapes.

When made by the hand, a line is created by the stroke of a pencil, pen, brush, or any mark-making tool. These lines can be thin or wide, and are expressive and distinct, reflecting the texture of the tool used to make them. Lines can create a plane (a shape) by being clustered together or by defining a shape. If the line is thickened, it changes and becomes a plane. When lines are made digitally, they can acquire many of the same qualities possessed by hand-drawn lines through the application of effects.

Plane



Figure 3.3 Planes

Like lines, planes (shapes) can be organically made or they can be geometric, as in the example shown in Figure 3.3. A plane is a flat surface that has defined borders. “A line closes to become a shape, a bounded plane” (Lupton & Phillips, 2014, p. 38). Planes are excellent compositional tools for clustering visual elements into visual fields. A plane can also act as a separating device and allow the viewer to see that one section of information is not linked to another.

In design software, a vector graphic is a shape created by defining its parameters with a line, and then filling it with a solid or textured fill. Grids help to create and define typographic planes that float or interact with solid planes of image, texture, or colour. In the physical world, everything is composed of shapes that are either

two- or three-dimensional. How you choose to organize and arrange the planes in your photograph, your illustration, or your design will structure the composition and determine not only how the elements intersect with one another but also how the viewer interacts with the composition.

Colour

Figure 3.4 Colours

Graphic design has evolved over the last two centuries from a craft that designed text and images primarily in black and white for books and broadsheets, to a craft that works with full colour in analog and digital media and on every kind of substrate. Controlling and effectively using colour to support communication is now more important than it has ever been. Both media and advertising have become very sophisticated over the last few decades and are adept at creating exciting, sensuous, and energetic environments that are crafted with the skillful use of colour and texture. The public, in turn, has absorbed these unprecedented levels of image saturation with a variety of outcomes. One is an expectation that the visual palette match and enhance the message. A second outcome is a high expectation for strong and authentic visuals of places or objects. A third outcome is a cultural nostalgia for earlier looks created by various devices. Examples like 8-bit graphics or 1950s Kodachrome both possess unique colour and texture palettes and have properties the public can discern. When one of these nostalgic colour palettes is applied to an image, it adds another layer of meaning to the work, and that meaning has to make sense for the viewer.

The explosion of tools for making and sharing digital photography and graphics also reveals how good the general public has become at crafting visuals with relevant atmosphere and texture. The bar has been raised very high with colour use in contemporary times, and understanding colour basics is an absolute necessity.

RGB and CMYK Colour Spaces

Given that design and colour are united in every project, it is important to realize that there are two colour systems, and often a project needs to work in both. Digital media works in the additive colour system, and its primary colours are red, green, and blue (RGB). In this system, the absence of colour equals black, while combining all colours results in white. RGB is the colour system of visible light (see Figure 3.5). This light system is called *additive* because the three primaries together create all the hues in the spectrum.

Subtractive colour is the system needed for print media, and its primary colours are cyan, magenta, yellow, and black (CMYK), as shown in Figure 3.5. In CMYK, the absence of colour equals white, while combining all colours creates black. Both of these systems have many overlapping colours but their colour spheres are not exactly the same. Understanding where the overlaps exist and where they don't correspond is vital to the success of a project. If your print materials cannot be replicated on screen, you will have a major design problem that will have to be corrected. Always choose colours that will work in both systems.

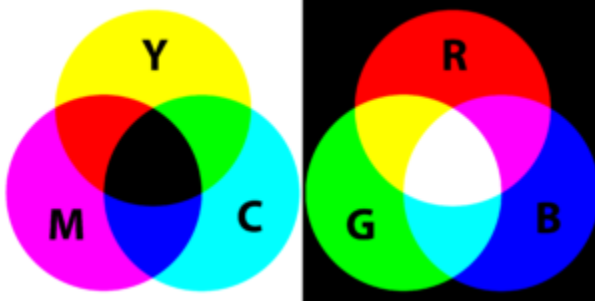


Figure 3.5 Primary colours for the additive and subtractive colour schemes

Environment is another aspect of colour choice that is very important. Both the natural world and the world within the screen vary from moment to moment and screen to screen. Colours are affected and influenced by the amount of atmospheric light available to them as well as by the colours in contact with the object they are viewing. Texture also changes our perception of a colour as does the brightness or darkness around it.

However much a designer hopes to define the parameters of a colour palette, there will always be unknown factors influencing the palette on the viewers' end. Create a palette that is focused enough to create the right atmosphere and energy level for your project, but one that doesn't rely too heavily on a specific colour. Careful, considered colour use will help define a message and create a mood that supports the composition and concept of a design work. Always create a palette that will work with both colour systems and also be robust enough to work in less than optimal environmental circumstances.

Negative Space

Negative space, which is also called *white space*, is the visually quiet area that surrounds the active area of a composition (see Figure 3.6). It is also referred to as figure/ground, and has a very important role in composition as it shapes the visual perception of the subject. Without negative space, there is no positive space – the effect is similar to seeing a polar bear in a snowstorm. Negative space is often thought of as passive and unimportant, but the active elements or ‘figure’ are always perceived in relation to their surroundings by the mind of the viewer. The composition of the negative space frames and presents the active elements in a flat or dynamic way. If the surrounding area is busy with many other elements, the focal point loses its power because the elements all have a similar visual value. The works of Gustav Klimt exhibit this quality.



Figure 3.6 Example of negative or white space

If, on the other hand, the work is balanced and the negative space is active, it brings energy to the form and its space. The focal point or figure increases its visual power because there is contrast for the eye. Another way to look at this is to see that the range or gamut of visual activity is increased and therefore the experience is more satisfying to the eye.

When designers play with reducing or confusing positive and negative space, they create ambiguity. Ambiguity creates tension, which increases the interest of a composition to the viewer and also increases the visual energy of a design. There are three types of figure/ground relationships.

Stable figure/ground is the most common type. The positive element is clearly separate and defined against its negative space. A good example of this is text blocks in magazines or books.

Reversible figure/ground is the second type and is found in most of the work of M.C. Escher. Both the positive and negative space delivers 'active' information that feels equal to the eye and therefore creates a toggling effect in the viewer. One shape is comprehended while the other acts as its negative space, then the opposite happens and the negative space becomes meaningful and its opposite becomes the neutral 'holding' space.

Ambiguous figure/ground creates a confusing lack of focal point. The eye searches for a dominant visual 'starting point' in the composition but can't find one. Often this creates energy, and if the effect is compelling, it invites the viewer to stay with the work for a long period of time, absorbing all of the visual information.



Figure 3.7 FedEx express truck

Designers often utilize figure/ground in the crafting of symbols, wordmarks, and logos because of its capacity to create meaning with the space surrounding a mark. An excellent example of figure/ground is the FedEx wordmark (see Figure 3.7). The negative space needed to define the letterforms also augments their meaning by creating a forward pointing arrow. In print design, negative space can also allude to what is outside the frame and makes the field of the page or poster larger than it physically is. On a static or moving screen, negative space has the ability to change the flow of time, to introduce a break, or to create space around an important point.

Composing strong figure/ground tension is an excellent skill to acquire for designers of any media. Crafting white space eventually becomes as important to a designer as selecting the words and the elements of a project. Composing the negative spaces of a composition will allow you to vary visual emphasis of the elements, and control and increase the visual energy overall.

Texture



Figure 3.8 Example of texture

Texture is a visual and a tactile quality that designers work with (see Figure 3.8). Texture is used both in composition and also on the printed substrate or media space. Designers create textures for their projects with anything at hand. A texture can be made with typography, generated in raster or vector software like Photoshop or Adobe Illustrator, or by using a camera and capturing elements in the material world.

Using texture thoughtfully will enhance a visual experience and amplify the context for the content. Often adding texture adds visual complexity and a bit of visceral depth to a two-dimensional design project. It can also tie one piece of design to another, or become a defining element of a brand or a series of communications.

The tactile aspect of a design work comes into play with the choices we make for the substrate we print on. The surface can be smooth or rough, glossy or matte, thick or thin, translucent or opaque, paper, plastic, concrete, metal, wood, or cloth. Paper

can even have two or more of these qualities if we augment the original look of the paper with layers of varnish that reverse the tactile effect of the substrate. Often the choice of substrate is most effective if it is sympathetic to or contrasts with the concept and content of the piece. The choice of substrate texture affects how the viewer perceives the content – both physically and optically. Glossy substrates often feel sophisticated, hard, and cold. They are imbued with a sense of precision because the ink sits on top of the surface of the paper and retains almost all of its original integrity. A textured matte paper feels organic, accessible, and warm because the ink is partially absorbed by the paper, and is therefore influenced by and fused to its softer characteristics.

Pattern is part of the element of texture, but because of its special ability to hold content that is meaningful, and its long and significant cultural history, it deserves a special mention. All patterns can be reduced to dot and line and are organized by a grid system of some kind. Their ‘flavour’ is a reflection of the culture and time they come from and of the materials that created them. Patterns can be a subtle addition to the content of any design work. A pattern can be created using a relevant graphic (like a logo) or repeated multiple times, or it can support the organizational principles developed by the designer in a decorative way; for example, if a grid is based on the square and the texture of the pattern is also based on the square.

When the pattern is seen as a whole, its individual components melt away and lose their identity to the larger field of the pattern. This ability to focus on a pattern in multiple ways creates a second purpose for the graphic element (such as a circle, a square, a logo, or symbol) the designer has used. In modern design practice, pattern is an opportunity to augment the clean and simple material surfaces we work with and ornament a page or a website with a relevant texture.

Typography



Figure 3.9 *Typography*

Typography is the medium of designers and the most important element we work with (see Figure 3.9). Typography not only carries a message but also imbues a message with visual meaning based on the character of a font, its style, and its composition. Words are meaningful in and of themselves, but the style and composition of words tells a reader you are serious, playful, exciting, or calm. Typography is the tonal equivalent of a voice and can be as personal or as general in flavour.

Typography traditionally has two functions in most design projects. One function is to call attention to or to 'display' the intent of a communication. This function is called titling or display typography and it is meant to call attention to itself. The second function is to present the in-depth details of a communication within a text block. This function requires a different typographic approach – one that is quiet and does not call attention to itself. Instead, it is intended to make the content accessible and easy to read.

Font Categories

There are many ways to categorize and subcategorize type. This overview discusses the seven major historical categories that build on one another. Serif fonts comprise four of these categories: humanist, old style, transitional, and modern. Italics, first designed in the 1500s, have evolved to become part of a font ‘family’ and were at one time a separate category. They were initially designed as independent fonts to be used in small pocket books where space was limited. They were not embraced as text fonts, but were considered valuable for adding emphasis within a roman text and so became part of the set of options and extensions a font possessed. The trajectory of use is the opposite for the sans serif category. Sans serif fonts have historically been used for display only, but in the 20th century, they became associated with the modern aesthetic of clean and simple presentation and have now become very popular for text-block design. Egyptian or slab serif fonts can be used as either display or text depending on the characteristic of the font design.

Blackletter



Figure 3.10 Example of Blackletter type

Blackletter was the medieval model for the first movable types (see Figure 3.10). It is also known as Block, Gothic, Fraktur, or Old English. The look of this font category is heavy and dark. The letterforms are often condensed and put together tightly in a text block creating a dark colour (tone) for a page – between 70% and 80% grey. To put the tone in context, the usual tone of a modern text page is between 55% and 70% grey. The look of the letterforms makes it hard to read the page, because legibility was not their first function as it is today. The beauty of the font and the form of the book was the primary goal for early publications. Books were considered to be objects of wealth and beauty, not solely as a means to convey information.

Humanist

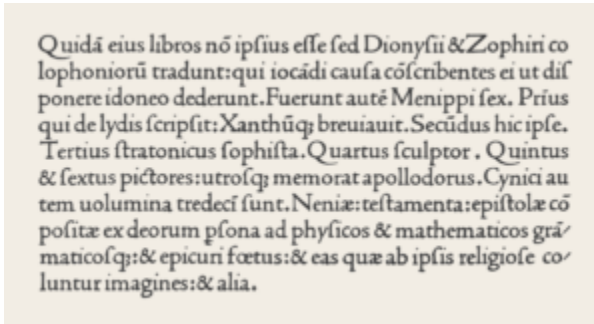


Figure 3.11 Example of Humanist type

Humanist fonts are also referred to as Venetian, because they were developed in and around Venice in the mid-15th century (see Figure 3.11). Their design was modelled on the lighter, open serif letterforms and calligraphy of the Italian humanist writers. The designers strove to replicate many of the characteristics found in this writing style, including multiple variations of a glyph (letterform) that a written document possessed. For instance, a font could have up to 10 different lowercase a's to set a page with. Humanist types were the first roman types. Though they were much easier to read and lighter on the page than blackletter, they still created a visually dark and heavy text block in contrast to the fonts we have become accustomed to. Humanist fonts have little contrast between the thick and thin strokes – the strokes are usually heavy overall. The x-height of a humanist font is small compared to contemporary fonts, and this impedes quick comprehension and legibility. Humanist fonts are not often used for these reasons, though they are well respected because they are the original model so many other fonts are based on. It is important to remember that these fonts were a perfect match to the earliest printing technologies and that those presses could not have printed our light

and delicate fonts. Fonts have evolved alongside the technological advancements of the printing industry.

Examples of humanist fonts include Jenson, Centaur, Verona, Lutetia, Jersey, and Lynton.

Old Style



Figure 3.12 Example of Old Style type

Old style fonts, also known as Garalde fonts, are the next leap in font design, and their stylistic developments were driven by the technological advancement of presses and the improved skills of punchcutters (see Figure 3.12). Font designers began to explore the possibilities of their medium – both the metal of the punches and the abilities of the presses and their papers. The letterforms became

more precise, their serifs more distinct. The contrast of the stroke weights was also increased, and the presses held true to the design and didn't distort them. The aim of these new fonts ceased to be about replicating the look of handwriting and more about refining the letterforms to create a lighter overall tone.

Examples of old style fonts include Goudy Old Style, Granjon, Janson, Palatino, Perpetua, Plantin, and Sabon.

Transitional



Figure 3.13 Example of Transitional type

A few centuries later, font design was again refined, and this time the impetus came from France and the Enlightenment movement. Fonts were created along the rationalist principles of the times. The

strokes were contrasted further with very thick main strokes and very thin sub-strokes, and the serif, which capped the stroke, did not use bracketing (the rounding underneath the intersection of the two strokes). The letterforms took on a look that implied they were constructed mathematically and anchored within a grid. These new fonts broke with humanist and old style tradition and ceased to reference calligraphy.

Examples of transitional fonts include Baskerville, Bookman, Fournier, and Joanna (see Figure 3.13).

Modern



Figure 3.14 Example of Modern type

Modern fonts are also known as Didones and take the contrast

started by the transitional fonts much, much further (see Figure 3.14). Bodoni is an excellent example font as nearly everyone can bring to mind the extreme contrast of its thick and thin strokes. The Frenchman Didot and the Italian Bodoni were the first to bring this design style to the public. Its major attributes align with the Romantic period's aesthetics.

Romantic letters can be extraordinarily beautiful, but they lack the flowing and steady rhythm of the Renaissance forms. It is that rhythm which invites the reader to enter the text and read. The statuesque forms of Romantic letters invite the reader to stand outside and look at the letters instead. (Bringhurst, 2004, p. 130)

The major characteristics of modern fonts are extreme contrast between thick and thin strokes, clean, unbracketed, hairline serifs, and a completely vertical axis. These fonts have an almost mechanical look because of their precise, sharp, and clean appearance. They also possess an elegance that compliments the time period they emerged in. Modern fonts are often used as display fonts and can sometimes be used for text, though very carefully.

Examples of modern fonts include Fenice, Zapf Book, New Caledonia, Bodoni, and Didot.

Egyptian



Figure 3.15 Example of Egyptian type

Egyptian is also known as slab serif, square serif, or mechanical (see Figure 3.15). This category of font was created in England in the 1880s – a design expression of the industrial revolution. The category was named Egyptian because of the popularity of all things Egyptian after Napoleon’s return from a three-year Egyptian expedition. The name of the style has nothing to do with any element of Egyptian culture. The style was created initially for display copy, but over the centuries, fonts like Clarendon have become popular for setting text blocks because they contain the quality of objectivity and yet still feel traditional.

Examples of Egyptian fonts include *Officina Sans* and *Officina Serif*, *Clarendon*, and every typewriter font.

Sans Serif



Figure 3.16 Example of Sans Serif

Sans serif fonts have existed since ancient times, but it was only in the late 19th century that font designers began to consider removing serifs and letting the letterforms stand on their own (see Figure 3.16). These fonts were initially considered appropriate only for titling and display purposes, and only became text fonts in the hands of the 20th-century modernists. The first sans serif forms were created on the early humanist and old style calligraphic forms, but eventually the forms were influenced by objective modernist principles and geometry.

Examples of sans serif fonts include Univers, Helvetica, and Akzidenz-Grotesk.

21. 3.3 Compositional Principles — Strategies for Arranging Things Better

ALEX HASS

We have many words for the frustration we feel when an interface isn't directing us to what we need to know. Loud, messy, cluttered, busy. These words. . . express our feeling of being overwhelmed visually by content on a screen or page. We need them to express how unpleasant a user experience it is to not know where to direct our attention next. (Porter, 2010, para 1)

If everything is equal, nothing stands out. (Bradley, 2011)

The proper composition of visual elements generates not only visual stability, it enhances mood through composition and generates order that prevents visual chaos. Designers use compositional rules in their work to make the reader enter their work and experience a design environment that is calm yet exciting, quiet yet interesting. A magazine designer, for example, creates a grid and applies an order to the typographic elements creating a comprehensible hierarchy. This design system is interpreted in different ways, in pages and spreads, issue after issue. If the organizational system is versatile and planned with thought and depth, it can be used to produce unique and exciting layouts that remain true to the rules determined for the overall system initially designed. Organizational principles create a framework for design without determining the end results.

Compositional rules can be used to generate content as well as organize it. The Bauhaus artist and designer Laszlo Moholy-Nagy created a series of paintings by calling in a set of instructions to

a sign painter using the telephone. Here is his account of the experience, written in 1944:

In 1922 I ordered by telephone from a sign factory five paintings in porcelain enamel. I had the factory's color chart before me and I sketched my paintings on graph paper. At the other end of the telephone, the factory supervisor had the same kind of paper divided in to squares. He took down the dictated shapes in the correct position. (It was like playing chess by correspondence). (Moholy-Nagy, 1947, p. 79)

Designing visual elements into a strong composition is a complex endeavour on its own, but increasingly designers are being asked to create vast compositional systems that other people will implement. Much like Laszlo Moholy-Nagy, designers need to be able to make strong compositional systems and also convey how their systems work, how to apply their rules, and how to apply them so they retain a relevant freshness.

Alignment

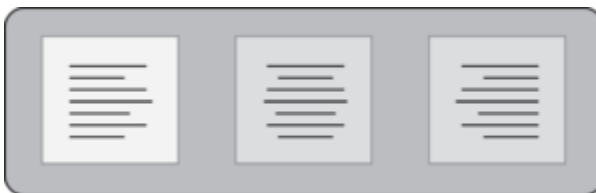


Figure 3.17 Alignment

Alignment refers to lining up the top, bottom, sides, or middle of a text, composition, or grouping of graphic elements on a page. Often a design composition includes a grid where the alignment of

text blocks is dictated by the design of the columns of the grid (see Figure 3.17).

Typographically, horizontal alignment includes flush left (also called left justified or ragged right), flush right (also called right justified or ragged left), centred, and fully justified. Vertical alignment in typography is usually linked to baseline alignment. A baseline grid exists in digital software that is meant for layout of type and is the invisible line where font characters sit.

Contrast

Contrast is a visual device that increases the special character of both elements that have been paired. Contrast assists composition by creating focal points, and adds energy and visual range to a composition. Using contrast enables us to distinguish the qualities of one object by comparing differences with another. Some ways of creating contrast among elements in the design include the use of contrasting colours, sizes, and shapes. Johannes Itten, a design instructor and artist at the Bauhaus focused his research on the concept of contrast in both composition and colour. Itten's list of contrasts can be applied to both the composition and the atmosphere of a design work. His list includes these pairings: large/small, hard/soft, thick/thin, light/heavy, straight/curved, continuous/intermittent, much/little, sweet/sour, pointed/blunt, light/dark, loud/soft, black/white, strong/weak, diagonal/circular. No design makes use of only one kind of contrast, but usually one dominates the others.

Colour Contrast

Johannes Itten also worked with contrast in his seminal theory of colour and determined that there are seven kinds of contrast.

1. *Contrast of hue* occurs when a hue or colour is separated by being outlined in black or white lines. White lines weaken the 'strength' and appearance of the colour and the colours around the white lines seem darker. In contrast, a black line around a colour strengthens the appearance of the colour, while the colours around the black lines appear to be lighter.
2. *Light-dark contrast* is the contrast between light values and dark values.
3. *Cold-warm contrast* refers to the contrast between cool and warm colours. Warm colours are the red, orange, and yellow colours of the colour wheel, while cool colours are blue, green, and purple.
4. *Complementary contrast* is the contrast between colours directly opposite each other on the colour wheel.
5. *Simultaneous contrast* occurs between two colours that are almost complementary. One colour is one section to the left or right of the complementary colour of the other.
6. *Contrast of saturation* refers to the contrast between intense colours and tertiary or muted colors. Muted colours appear duller when placed next to intense colours, and intense colours appear more vivid when next to a muted colour.
7. *Contrast of extension* refers to the contrast between the area of one colour and another. Different areas of one colour are needed to balance another.

For text, contrast is achieved by using varied colours, serif and sans serif, type styles that are not often paired, or type in place of an image. As contrast in elements diminishes, the elements begin to feel similar, and the level of visual interest decreases.

Emphasis

A focal point in a composition draws the eye to it before the eye engages with the rest of the visual information. This is called *emphasis* and is achieved by making a specific element gain the attention of the eye. Emphasis is created in graphic design by making only one focal point and clearly emphasizing it by placing the elements on the page in positions where the eye is naturally drawn to the proper entry into the work. Designers rely on additional compositional principles to support the hierarchy of a composition such as contrast, repetition, or movement.

Designers use emphasis to assist viewers in identifying the relative importance of each element in a composition. Emphasis is strongly linked to visual hierarchy. Both emphasis and visual hierarchy create order for the viewer, allowing the eye to see the first element of importance, then the second, then the third, and so on. Graphic elements gain or lose emphasis by changing in size, visual intensity, colour, complexity, uniqueness, placement on the page, and relationship to other elements.

Movement



Figure 3.18 Example of movement

Movement is made by creating visual instability – like motion in a photograph that blurs the image, as shown in the example in Figure 3.18. Creating the illusion of movement photographically or artistically is not difficult because a blur translates into movement in the mind of the viewer. However, it is not the only option for a designer. A composition can also achieve movement if the graphic elements are arranged in a way that directs the eye to move in a specific direction – usually by creating a diagonal that takes the eye up to the right corner (forward motion) or down to the left corner (backward motion). Movement can also be created using overlapping planes that imply depth and distance by becoming progressively smaller and lighter in tone (mimicking depth). Using

typography as a visual medium is also an option. Overlapping the text blocks and/or sentences effectively creates both depth and movement (though it destroys legibility). David Carson is a designer who often uses this technique to create movement in his work.

Scale

Varying scale (size) is one of the major tools in the designer's toolbox. Changing scale is important on two levels. The first is purely compositional – a composition needs variety in the size of its elements to be dynamic and effective. If all the elements have the same visual weight, the composition will be flat. Another aspect to varied scale is conceptual. If a design visually distorts the size relation of one element to another, the viewer is instantly engaged in discovering why. This is a great method to engage the viewer and add a twist to the message embedded in the design. A great example of this is the ['think small' ad campaign](#) of the 1960s for Volkswagen Beetle.

The series is witty and engaging and plays on how we perceive size. This distortion is witty and playful, and presents smallness as desirable. Subtle scale differences do not make much visual impact, but large ones are very dramatic. The concept and context of a project should determine the relationship of scale differences for a composition. Large differences in scale are suited to dramatic and energetic design content, while smaller differences in scale are appropriate for professional and institutional content.

Proximity and the Gestalt Theory of Visual Relationships

Proximity of elements is part of Gestalt theory, which is a framework of spatial relationships developed in the 1920s by the German psychologists Max Wertheimer, Wolfgang Kohler, and Kurt Koffka. The term Gestalt means *unified whole*, and points to the underlying conceptual structure of this framework. Gestalt works because the mind seeks to organize visual information. A composition created using Gestalt principles predetermines how each of the elements within it interacts with the others spatially. In this system of relationships, close proximity of objects, regardless of shape, size, or content, indicates a connection. There are six basic Gestalt principles: (1) similarity, (2) continuation, (3) closure, (4) proximity, (5) figure/ground, and (6) symmetry and order.

Similarity

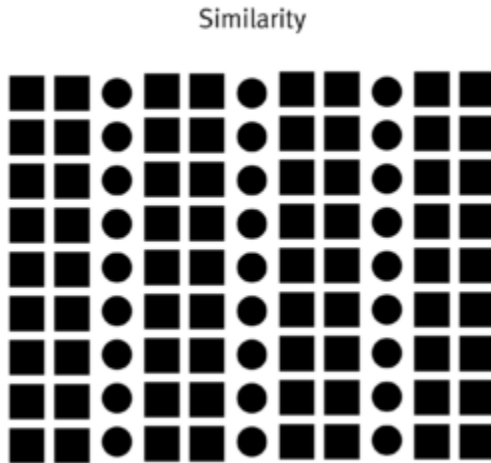


Figure 3.19 Similarity

When visual elements have a similar shape or look as one another, a viewer will often connect the discrete components and see a pattern or grouping (see Figure 3.19). This effect can be used to create a single illustration, image, or message from a series of separate elements. Similarity of medium, shape, size, colour, or texture will trigger a sense of similarity. The sense of grouping will be strengthened or weakened by increasing or decreasing the commonality of the individual elements.

Continuation

Continuity

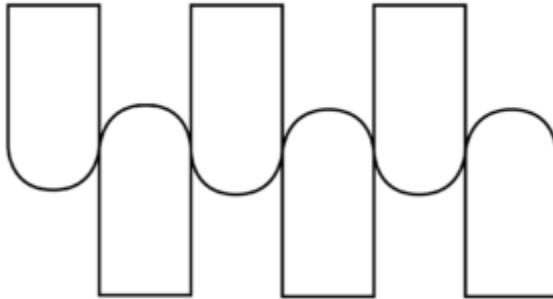


Figure 3.20 Continuity

Continuity is the tendency of the mind to see a single continuous line of connection rather than discrete components (see Figure 3.20). The eye is drawn along a path, line, or curve, as long as there is enough proximity between objects to do so. This tendency can be used to point toward another element in the composition, or to draw the eye around a composition. The eye will continue along the path or direction suggested by the composition even when the composition ends, continuing beyond the page dimensions.

Closure



Figure 3.21 Closure

Closure is a design technique that uses the mind's tendency to complete incomplete shapes (see Figure 3.21). The principle works if the viewer is given enough visual information to perceive a complete shape in the negative space. In essence, the mind 'closes' a form, object, or composition. In the example above, the triangle is formed by the viewer's mind, which wants to close the shape formed by the gaps and spaces of the adjacent circles and lines. The partial triangle, outlined in black also hints at the missing shape.

Proximity



Figure 3.22 Proximity

Proximity is an arrangement of elements that creates an association or relationship between them (see Figure 3.22). If individual elements are similar, they will probably be perceived first as a whole and second as discrete components. If, like the example above, some of the components form to create a large ‘whole,’ similar elements positioned away from the main shape will also be associated with the large shape. In this case, the viewer interprets them as falling off or away from the main shape. The shapes used do not have to be geometric to create the effect of proximity. Any components have a strong commonality in shape, colour, texture, size, or other visual attribute can achieve proximity. Proximity can

also be achieved with dissimilar shapes and textures if cleverly and conceptually composed.

Figure/Ground

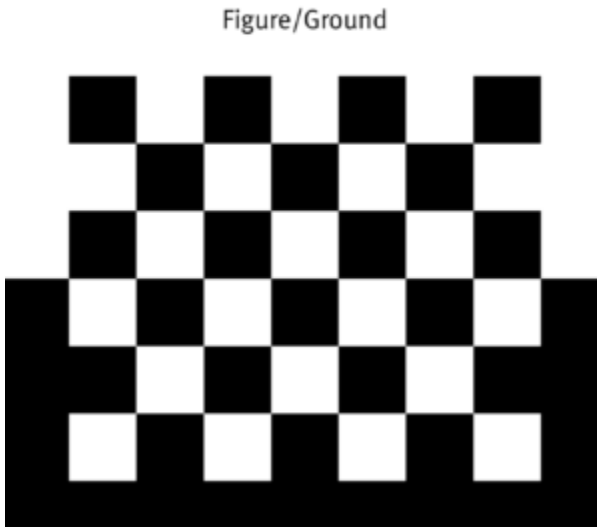


Figure 3.23 *Figure/Ground*

Figure/ground was discussed earlier, but it is part of Gestalt theory, so we present it here again. This principle describes the mind's tendency to see as two different planes of focus, information in both positive and negative space (see Figure 3.23). It works if those spaces are suggestive enough in their composition.

Symmetry and Order

Symmetry



Figure 3.24 Symmetry

Symmetry and order follow the premise that a composition should not create a sense of disorder or imbalance (see Figure 3.24), because the viewer will waste time trying to mentally reorder it rather than focus on the embedded content. The photographic example in Figure 3.25 is composed symmetrically and allows the viewer to concentrate on the figure in the centre. Achieving symmetry in a composition also gives the composition balance and a feeling of harmony.



Figure 3.25 Example of symmetry and order

Rhythm

Rhythm is integral to the pacing of a design composition and is also necessary for creating a pattern, as used in the example in Figure 3.26. The pacing of a repeating motif or element at regular or irregular intervals within a design determines the energetic quality of a composition; it also creates a consistent and unifying backdrop for the introduction of new elements.

Rhythm is the effect produced in a magazine or book by varying the placement of elements within the grid structure. The changes in the density of elements and visual tones of the spreads translate into a rhythmic visual energy as the energy of each page grows or shrinks. Rhythm is the glue that connects one page to the next;

it reveals recurrent themes and creates movement, tension, and emotional value in the content. When viewers understand the rhythm of a book, a magazine, or a website, they will also appreciate the variations that break with or punctuate the rhythm and create interest, change, or tension.



Figure 3.26 Example of rhythm

Repetition

Repetition creates visual consistency in page designs or in visual identities, such as using the same style of headline, the same style of initial capitals, and the same set of elements, or repeating the same basic layout from one page to another (see Figure 3.27).

Excessive repetition, however, creates monotony. This usually leads to viewer boredom and dull, uninteresting compositions for the designer. Be sure to create a design system that allows the

repetitions within it to be lively and interesting page after page. The example above uses a simple set of rules, but because the rules allow for colour and compositional changes, each discrete component is as interesting on its own as it is within the whole. If you cannot avoid excessive repetitions, try to add some visual breaks and white spaces where the eyes can rest for a while.



Figure 3.27 Example of repetition

Balance

Balance and symmetry are important design qualities because they are deeply embedded in human DNA. Because our bodies are symmetrical, we have a strong association and satisfaction with centred, symmetrical design. Balancing visual elements compositionally calms the tensions and grounds the design (see Figure 3.28). This is important if you wish to convey a sense of

stability to the viewer. When we look at a design, we use our innate sense of what constitutes 'right balance' to assess its stability. If that stability is missing, we feel tension, which can counteract the core of the message. Centred design compositions work very well for stable, security-inspiring content, but what about content that demands attention, or tension, or excitement?

When a centred (or stable) composition is not desirable, developing an asymmetrical composition is the best strategy. Asymmetry has been explored in graphic design for the last 150 years, and designers continue to discover new strategies that feel fresh. Asymmetry has no empirical rules but is guided by balancing the distribution of main elements around the space of a composition in an unexpected way. Contrast and counterpoint are the main tools of composition in asymmetry – large shapes balance small ones; intense colours balance neutrals. Creating asymmetrical design is not easy because there are no firm rules to follow, but it is exciting to create and exciting to see for exactly the same reason.



Figure 3.28 Example of balance

rules of visual structure. It is important to match the structure of the composition to the needs of the project.

Typographic hierarchy is very important in design. A body of text is made more comprehensible by imposing order through a system of titles, subtitles, sections, and subsections. Hierarchy is created when the levels of the hierarchy are clear and distinguishable from one another. Subtle signs of difference are not effective. Typography acts as a tonal voice for the viewer, and must create clear variation in tone, pitch, and melody.

Hierarchy is usually created using similarity and contrast. Similar elements have equality in typographic hierarchy. Dominant and subordinate roles are assigned to elements when there is enough contrast between them. The bigger and darker an element is, the more importance it has. Smaller and lighter sizes and tones imply lesser importance.

Every hierarchy has a most important level and a least important level. The elements that fall between the two are ranked according to size and position. However, if you subdivide the text with too many levels, the contrast between different levels will blur their differences in the hierarchical order.

A good strategy to follow with text design is to apply three levels of typographic hierarchy.

Title

The function of a title is to attract the reader to the content of the text block. Often, the title is visually 'flavourful' and possesses a strong visual dynamic and energy.

Subtitle

Second-level typography gives the reader the ability to distinguish between types of information within the text block. This level of type includes subheads, pull quotes, captions, and anything else that can help detail and support understanding of the text-block information.

Text block

The text block is the content. As opposed to the ‘display’ function of the title and subtitle, the function of the text block is to make the content legible and easy to digest visually. Readers should be able to decide if they want to read this level based on primary (title) and secondary (subtitle) type levels.

Typically, a typographic hierarchy will convey information from general to specific as it progresses from title to text block. The general points presented in the title will be the most important and will be seen by most everyone. Think of how a newspaper is scanned for interesting news items: If readers are interested in the title, they may choose to read more detailed and in-depth information in the associated text block.

22. 3.4 Organizational Principles

ALEX HASS

Compositional organization is complex, but even more so when applied to typography. Typography is a complicated medium to work with as it contains two levels of information (display and content), and requires its components to be read in proper sequence with proper emphasis, good legibility, and strong contrast to the substrate. Many elements need to be organized to allow the reader a seamless experience when reading the content. Designing with type requires adept handling of the hierarchy, refining and designing the display elements for focal emphasis and also refining the quiet details of the text block so it sits perfectly and quietly in its space.

Think of these organizational systems as 'large picture' constraints. Constraints (rules) allow a designer to focus on the other aspects of a project. Designers make myriad decisions about concept, style, visuals, form, font, size, spacing, colour, placement, proportion, relationships, and materials. When some factors are determined in advance, the designer is able to spend time with the other parts of the project. A well-defined constraint can free up the thought process by taking some decisions off the table. The following eight organizational systems cover composition for type (but can also be applied to general composition), including the traditional ordering system of the grid.

Grid

A grid is a network of lines that structure the placement of elements and create relationships between them. A grid divides a design space into vertical and horizontal divisions. The grid is a bridge between a design rationale and the beginning of implementation for each project, converting a concept into a structured space. It is an exceptional tool for composing, arranging, and organizing every kind of visual element. The grid usually works invisibly in the background, but it can become an active, visible element as well. Designers use grids in a variety of ways. They can be very disciplined about adhering to their grid structure from the beginning of a project, or use it as a starting point for composition and order.

Grid systems create a formal composition in comparison to more casual compositional approaches like transitional or random structures. Grids are often used in publication and web design because they introduce consistency and guide hierarchy. Consistent margins and columns create an underlying structure that unifies the multiple pages of a document or website, and makes the layout process more efficient.

The plan for the grid comes from the content and concept of the design project. The objective in creating a grid is to set up the relationships between elements in a way that stays true to the concept. For instance, if your publication is a book of poetry, the grid must have generous amounts of negative space and generous leading. If, on the other hand, your publication is a daily newspaper, the spacing relationships cannot be so generous, and have to clearly show which article relates to which image. Hierarchy of information must be very clear as well, and should reveal which news item is most important and which is least important. A well-made grid will naturally allow the designer generous scope for variation in image style, text size, and graphic style. Often, a grid that is complex allows for some freedom where the designer can introduce a new element or effect.

A grid activates the entire surface of a project by making all of it available for active elements. It helps create both stable symmetrical and dynamic asymmetrical compositions. By breaking down space into smaller units, grids encourage designers to leave some areas open rather than fill up the whole page.

Types of Grids

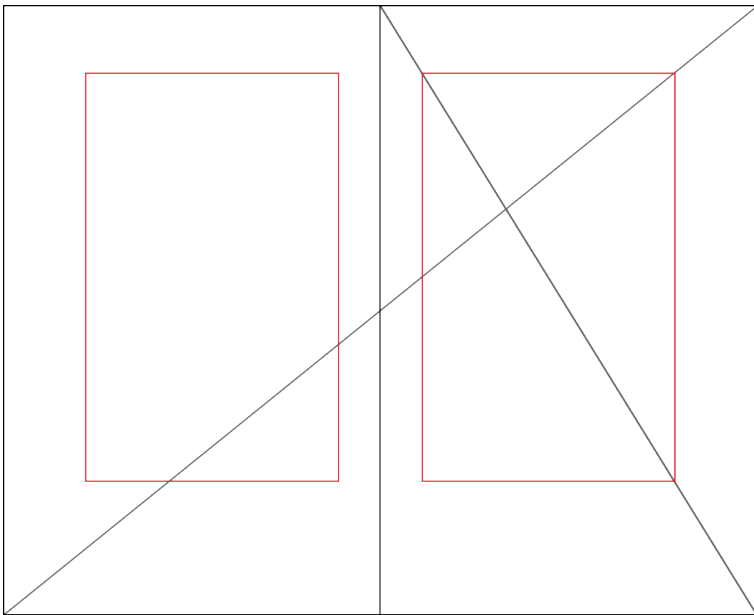


Figure 3.30 The golden section

The golden section is also known as the golden ratio, golden mean, or divine proportion, and it is found in mathematics, geometry, life, and the universe – its applications are limitless (see Figure 3.30)

The golden section is a ratio – a relationship between two

numbers – that has been applied as an organizational system in art, design, and architecture for centuries. Expressed numerically, the ratio for the golden section is 1 : 1.618. The formula for the golden section is $a : b = b : (a+b)$. In other words, side a is to side b as side b is to the sum of both sides.

Graphic designers use the golden section to create grids and layouts for websites and books. Photographers use it to compose the focal point of an image and also to compose the elements found in an image.

Single-Column Grid



Figure 3.31 Single-column grid

A single-column grid is an excellent approach if the content a designer is working with is formatted in a simple manner (see Figure 3.31). Content that is appropriate for a single-column grid consists of main text for the text block, a few levels of display type, possibly some images, and finally page numbers.

The main column of this style of grid must sit properly on the page, held in place by the negative space that surrounds it. To determine the right amount of negative space on the top, bottom, and sides of the page, a designer usually considers facing pages as a spread. In books and magazines, the two-page spread, not the individual page, is the main unit of design. The designer determines the right amount of negative space on the top and bottom, gutter (inside margin), and outside edge. The spread is often symmetrical, and the pages mirror one another.

Multi-Column Grid



Figure 3.32 Multi-column grid

When a designer creates a grid for a document that is complicated, he or she may use multi-column grids because they allow for a complex hierarchy and provide more options for integrating text and visuals (see Figure 3.32). The more columns you create, the more flexible your grid will be. You can use the grid to articulate the hierarchy of the publication by creating zones for different kinds of content. The columns act as visual units that can be combined or kept separate. A photo can span several columns or be reduced to the width of only one. A text can also occupy a single column or span several.

Hang Lines



<p>Grid Systems</p>			 <p><i>The main column of this page of grid must be properly on the page by being held in place by the negative space that surrounds it.</i></p>
<p><i>A grid activates the entire surface of a project by making all of it available for active elements.</i></p>	<p>A grid is a network of lines that structure the placement of elements and create relationships between them. A grid divides a design space into vertical and horizontal divisions. The grid is a bridge between a design rationale and the beginning of implementation for each project, converting a concept into a structured plan. It is an exceptional tool for composing, arranging and organizing every kind of visual element. The grid usually works invisibly in the background, but it can become an active, visible element as well. Designers use grids in a variety of ways. They can be very disciplined about adhering to their grid structure from the beginning of a project, or use them as a starting point for composition and order.</p> <p>Grid systems create a formal composition in comparison to more casual compositional approaches like transitional or random structures. Grids are often used in publication and web design because they introduce consistency and guide hierarchy. Consistent margins and columns create an underlying structure that unifies the multiple pages of a document or website and makes the layout process more efficient.</p> <p>The plan for the grid comes from the content and concept of the design project. The objective in creating a grid is to set up the relationships between elements in a way that</p>	<p><i>A grid activates the entire surface of a project by making all of it available for active elements. It helps create both stable symmetrical and dynamic asymmetrical compositions.</i></p> <p><i>By breaking down space into smaller units, grids encourage designers to leave some areas open rather than filling up the whole page.</i></p>	<p>stays true to the concept. For instance, if your publication is a book of poetry the grid must have generous amounts of negative space and generous leading. On the other hand, your publication is a daily newspaper, the spacing relationships cannot be so generous and have to clearly show which article relates to which image. Hierarchy of information must be very clear as well and should reveal which news item is most important and which is least important. A well-made grid will naturally allow the designer a generous scope of variation in image size and placement, graphic style and variation. Often a grid that is complex allows for some freedom where the designer can introduce a new element or effect.</p> <p>A grid activates the entire surface of a project by making all of it available for active elements. It helps create both stable symmetrical and dynamic asymmetrical compositions. By breaking down space into smaller units, grids encourage designers to leave some areas open rather than filling up the whole page.</p> <p>A single column grid is an excellent approach if the content a designer is working with is formatted in a simple manner. Content that is appropriate for a single column grid would consist of a main text for the text block, a few levels of display type, possibly images and finally page numbers. The</p>

Figure 3.33 Hang lines

In addition to creating vertical columns in a grid, you can also divide the page horizontally. Often, a designer determines the placement of hang lines (see Figure 3.33) by applying the rule of thirds

(breaking up the horizontal plane into three equal parts). This compartmentalization allows the designer to reserve certain sections for images and others for the text block.

Modular Grid

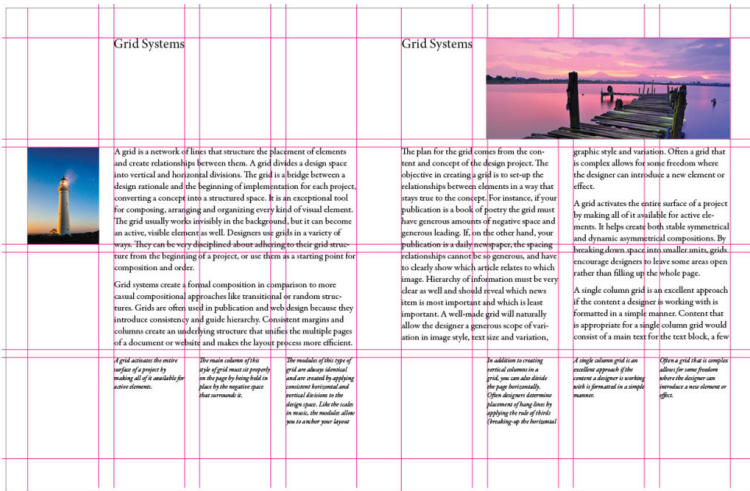


Figure 3.34 Modular grid

The modules of this type of grid are always identical and are created by applying consistent horizontal and vertical divisions to the design space. Like the written notes in a musical score, the modules allow you to anchor your layout elements and typography to a specific rhythm. With a modular grid, the horizontal guidelines are tied to the baseline grid that governs the whole document. Baseline grids serve to anchor most of the elements to a common leading (typographic line spacing). See Figure 3.34.

Baseline Grid

A baseline grid is the horizontal grid that determines where all of the type will sit. You can also use it to determine the placement and edges of your visual and graphic elements. To create a baseline grid, determine the right font, size, and leading for your text block, then go to your baseline grid settings (found with the other grid preferences) and change the baseline grid default (usually 12 pt) to the leading you will be using in your text block.

Axial

The axial system has a simple premise – all elements are arranged on either side of an axis or line. You can centre the axis itself in the composition or, for a more energetic asymmetrical composition, place the axis off centre to either the right or left. This compositional strategy creates a dynamic negative space on the opposite side. To create a more complex composition, designers often employ an axial system combined with another – like the radial or dilatational system (see below). They may also use double-axis compositions with the axes either parallel to each other, or intersecting to create a strong focal point. There are many instances of the axial system in nature – tree trunks, roots, and vines are good examples. Like these organic examples, an axis does not need to be a straight line – it can be curved, zigzag, or circular.

Modular

Modular organization is a compositional method that utilizes rigour

(by constraining the shape) and freedom from structure (modules can be any size and placed anywhere in the space). Modules can also be uniform and contained within a structure (a grid). A module is a fixed element used within a larger system or structure. For example, a pixel is a module that builds a digital image.

Bilateral

The bilateral system is based on mirrored symmetry and is therefore both classic and ubiquitous. Because of its predictability, it is a challenge for designers to work with. Nature exhibits many examples of bilateral composition – the bodies of mammals, the points of a snowflake, and the fractal symmetry of plants are all quickly understood, appreciated, and then dismissed by the viewer. To create a composition based on the bilateral system, a designer must make some part of the composition unusual. The designer can achieve this by moving the axis to a diagonal, off-centre location, which allows the negative space on either side of the bilateral composition to be varied. A second method is to introduce a double axis: the designer uses two columns of bilateral information and varies the size of each.

Radial

The radial system takes its name from the sun – all elements are arranged like rays coming from a central focal point. This is a dynamic compositional strategy as it references dynamic action. Examples of the radial form from the natural world, such as explosions, flowers, spiders, stars, and so on, are all exciting and dynamic. Much like it is difficult to handle the natural objects,

reproducing a radial composition is not that easy. There are problems with legibility unless type is very carefully placed and scaled. Every line of type starts and ends in a different place, so continuity is also hard to control. For example, a designer may take a traditional approach so the text reads from top to bottom, or an inverse approach so the text reads from bottom to top. Arranging the text on either side of centre may also be effective. It is important to try placing the type in different positions and in different relationships until it works with the composition and is easy to read.

As in the organizational systems we have discussed, designers can add radial points for a more complex composition or combine a radial system with one that adds stability, such as a grid, axial, or modular system.

Dilatational

Dilatational systems mimic the look of still water when a pebble is dropped into it, creating rings of greater and greater size as they move away from the centre. Like the radial system, this composition has a strong focal point, but unlike the radial system, the composition creates rings, not rays, that expand from the centre. Other examples of this system are the iris of the eye or representations of sound waves.

Random/Spontaneous

Creating a composition that does not follow any compositional principle is not as easy as it sounds. Finding examples of randomness is also one of the most difficult exercises for design students. Random design does not follow any rule, method,

direction, or pattern. If a project calls for randomness, it is best to start with materials that are conducive to spontaneity like Jackson Pollock's paint throws. Allow the elements that fall to organize themselves naturally – eventually, a dynamic and fresh composition should emerge. Random compositions exhibit visual qualities that are not patterned, aligned, or horizontal. Instead, they tend toward compositions that exhibit overlapping, cropping, angling, and textures.

Transitional

The transitional typographic system is defined by the layering of lines of text into informal textured planes and shifting tonal bands. The shapes and bands created with this layering approach are not aligned with one another, and create an overall organic atmosphere. This visual approach is often used in Post Modern design where the clear legibility of text is not as important as the visual atmosphere of the design. Text planes in Post Modernist works point the viewer to the main theme of the message rather than articulate the message in clean, concise text arrangements.

Compositions using the transitional approach have a light, airy look that abstractly imply cloud formations or wood grain patterns rather than solid concrete shapes created by using the grid or axial systems. A transitional composition has lively and active negative space, and can create an excellent ground for a vital focal point if it is in sharp contrast to the rest of the composition.

Attributions

Figure 3.32

Image includes: [Photo](#) by [Stefanus Martanto Setyo Husodo](#) used

under a [CC0 license](#) and [Cape Nelson Lighthouse, Portland, Australia](#) by [Joshua Hibbert](#) used under a [CC0 license](#).

Figure 3.33

Image includes: [Photo](#) by [Stefanus Martanto Setyo Husodo](#) used under a [CC0 license](#) and [Cape Nelson Lighthouse, Portland, Australia](#) by [Joshua Hibbert](#) used under a [CC0 license](#).

Figure 3.34

Image includes: [Photo](#) by [Stefanus Martanto Setyo Husodo](#) used under a [CC0 license](#) and [Cape Nelson Lighthouse, Portland, Australia](#) by [Joshua Hibbert](#) used under a [CC0 license](#).

23. 3.5 Summary

ALEX HASS

Exploring the design possibilities that the organizational systems discussed in this chapter possess is an endless undertaking. Once these systems are innately understood individually, a designer can begin to play with layering two systems within one design project. Combining contrasting systems often works well. For instance, an axial system combined with a radial system tempers the axial system's linear focus and anchors and diffuses the rays emanating from the radial shapes. A grid combined with a dilatation system gives the composition both vertical and horizontal structure that is softened by the rounded shapes. Organizational systems give the designer ways to distribute words or images within a structure while allowing negative space into the centre of the design space.

Compositional strategies are design constraints. The definition of a design constraint is to apply or impose limitations on the elements or design of a system. The compositional strategies (systems) discussed above are in fact design constraints, and they should be understood as parameters that assist the designer in the design process rather than as restraints that limit the designer's creativity. Parameters are necessary in every visual system. Applying a visual organizational system also allows the designer to focus on the message and the details of a design project rather than on the structure of the composition that holds the work together. Visual systems create visual unity.

Questions to consider after completing this chapter:

1. Name the design principle that distorts realistic relationships for visual effect and emphasis.
2. Name the three building blocks of design that pertain to form.
3. Describe the eight organizational systems that apply to typography.
4. What are two typographic categories?
5. How many levels of visual hierarchy are needed for hierarchy to exist?

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Suggested Readings

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PART V

ACC CHAPTER 1: THE METAPHOR OF USING GRAPHICS APPLICATIONS

Download Materials for Chapter 1

[Click here to download the chapter 1 work files](#)

You will use the file Egon_Schiele_009.jpg to begin the last exercise in Chapter 1. You can also download the final Adobe Illustrator file to see how we completed it. Download the chapter 1 work files and view the completed example “ch1-ourfinalfile.ai”.

Screencast for Chapter 1



A YouTube element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/designandproductionforpr/?p=696>

View this video (14.38min) for a digital walk-through of the Chapter exercises 1-4. Information is presented that is not in the content shown below. Tips and tricks are also presented on working with color, shapes, layers and more. Reference is made to Adobe Creative Suite version 6 (CS6) but the information still applies to the current Adobe Creative Cloud version.

Visual References



“NACA High Speed Flight Station “Computer” Room: Early “computers” at work, summer 1949.” by [NASA on The Commons](#) is in the Public Domain

 NASA Dryden Flight Research Center Photo Collection
<http://www.dfrc.nasa.gov/gallery/photo/index.html>
NASA Photo: E49-54 Date: 1949
NACA High Speed Flight Station “Computer Room”

Metaphor

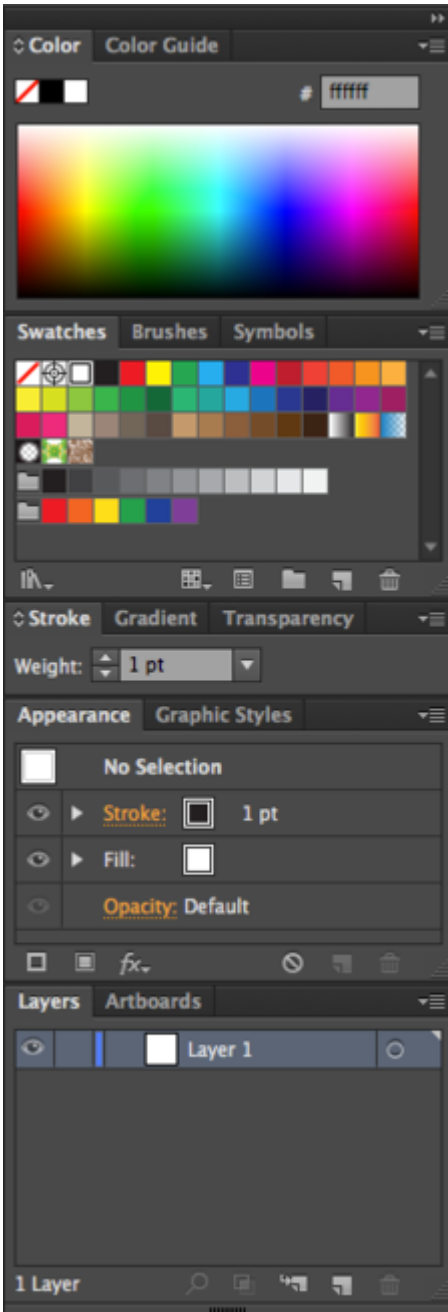
Computer software interfaces are built on metaphors. These metaphors link the digital interface to real life tools and processes.

An operating system is software that we use to operate the computer. The operating systems we encounter most often are Mac OS, Windows, or Linux. These operating systems use graphical interfaces to enable us to create, move, and delete files, and use other software to edit the contents of those files.

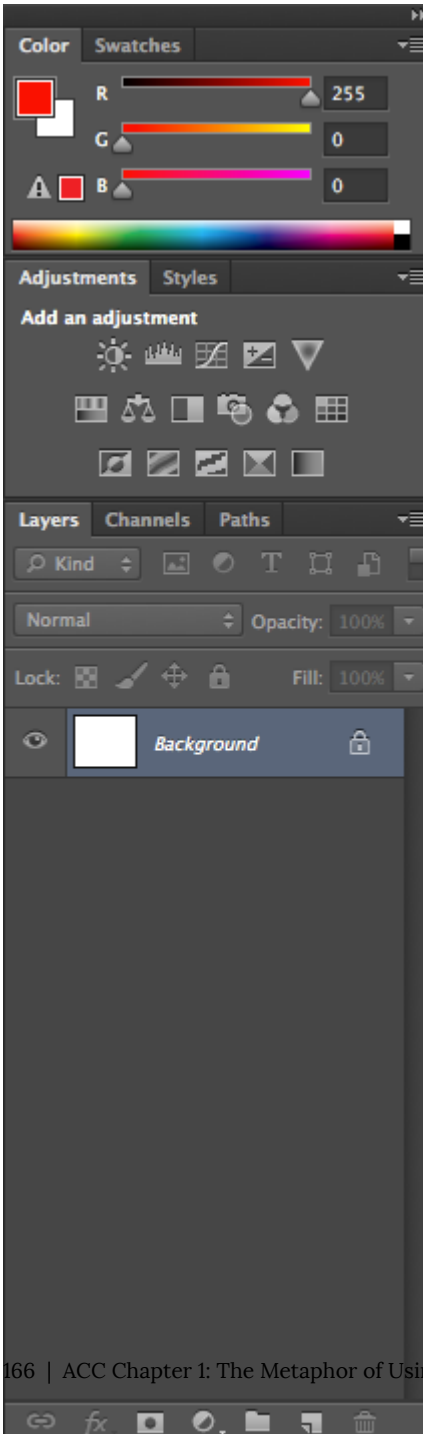
Regardless of the operating system you are using, most share a few central metaphors such as document, folder, file system, and desktop. Before today’s so-called “paperless office,” office workers created documents on paper, filed them in folders, and organized the folders in cabinets near their desks. The most important or

current project folders might have been sitting on their desktops. Of course the original paper system persists alongside the computerized system, as well as in the computer's metaphorical structure.

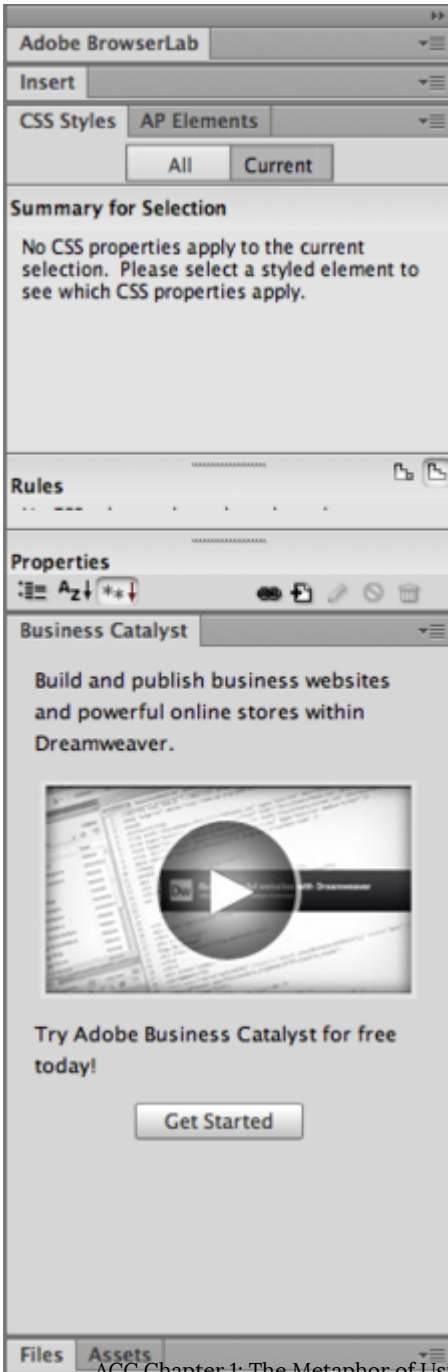
If the operating system is like your home office, design software is like your studio. The metaphors of design software are built around the tools of the artist and designer: pencils, brushes, palettes, artboards, and photographic equipment. These tools do what you would expect: pencils make hard-edged lines, brushes make hard and soft-edged areas of color, colors are mixed in the Color panel.



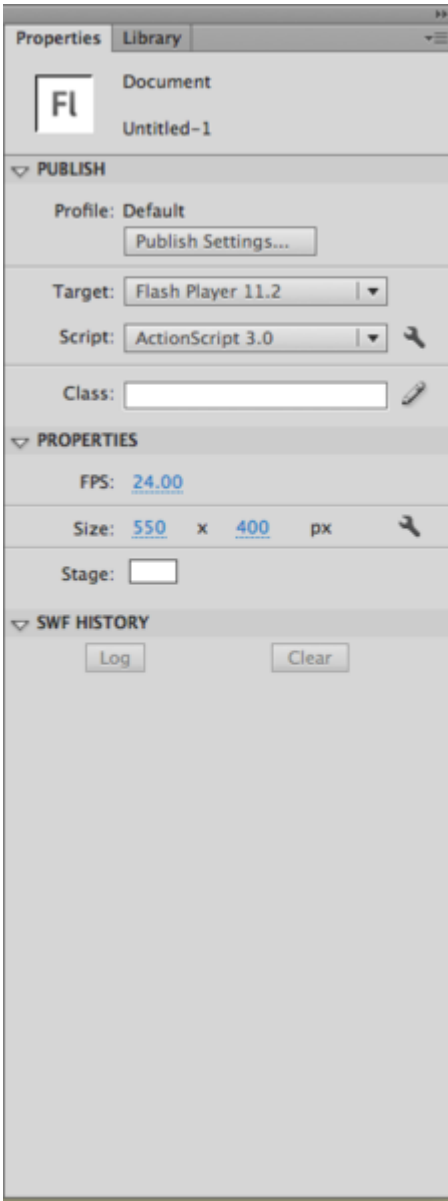
A look at the Adobe panels. Starting at the top: Illustrator Panel



Adobe
Photoshop
Panel



Dreamweaver panel. The panels are located to the right of your workspace.



Flash panel.
Panel choices
will depend
on your
Workspace
setting.

These metaphors are consistent across the graphical interfaces of operating systems and design applications. For example, the panels and the tools look and behave in the same way – despite subtle application differences – in Adobe’s Illustrator, Photoshop, InDesign, Dreamweaver, and Flash. Learning the metaphors and similarities among these application interfaces will be one of the fastest routes to mastering the tools.

1.1 Exercise 1: Working with files and folders

XTINE BURROUGH AND MICHAEL MANDIBERG

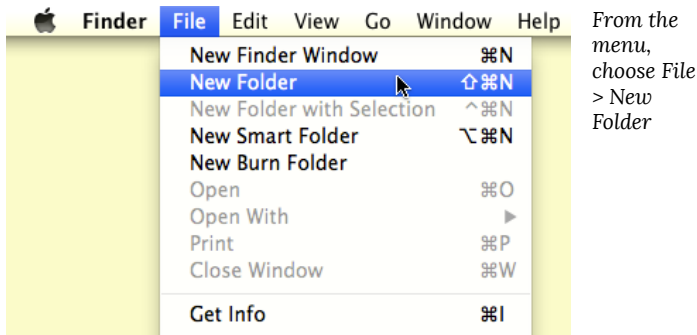
Results of Chapter 1 Exercises 1-4:



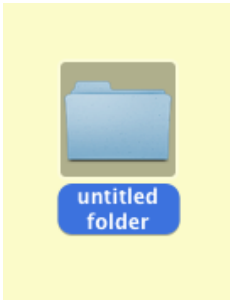
In the final Chapter 1 exercise you will create a dynamic composition using the Rectangle tool in Adobe® Illustrator®.

Create a new folder

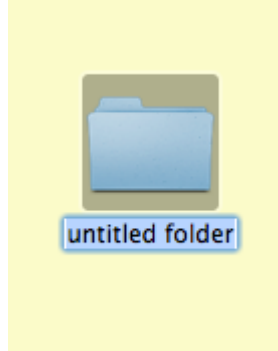
1. To create a new folder on your computer, navigate to the place where you want your new folder to reside (for instance, the Desktop), and from the menu, choose File > New Folder. Most computer users typically store folders in the Documents folder or on the Desktop or in a designated folder on their Desktop. As soon as you create a new folder, the operating system temporarily names it untitled folder. As long as you do not click outside of the folder name, the name area remains highlighted in blue, and is ready for you to type a new name. We named ours digital_foundations and pressed the Return key.



2. If you clicked somewhere on the Desktop after creating the new folder, it may seem like you are stuck with a folder named “untitled folder”. All folders can be renamed. To rename a folder, click once on the folder to select it, pause, and then either click on the name of the folder or press Return. Once the name is highlighted, you can type on top of the original name to replace it. We renamed our folder digital_foundations.



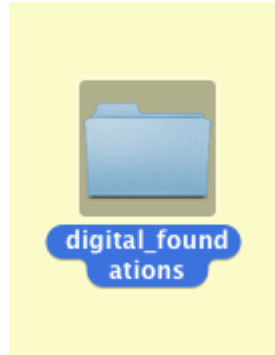
Ne
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Select
the
folder,
pause
and
click
on it
again

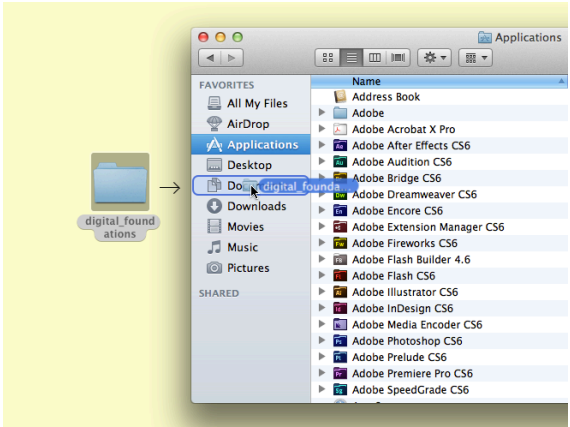


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3. Move the new `digital_foundations` folder you just created to the Documents folder by clicking and dragging it from the Desktop into the Documents folder. To open the **'Finder'** window click on any clear area of your desktop. Notice the menu bar at the top of the screen will change to Finder. The **Finder** is the default file manager and graphical user interface shell used on all Macintosh operating systems. It is what allows you to manage files, applications and drives.



Move your folder to the Documents folder

Delete a file

4. Next we will review three ways to delete a file or folder. Choose one method and delete the new folder you just created. The metaphorical trash or recycle bin appears in most computer operating systems. To delete a document in Mac OS, drag it onto the Trash icon on the Dock.



There are three ways to delete a file or folder.

Another way to move an item to the trash is by selecting the item and pressing Command+Delete. The Command (, ⌘) keys are located directly to the left and right of the spacebar. They are used in most keyboard shortcuts in Mac OS, much like the Control key is used in Windows.

Contextual menus provide yet another way to delete a file. The contextual menus appear by right-clicking the mouse. If your mouse has only one button, Control+click accesses the contextual menu. Contextual menu options change depending on the context in which you click. If you right-click on a folder, you will see a list of actions that can be performed on that folder. This menu is different from the menu that would appear if you right-clicked on a file instead. To delete an item using

the contextual menu, right-click on the file and select Move to Trash from the contextual menu.

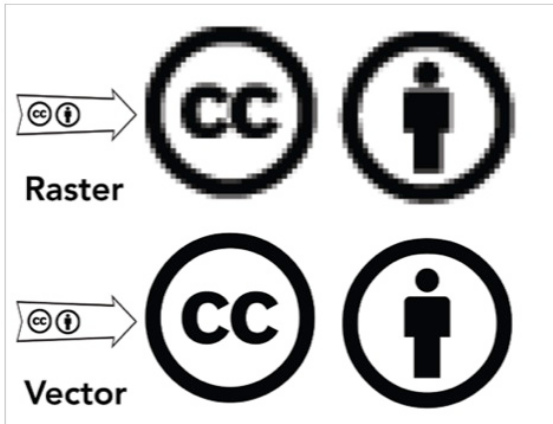
It is important to remember that there is almost always more than one way to complete any given task. The best method is usually the one that fits most efficiently within your personal work habits.

Files: vector vs. bitmap Computer graphics are created in one of two formats: vector and or bitmap. Computer files containing these graphics may contain vectors, bitmaps, or both, as we will explore in chapters 6 and 11.

Vector graphics are created by using mathematical algorithms: formulas that describe where points, lines, and planes exist and how these elements relate to one another. Vector graphics can be scaled up to any size and retain their smooth edges. Vector graphics look smooth and crisp at their edges, and they can be easily scaled to any size. Logos are nearly always developed as vector graphics, as a logo has to fit easily on a business card, a website, and possibly a billboard or bus wrapping.

Illustrator® is the application most often used to create and modify vector images.

Bitmap or raster graphics are built from grids of pixels. Each tiny pixel contains a unit of color information. Bitmaps are used for digital photography and scanned images. Bitmap files are not as easily scalable as vector graphics.



Bitmap or raster graphics are built from grids of pixels. Each tiny pixel contains a unit of color information. Bitmaps are used for digital photography and scanned images. Bitmap files are not as easily scalable as vector graphics.

In the top and bottom images we “zoomed in” on the same logo to 700%. This means we are viewing the images at 7 times their actual sizes. If you enlarge a raster image too much, the pixel grid becomes visible to the human eye. The only possible compensation is to blur the edges. Either way, enlarging a pixel-based image results in loss of quality. Vector images don’t have this limitation. On the other hand, extremely complex vector images take an excessive amount of computer processing power. The top image is a raster; it is easy to see the individual pixels that comprise the digital logo as tiny squares of color. In the bottom image, the logo has been created in the vector-based application, Illustrator®. Notice that the edges of the lines, letters and figure are still rendered as smooth lines.

1.2 Exercise 2: Creating a new file in Adobe Illustrator

XTINE BURROUGH AND MICHAEL MANDIBERG

Launch the Application

1. In Mac OS, move the mouse to the bottom of the screen so that it appears over the dock. The dock displays icons that are buttons which launch various applications in one click. Click on the Illustrator® icon once and the application will open. If the icon is not in the dock, you can find the application in Macintosh HD/ Applications / Adobe Illustrator or Finder > Menu > Go > Applications > Adobe Illustrator. In Windows OS it is in Start > Programs > Adobe > Adobe Illustrator CC.



The dock may be on the left, right, or bottom of the screen, and it may be hiding. Move the cursor to the edge of the screen and it will appear. To change the Dock settings, choose the Apple menu > System Preferences, then click Dock.

Define a new file

2. Open Adobe® Illustrator®. To create a new document click File > New.

When defining a new file, several settings must be taken into consideration. When you choose a new print document (as opposed, say, a new video document), Illustrator® loads some of the default settings – file resolution, document sizes, and so on – appropriate to that particular type of file. In the New Document dialog box, choose Letter from the Size pull-down menu. Letter (8.5 by 11 inches) is a common document size for print media. When we chose a new print document, the Size pull-down menu loaded standard sizes for the medium. If we selected a Web profile, the Size pull-down menu would have loaded standard settings for web design. Click OK.

A dialog box is an interface that pops up when the computer needs information in order to complete a task. To highlight the metaphor, the computer needs to have a conversation with you, hence the word “dialog.” For instance the software needs specific information before creating a new document, such as the size, units, etc. Keep in mind that the dialog box asks questions that must be answered by clicking “OK” or “Cancel” before continuing work on the document.

The blank page and your tools

Look around your new document and notice the interface

elements. In the center is an Artboard. Analog layouts were created inside the area defined by cropmarks drawn on a board, which was referred to as the Artboard. Illustrator® reproduces the analog experience through metaphor. On the left side of the document area is the Tools panel. Like an artist's or designer's toolbox, the Tools panel holds pens, pencils, brushes, shape tools, and so on.

On the right are more panels. Take notice of the Color panel. Painters mix together individual paint colors on a palette. In Illustrator®, as in the other Adobe® Creative Cloud® applications, you create colors by virtually mixing colors in a panel (read more about this in Chapter 5). The tools and panel can be moved around the screen, and they can be hidden or shown based on the amount of workspace on the monitor.

3. Show the Layers panel by clicking Window > Layers, then hide the Layers panel by pressing the layers icon on the right side toolbar. Alternately, any panel can be shown or hidden by selecting its name from the Window menu. After quitting and then re-opening a program, panels will assume the same locations as when the application was last closed. This can be a time-saver on a personal computer, but it can be an annoyance in a classroom or lab when the previous user's custom panel configuration appears confusing. Most applications have basic or default workspaces. Reset the workspace layout in Illustrator® by clicking Window > Workspace > [Essential] or by using the pull-down menu on the Application bar. Before starting each of the exercises, set the workspace to the essential or basic settings so that your set-up is consistent with the settings we used while writing this book.

1.3 Exercise 3: Creating a dynamic composition

XTINE BURROUGH AND MICHAEL MANDIBERG



The Poet,
1911, Egon
Schiele, oil
on canvas.
[https://com
mons.wikime
dia.org/
wiki/
File:Egon_Sc
hiele_009.jp
g](https://commons.wikimedia.org/wiki/File:Egon_Schiele_009.jpg)

Compositions can be static or dynamic. In this exercise, we will recreate the dynamic movement found within a painting. Dynamic compositions are full of energy or movement. Angles are used to create motion. While a flat horizon line is at rest, a triangle is in motion. The repetition of even spacing is easy on the eye, as our minds predict the simple rhythm of an evenly spaced grid. Angles and uneven spacing between objects causes our eyes to move back and forth. This physical movement translates into the perception of movement within a composition. Use the Schiele painting as the

guideline for your dynamic composition with rectangles. The final composition could be like this image, if yours is based on the Schiele painting:



Example of a completed image. Use your own color palette!

1. In Illustrator®, click on the Rectangle tool from the Tools panel. Click and drag to draw a rectangle on the page.
2. Once the rectangle is created, release the mouse and click on the Selection tool. Objects can only be modified when they are selected. The Selection tool is used to select an object in order to move, scale, or copy it. Click on the rectangle with the Selection tool. Notice that the selected rectangle has square anchor points on each corner and at the midpoint of each line.

These anchor points are essential components of the vector art. They determine the contours of the shape by their position in relationship to each other. A rectangle is described by a path that turns at right angles through four anchor points to create four sides and meet itself to close the shape. To deselect the object, click on the Artboard in any area outside of the rectangle.

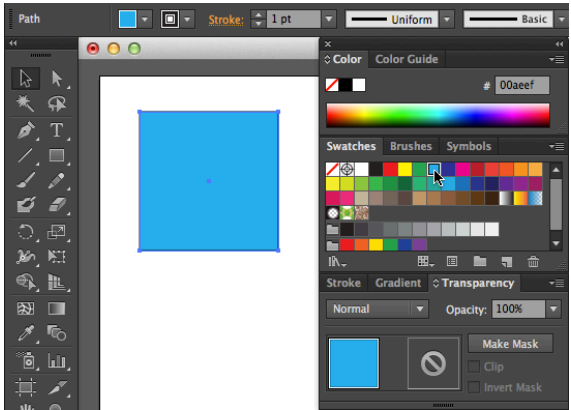
Notice that a tool tip shows up when the mouse hovers over a tool. The tool tip displays the name of the tool and the keyboard shortcut. This is true in most graphics applications.

3. With the rectangle selected, notice how the shape is made. The rectangle is an area filled with color and there may or may not be a line surrounding the edges. The interior color is called the fill. The outline is called the stroke. White and black are the default color settings for fill and stroke.
4. Look at the bottom of the Tools panel and notice what color is loaded in the Fill icon and what color is loaded into the Stroke icon. The Fill and Stroke icons stack with the active target on the top. To change the fill, it needs to be the top icon.



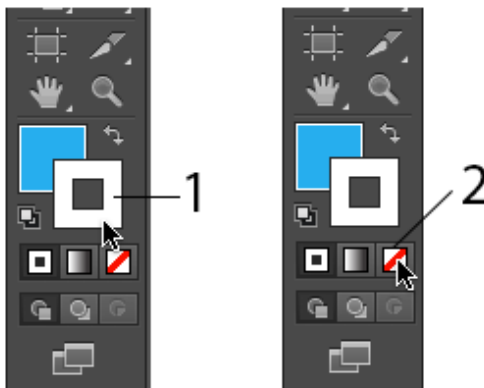
The fill and stroke tool are located at the bottom of the Tools panel

- While the rectangle is still selected, click once on the fill icon to reposition it on top of the stroke.
- Click on the Swatches panel, then click on any color. It is assigned to the fill area of the rectangle and it also appears as the color in the fill icon. The rectangle will change because it was selected before a new color was applied.



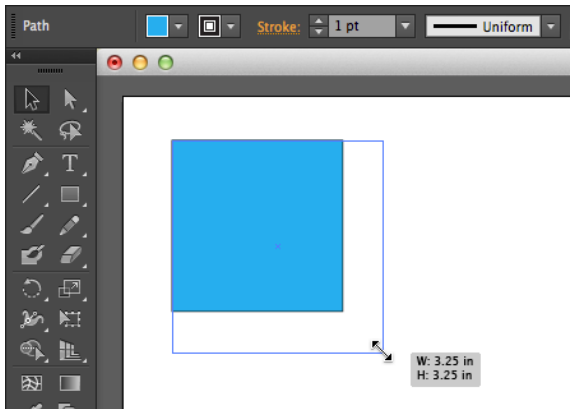
Close up of the Workspace and the Color Panel

- Click on the Stroke icon to position it on top of fill.



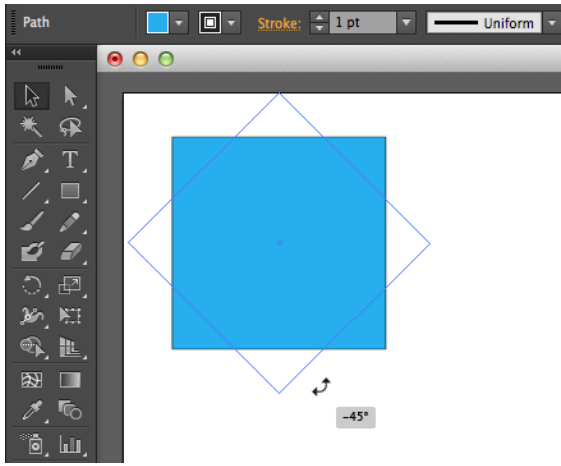
Click on Stroke Icon then click on the "None" icon.

8. Click on the “None” icon. This symbol, beneath the fill and stroke icons, is a white square with a red diagonal line. Clicking this will remove the stroke from the rectangle.
9. With the Selection tool, scale or rotate the rectangle. Scale the rectangle by clicking on an anchor point and dragging toward or away from its center.



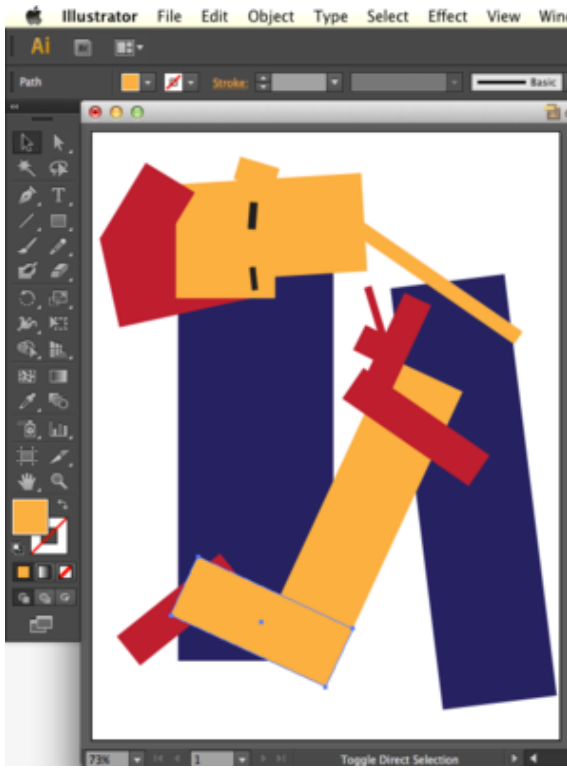
Using the Selection tool by clicking on an anchor point

To rotate the rectangle, position the Selection tool just outside one of the four anchor points at the corners. Don't click yet. Notice that the cursor changes from the usual Selection tool icon (straight, black arrow) to a curved arrow. The curved arrow indicates that you can rotate the selection. When you see the curved arrow, click and drag outside of the rectangle to the right or left in order to rotate the rectangle.

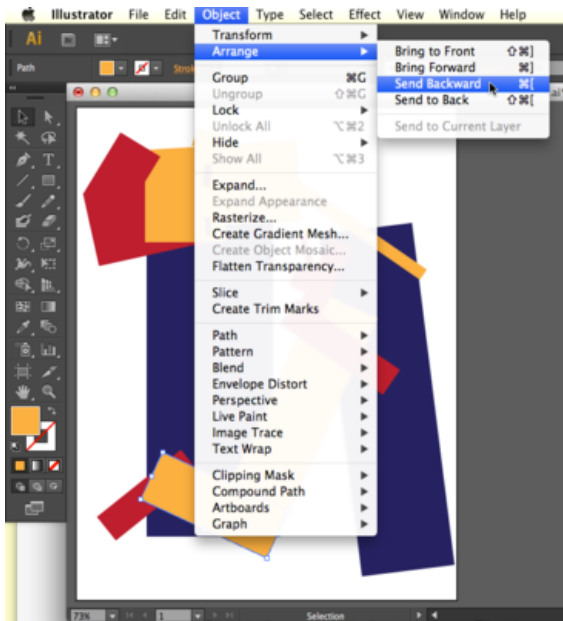


Shapes can also be rotated via the Object > Transform > Rotate menu or with the Rotate Tool in the Tools panel.

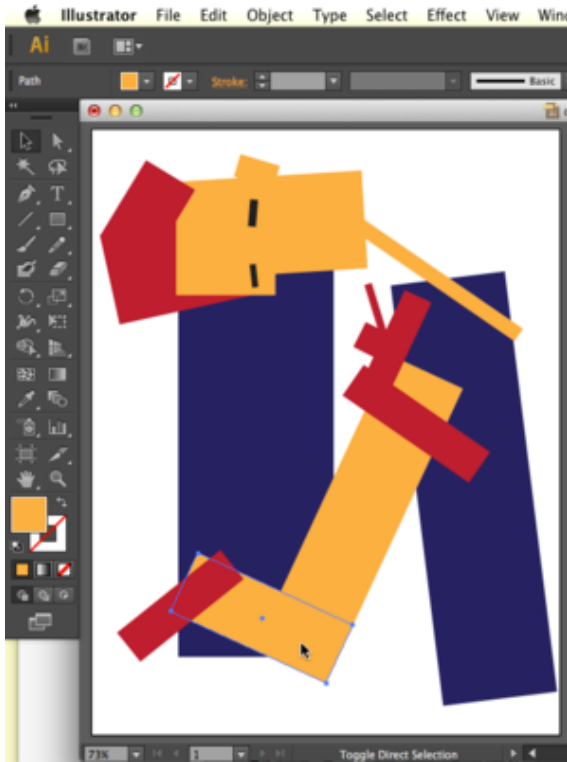
10. When the first rectangle is complete (with the color, scale, and rotation of your choosing), deselect the rectangle by clicking on the Artboard. Notice that the anchor points are no longer highlighted.
11. Use the Rectangle tool to begin the process again. Once a rectangle is made and modified, use the Selection tool to reposition it to the right, left, or on top of the other rectangle. Recreate the composition with up to 15 shapes. You should feel comfortable creating a shape and changing its fill and stroke colors.
12. Arrange the rectangles so that they can be seen as one dynamic composition. Notice that as you create and position each rectangle, they appear stacked on top of each other. While you are creating this composition you may want a rectangle to be “sent behind” another rectangle. Select the top rectangle with the Selection tool, then click Object > Arrange > Send Backward.



*Positioning
the
rectangles
to create
one image*

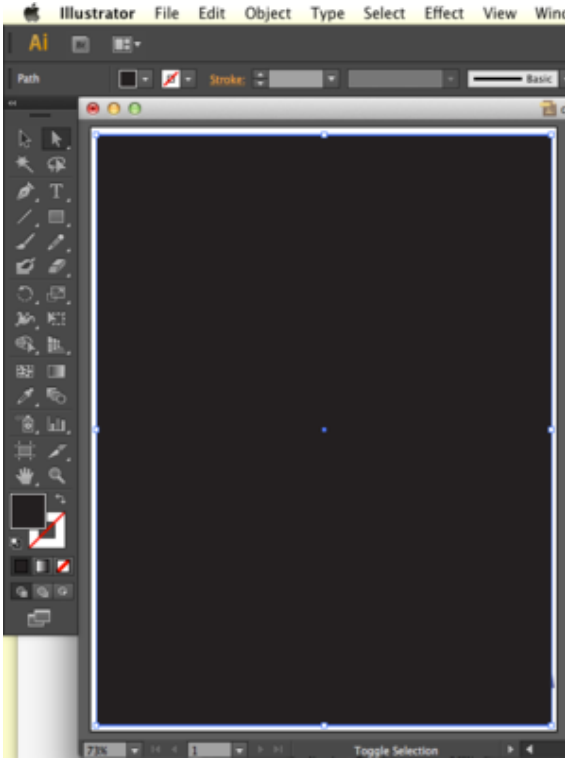


Sending the selection backward (behind) other rectangles

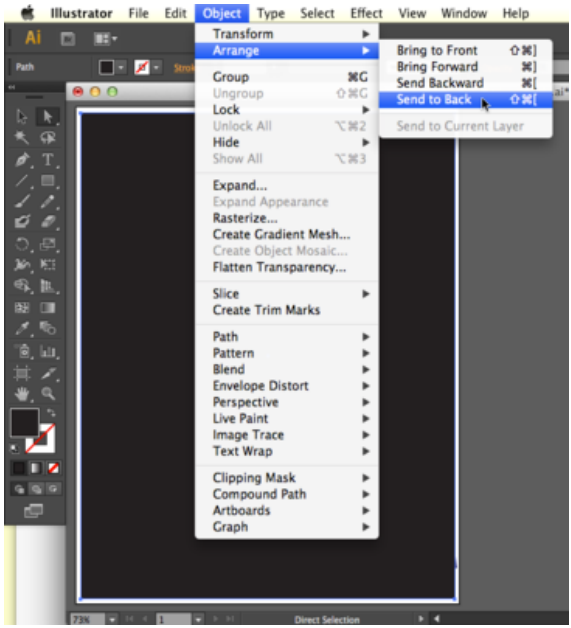


The image after Send Backward performed

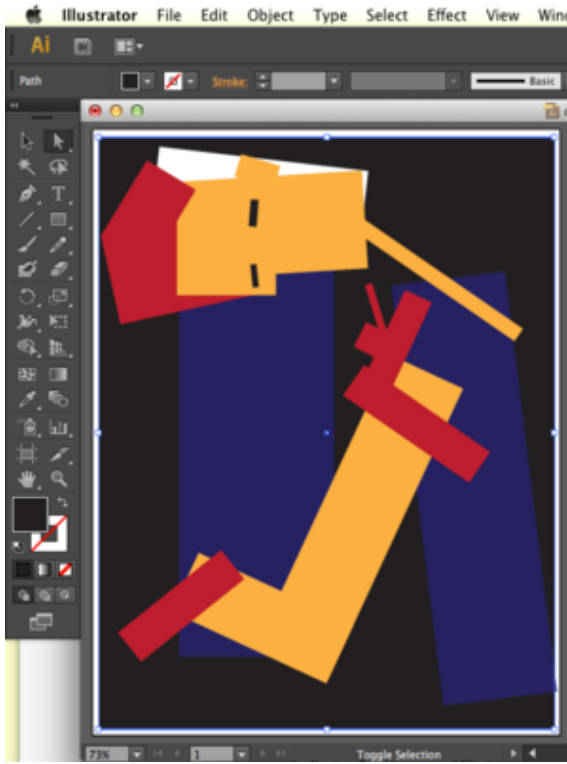
13. Shapes such as your rectangles can be sent backward repeatedly, or brought forward. Find these commands in Object > Arrange. Any art object can be positioned using these menu items. Finally, while art objects are sent backward or brought forward one at a time (through as many levels of stacking order as there are objects), they can also be sent all the way to the back of the composition or brought all the way to the front of the composition using Object > Arrange. In this image, a large black rectangle was sent all the way to the back of the composition after most of the dynamic composition was already made.



*Creating a
black
background*



Sending the black background to the back



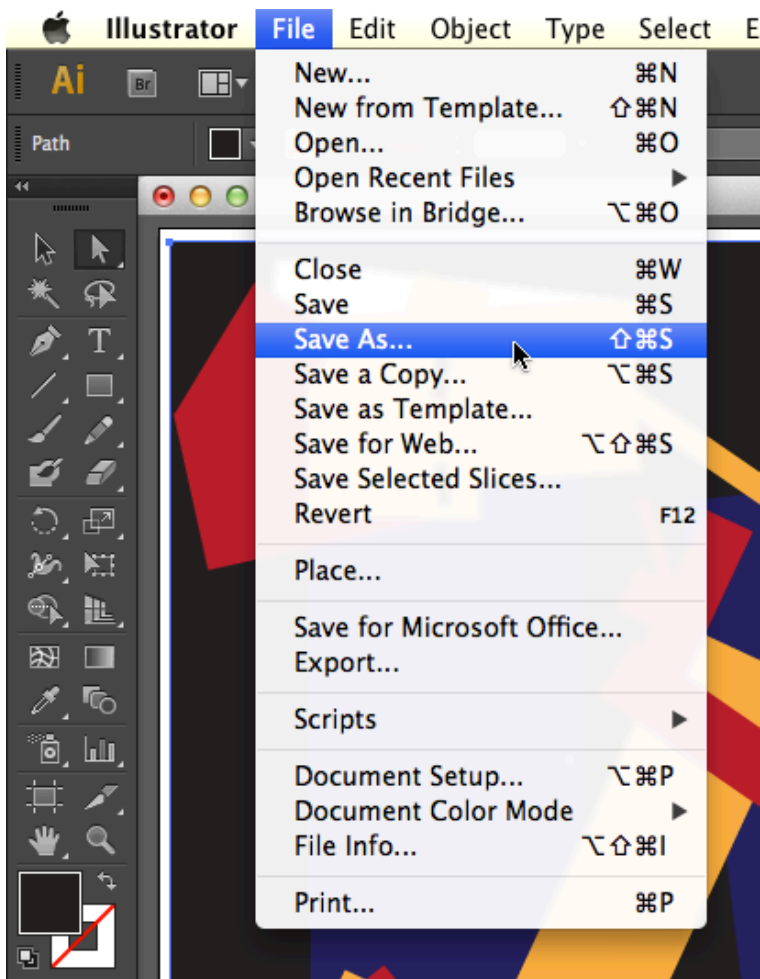
The black background is now all the way to the back, behind all other rectangles.

Be sure to save your files!

1.4 Exercise 4: Saving a file

XTINE BURROUGH AND MICHAEL MANDIBERG

Click File > Save As to open the Save dialog box. Choose a location in which to save your file. It is common to save files in the Documents folder. On a Mac, this is located in Macintosh HD/Users/Your_User_Name/Documents, and can be found on the left side of the Save dialog box. On Windows Vista, this is located at Start > My Documents. For this exercise name your file *ch1-yourlastname-dynamiccomp.ai*.



All actions that can be performed on your file are located in the File menu.

You must name your file when you save it. Follow these naming conventions:

- Avoid spaces. Instead, use underscores to separate words. Spaces are dangerous in web browsers. Any designer who plans to work with interactive media should form good habits by eliminating spaces from their file names.

- Use lowercase letters. This is also a convention of designers who name files that will be referenced in code. Spaces and uppercase letters will not damage your files, but if you are just beginning to form good habits, you might as well learn all of the rules at once.
- Never use characters such as those in the list below, as these reserved characters mean special things to applications and operating systems and can disable websites and crash applications.

The following are examples of reserved characters:

!@#\$%^&*()+~[]'"/\,;:><

- Use a descriptive title, such as *ch1-lastname-dynamiccomp.ai* [ex: *ch1-keene-dynamiccomp.ai*]
- Including your full name in a file name is especially important if you are submitting a file in a classroom or professional setting.
- Make sure the file includes an extension. In this exercise, the file is saved as an Illustrator® (.ai) document. The extension is .ai. In other words, the very worst file name that you could use is something like this: “My *best* ever/first file!” Not only does the name include spaces and reserved characters, it also fails to describe the file or format. Other bad names include the likes of “FINAL edit.ai,” “final.ai,” “composition.ai,” and other names that do not specify who made the file, or what is in the file. A better model for naming your files includes your individual or group name, a descriptive word about the contents of the file, and a date or versioning system. For example, when we sent a copy of our cover to the publisher on October 20th, we named it *digitalfoundations_cover_1020.ai*.

Native file format for master files

Most applications have a native file format for master files. This format can only be opened in the original program, and should be saved frequently throughout the working process. A copy of a master file is often created in a compressed, non-editable format when the author has finished editing the work. Compressing the file makes it smaller and easier to transfer. These compressed formats are readable by many applications, not just the original program. A .ai suffix indicates the file is an Illustrator® master file. If a logo, for example, was created in Adobe® Illustrator®, it could be shared with a friend or collaborator as a PDF file, which is viewable in Adobe® Acrobat® or Preview. These applications are installed on most computers. The exported files cannot be edited and are usually much smaller in file size. If the friend asks for revisions on the logo, the original AI file would be modified. After modification, a new PDF file would be saved and sent to the friend.

Key Command: Command+W closes windows in any application and on the Desktop.

Closing and quitting

To close a file in Illustrator®, click the red button in the upper left corner of the window, click File > Close, or press Command+W. Quit the application by clicking Illustrator® > Quit or by using the keyboard shortcut Command+Q.

It is very important that file extensions, or suffixes, remain intact. The extension assists the computer operating system. It tells the system the type of file and the application to use when opening

the file. This is especially important when bringing a file from one operating system to another (such as going from a Mac to a PC).

Some important file formats include:

.doc or .docx – Microsoft Word document

.rtf – Rich Text Format, non-proprietary word processing format

.txt – Text only, no formatting

.ai – Adobe® Illustrator® file

.pdf – Portable Document Format

.psd – Photoshop® document

.tif or .tiff – Tagged Image File – format for photographs, saved with lossless compression and used for scanning and printing. This format will be revisited in Chapter 7.

.jpg or .jpeg – Joint Photographic Experts Group – a compressed image file format often used for photographs on the web

.gif – Graphic Interchange Format – a compressed image file format often used on the web for logos, design elements, and other graphics with low numbers of colors.

.png – Portable Network Graphics (PNG /'pɪŋ/) is a raster graphics file format that supports lossless data compression. PNG was created as an improved, non-

patented replacement for Graphics Interchange Format (GIF), and is the most used lossless image compression format on the Internet. [source: Wikipedia]

.html – HyperText Markup Language – a text file written in the language used to create web pages.

.fla – Flash® master file

.swf – Shock Wave Format – exported Flash® file for the web

Attribution

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PART VI

ACC CHAPTER 2: SEARCHING AND SAMPLING – BECOMING AN EXPERT WEB USER

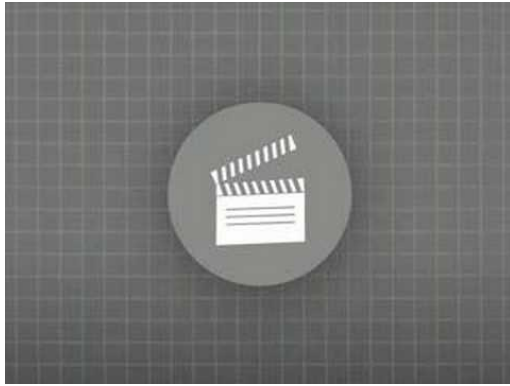
Download Materials for Chapter 2

[Click here to download the Chapter 2 work files](#)

There are no files needed to complete this chapter.

Download and view the completed example for exercise 4, “ch2-ourfinalfiles”.

Screencast for Chapter 2



A YouTube element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/designandproductionforpr/?p=730>

This video corresponds with material in Exercise 4
View the video – Creative Commons – Wanna Work Together? (3min) :

(Continue to the next page for Chapter 2 Exercise 1)

2.1 Exercise I: Advanced searching in Google

XTINE BURROUGH AND MICHAEL MANDIBERG

1. Open Google Image Search (<http://images.google.com>) in a web browser.



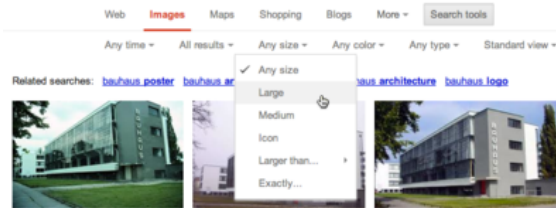
Google
Search
Engine
Interface

2. Type the word “Bauhaus” into the search field and click the Search Images button. The search engine will return all images related to the word “Bauhaus.” The Bauhaus was a revolutionary arts and design school that operated in Germany from 1919 to 1933. The Bauhaus defined arts education for the 20th Century and beyond. You will learn more about the Bauhaus throughout this book.



Google
Search
Query

3. Filter your results by file size. Click on the button labeled 'Search Tools' on the toolbar below the search field. This will show a menu that will allow you to filter your results by size. Click on the button labeled 'any size'. This will bring up a list where you can choose from a range of small to extra large images. Select "large images," and release the menu. The page will reload only showing images larger than 600×800 pixels and smaller than 1200×1600 pixels.

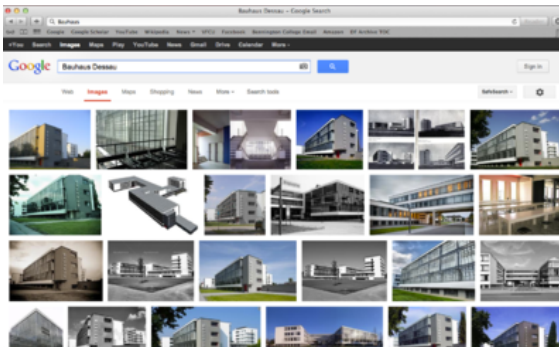


Refining
your search

4. Expect errors! Nearly every search result produces errors. Sometimes errors follow a pattern that can be identified and excluded from the search query.
5. Results can be limited by searching for a specific phrase. To search by a phrase, enclose the words in quotes. Do a search for "Bauhaus Dessau." Make sure to reset your image size to "All

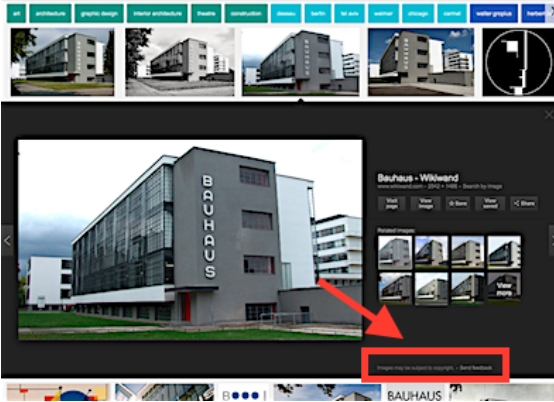
Image Sizes.” Your results should include images of the Bauhaus Dessau. Dessau, Germany was the location of the Bauhaus from 1925-1932.

Click on one of the images from your search to bring up the Image Results page. Notice ‘Images may be subject to copyright.’ at the bottom of this page. We do not know if we have permissions to use or alter this image. Would using it for a school project fall under Educational Fair Use?



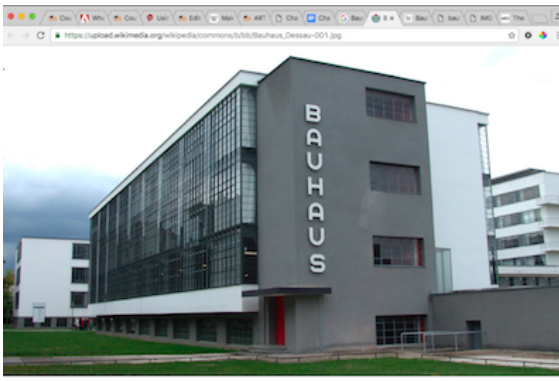
*Refining
your search*

6. Click on one of the images from your search to bring up the Image Results page. Notice ‘Images may be subject to copyright.’ at the bottom of this page. We do not know if we have permissions to use or alter this image. Would using it for a school project fall under Educational Fair Use?



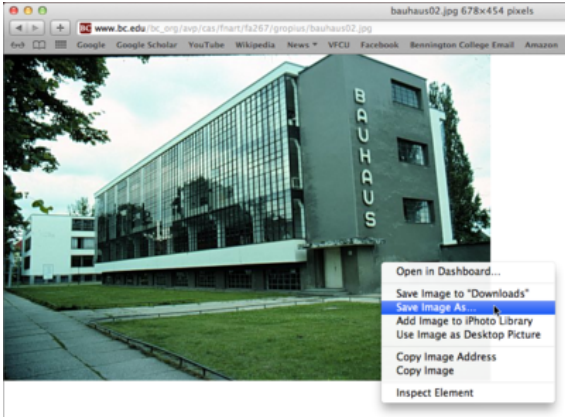
Copyright information

7. Click on the 'View image' button to the right of the image to load the full resolution image in its own window.



Bauhaus at full resolution

8. Download the file by dragging it to your desktop, clicking File>Save, or right-clicking the image and choosing Save Image As. Save the file in a location on your Hard Drive that will be easy to locate. The desktop or documents folders are typical storage locations for short working sessions. You do not need to turn this image in with your chapter work.



Saving your image to the desktop

2.2 Exercise 2: Searching in the public domain

XTINE BURROUGH AND MICHAEL MANDIBERG

Just because you can download an image doesn't mean you can use it! An image may be protected by copyright laws. Similar to a patent, a copyright is a legal tool for preserving control over the use of a creative work. Books, poems, music recordings and compositions, photographs, paintings, sculptures, radio and television broadcasts, films and even dances can be copyrighted. The Artist Formerly Known As Prince even has his symbolic name, "Love Symbol #2" protected by copyright law.



*Prince's Love
Symbol #2*

England initiated the copyright laws familiar to today's citizens as the Statute of Anne (1709). By the 1700s, the widespread use of the printing press and an increase in literacy rates resulted in printers commonly reprinting texts without crediting their rightful authors, or paying them. The Statute of Anne gave the author the exclusive right to a work for a fixed period of time.

Copyright durations vary by nation. In the United States the length of a copyright used to be the life of an author plus 50 years; on the 50th year after the death of an author, their works would be

released into the public domain. For works created by corporations, the length was 75 years from the date of publication. In 1998 congress passed the Sonny Bono Copyright Term Extension Act, which extended copyright by 20 years. This law was authored by a musical-entertainer-turned-Congressman, and was heavily lobbied by the media industry. The act became known as the “Mickey Mouse Protection Act,” as Disney lobbied extensively to insure that the law reached back just far enough to protect their copyright over Mickey Mouse.

Public Domain images have no licensing restrictions. An image automatically enters the Public Domain when a copyright expires. Public domain is currently under attack, as media corporations struggle to control their monopolies. The irony is that copyright was introduced to protect authors from this type of monopolistic power.

To find out more about Free Culture, Public Domain, and the Creative Commons, visit <http://CreativeCommons.org>, or <http://lessig.org>. Lawrence Lessig is one of the founders of Creative Commons and the Free Culture movement.

An image is protected by copyright unless:

- the use qualifies as “fair use”
- the author declares it is part of the public domain
- the image is old enough that the copyright has expired
- the author licenses it under an alternative model

Several alternative licensing models exist, the most popular of which is a Creative Commons license. Creative Commons operates under the moniker “Some rights reserved” and offers a range of licenses with subtle degrees of control over whether derivative works and for-profit uses are allowed. Wikimedia Commons

(<http://commons.wikimedia.org>), and Flickr (<http://flickr.com/creativecommons>) focus partially or exclusively on public domain or Creative Commons licensed images.

Wikimedia Commons is an archive of Public Domain and Creative Commons images. Much like Wikipedia it is organized by historical subjects, and is collectively edited and maintained.



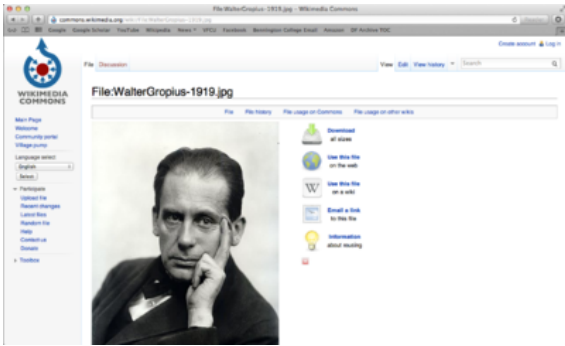
CC-By-NC-SA, Creative Commons Licensing icon

1. Go to the Wikimedia Commons (<http://commons.wikimedia.org>) and search for Walter Gropius, the founding director of the Bauhaus.

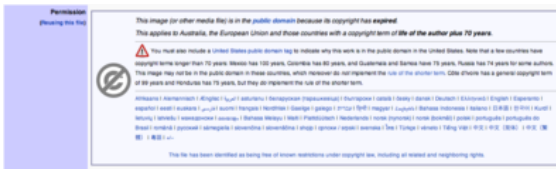


Wikimedia Commons home page at <http://commons.wikimedia.org>

2. View several of the images, and notice in the information below the image states the images are either Public Domain or licensed Creative Commons.

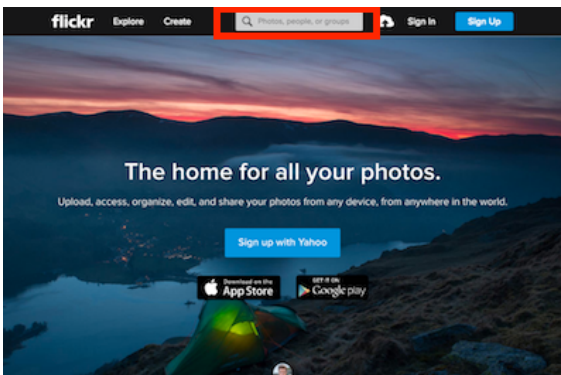


The search return for Walter Gropius, founder of Bauhaus



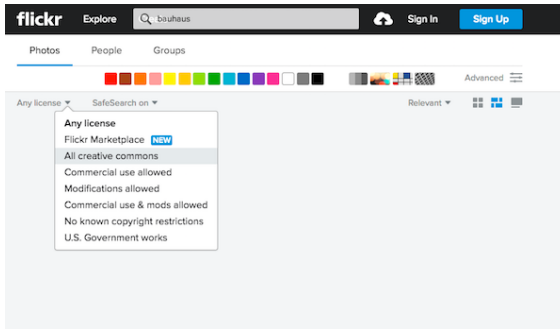
Wikimedia image rights and information

- Flickr is a photo sharing site that encourages the culture of sharing through many of its features, and many Flickr users license their photographs under Creative Commons. Go to Flickr (<http://flickr.com>), click on the magnifying glass next in the search bar, and then click on Advanced Search.



Flickr photosharing (homepage) <https://www.flickr.com/>

4. Type in Bauhaus, and select from the 'Any license' drop-down menu "All Creative Commons" Everything in your search should be CC licensed, though not all will allow derivative works (for example, using the image in a collage) or commercial use.

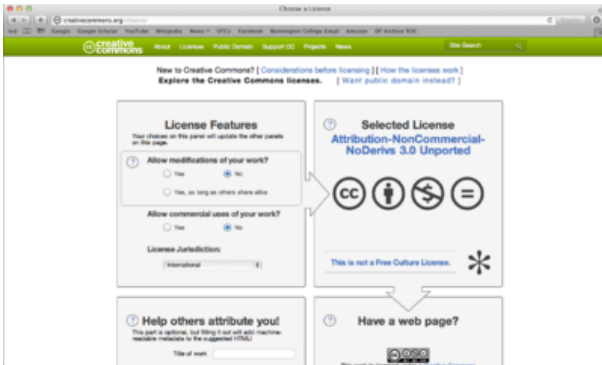


Flickr search engine. Start your search by typing in your subject in the search field located by the magnifying glass and then choose "All creative commons"

Licensing your work





Licensing work with a Creative Commons (CC) license is easy.

Upon setting a Creative Commons license, the creator of the work decides if both commercial and noncommercial uses are allowed (some are noncommercial only), if others are allowed to modify the work once it is licensed (called, "derivative work"), and if derivative works are allowed, whether or not the newly modified work also has to be licensed with CC (called, "share alike").



Creative Commons licensing features

The types of licenses and a very brief description of each follows. Usually more than one type of licensing is in use. More information can be found on CreativeCommons.org. All CC licenses state that the original author will be given credited for her work, in addition to the following details:

Icon	Right	Description
	Attribution (BY)	Licensees may copy, distribute, display and perform the work and make derivative works and remixes based on it only if they give the author or licensor the credits (attribution) in the manner specified by these.
	Share-alike (SA)	Licensees may distribute derivative works only under a license identical (“not more restrictive”) to the license that governs the original work. (See also copyleft .) Without share-alike, derivative works might be sublicensed with compatible but more restrictive license clauses, e.g. CC BY to CC BY-NC.)
	Non-commercial (NC)	Licensees may copy, distribute, display, and perform the work and make derivative works and remixes based on it only for non-commercial purposes.
	No Derivative Works (ND)	Licensees may copy, distribute, display and perform only verbatim copies of the work, not derivative works and remixes based on it.

Fair use and appropriation

Fair use

Reproducibility is a principal trait of digital media. Unlike paintings, records, books, videotapes or even photographs, an exact replica of digital media can be made from the original file. This is true for digital photographs, Compact Discs (and MP3s), DVDs, and websites. From sampling to mashups, collage to subvertisements, contemporary artists and content creators use digital files as source material for the derivation of new works. These works are considered new and original, but they are sometimes built with bits and parts of copyrighted works. In the digital age, new works are often created when more than one existing work is recombined in a new way, providing new visual relationships and new ideas.

Fair Use is not piracy! Fair use is legitimate and legal use of copyrighted media, as protected by copyright law. Fair use is free speech. Fair use is not file sharing.

Copyright content can be used in a new work as long as permission is obtained from the copyright holder, or if the media use falls into the category of fair use. Under the fair use clause of copyright law, limited copyrighted material can be used for a “transformative” purpose, such as commenting upon, criticizing or parodying the initial material. The 4 key factors are

- the purpose of the derivative work
- the nature of the original work: was the original mostly factual or creative
- the amount of original work used
- the effect that the new work has on the potential or actual market value of the original

Weighing these four factors in a copyright case is not an easy task, which is why judges have been asked to do so. However, successful commercial media that takes advantage of the fair use clause include Saturday Night Live skits, The Simpsons cartoons and Weird Al Yankovic songs.

For more information about fair use, visit the Stanford Fair Use and Copyright site at <http://fairuse.stanford.edu> or The Center for Social Media’s paper [Recut, Reframe, Recycle](#)



Caption:
60X1,
Kenneth
Tinkin-Hung
, date?. This
net art
parody is
protected by
the fair use
clause of the
United
States
copyright
laws.

Caption: 60X1, Kenneth Tinkin-Hung, date?. This net art parody is protected by the fair use clause of the United States copyright laws.

Appropriation

Appropriation is a word that is used by media artists to describe the visual or rhetorical action of taking over the meaning of something that is already known, by way of visual reference. For example, Andy Warhol appropriated the Campbell's soup can visual identity to make large, iconic silkscreen prints of the face of Campbell's soup cans. Warhol's soup cans are a modified version of "the real thing." The visual reference to the original soup can is important, as the viewer needs this information in order to understand the idea that the reference conveys (your personal translation of this could be something as simple as a popular American icon to a feeling associated with comfort food). By transforming not only the size and limited graphic palette for portraying the soup cans, but also the place where the viewer will encounter them (an art gallery as opposed to the grocery market), Warhol appropriates the original Campbell's soup cans to create American art that relates to popular culture in its iconic form. Appropriation falls into the category of fair use.

Ironically, we do not have copyright permissions to use Warhol's paintings or photographs of Campbell's soup cans in this book! Try an image search if you're curious about viewing this work.



Fountain,
Marcel
Duchamp
(aka R. Mutt),
1917,
ready-made
object
photograph
ed by Alfred
Steiglitz.
<https://www.flickr.com/photos/digitalfoundations/2229000129/>

Marcel Duchamp was the first artist to appropriate a common object in his art. This challenged the art community in its definition of what is or is not labeled, “art”. His ready-made sculpture was a urinal transformed into a sculpture because Duchamp signed his pseudonym, R. Mutt on the urinal and submitted it to an art exhibit. Duchamp believed that when an artist declared an object a work of art, the object truly becomes art. In this act of appropriation, the everyday object becomes something other than what it once was.

In the case of the urinal, the transformation included the addition of the signature to the porcelain, the change of location (from a bathroom to a gallery), and the change in purpose (whereas before the urinal entered Duchamp's hands this may have been untrue, after 1917 no one has used the urinal that R. Mutt has signed for the purpose of waste containment).

There is no file to save for this exercise.

2.3 Exercise 3: Searching in stock photography websites

XTINE BURROUGH AND MICHAEL MANDIBERG

Another source for imagery are stock photography websites such as GettyImages.com or iStockPhoto.com. These websites are full of photographs and vector graphics to be used in advertising, corporate media, brochures, campaigns, and other design applications. The advantage of these sites is they seem to have endless search detail. Here is the iStockphoto image acquired from a search for “writer, table”.



Stock photo from iStockPhoto.com. Girl Doing Her Homework.
http://www.iStockphoto.com/file_closeup/object/3584537_writing.php?id=3584537

The disadvantage is that the photographs are generic, and have the impersonal feel of an advertisement. No one ever looks as happy as a

model in an advertisement; most people are as physically attractive there is an overall “generality” to the photographs. This young woman looks nothing like the two of us as we sat at our computers editing this book on a wiki interface.



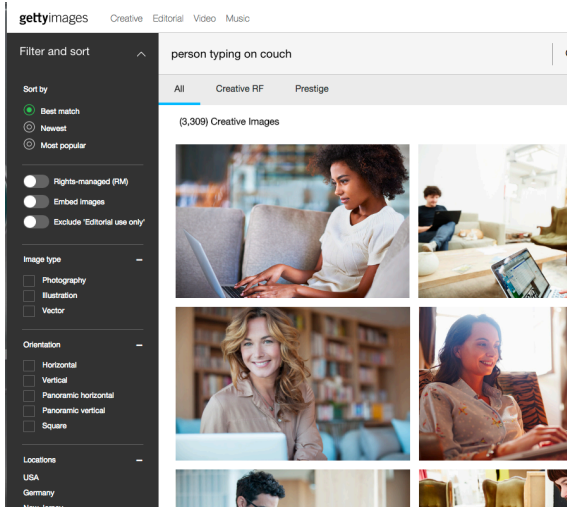
iStockphoto.com Man on cell phone and computer.
http://www.iStockphoto.com/file_closeup/object/4748268_businessman_talking_on_cellphone.php?id=4748268

No one talks on his cell phone with such a big smile as this man! Stock photographs are staged. These images should be used carefully, as the level of authenticity of the action within the image is noticeably low. These licensing for these images is on a limited basis and will vary according to the price you pay.

1. Go to Getty Images (<http://GettyImages.com>) and search in Creative Images > View by Collection for an image of what you

are doing right now. In my case, that is “person typing at computer indoors.” You might type “person reading book on couch.” Try adding specifics like your hair color or the types of clothes you are wearing.

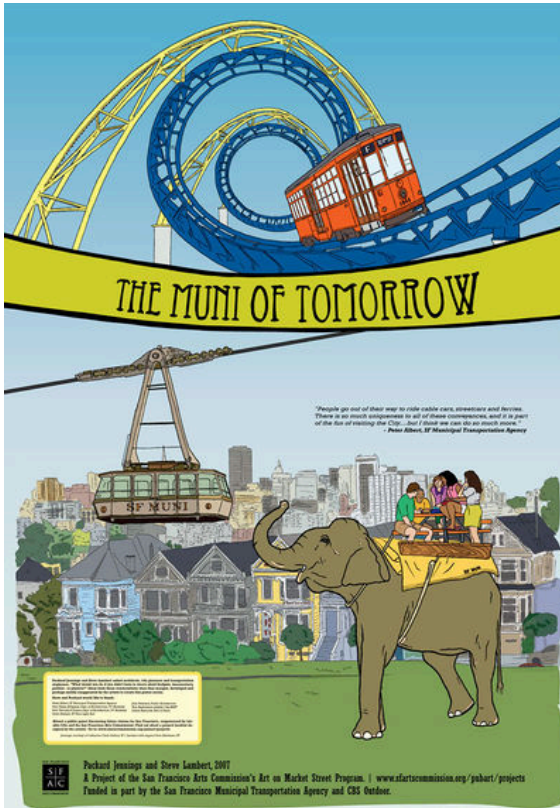
2. Refine your search with their search phrases. Use the Filter and Sort panel to refine the search. Try specifying the location and age of the people.



GettyImage
s.com
search page.
[http://getty
images.com](http://gettyimages.com/)
/

3. Ask yourself if anyone ever looks quite that content, pensive, or photogenic while reading a book unless they are acting for the camera. One strategy for using stock photography is to radically alter the original image, either through extreme image adjustments in Adobe® Photoshop®, or by tracing the image in Adobe® Illustrator®. As a transformation to the image, this kind of treatment usually results in using the image under the clause of fair use. The following image was created from a collection of stock photographs. Notice how any photographic information has been modified and abstracted into an illustrative form. Remember, most stock images are

licensed on a per-use basis and you pay according to the licensing you choose.



From the series, Wish You Were Here! Postcards From Our Awesome Future, Packard Jennings and Steve Lambert, 2007, 6' by 4' giclee prints. <https://visitsteve.com/made/wish-you-were-here-postcards-from-our-awesome-future-2/>

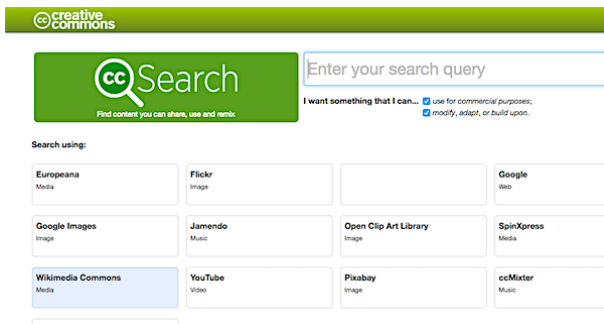
There is no file to save for Exercise 3.

2.4 Exercise 4: Searching and using Creative Commons or Public Domain work for your projects

XTINE BURROUGH AND MICHAEL MANDIBERG

You will be conducting a search through Creative Commons for an open licensed or creative commons licensed image. Your topic is “pumpkins”.

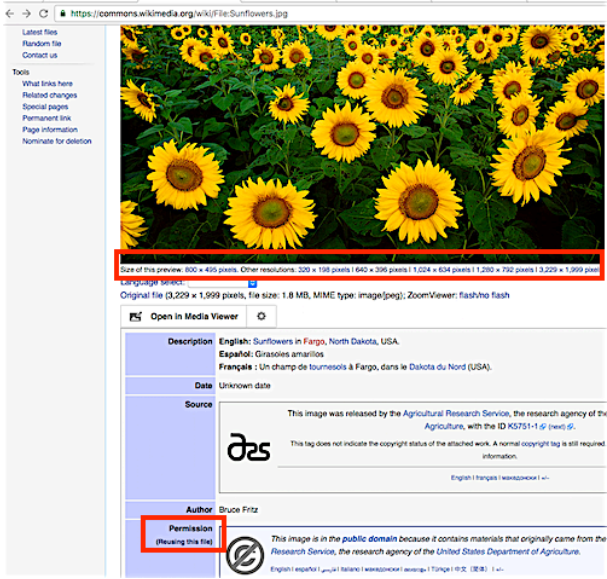
1. Go to Creative Commons (<http://search.creativecommons.org/>)
2. Enter your search query word as ‘pumpkins’
3. Check the boxes for images that can be used for commercial purposes, modify, adapt or build upon.
4. Choose Wikimedia Commons as your search engine. This should activate your search.



Creative Commons search engine webpage

5. Choose a photo from the returned list. Explore this page. See if

you can find various image resolutions/sizes to download and the image copyright information.



Search
return for
“Sunflowers”
on
Wikimedia
Commons

Example of the search return for “Sunflowers”

Choose an image by clicking on the resolution size desired. Now right click on the image and save to your desktop or chapter folder. This is the image you would use for a project. There are no restrictions on the image so you may reuse, remix and recycle it!

6. You also need to record the copyright information for your records. This proves you have permissions to use the image if needed. Create a new text document and record each of these things on it:

- name of the image
- name of the image creator
- web link [url] to the image and CC copyright information

The image and the licensing information document would go in your client’s folder if this was for an actual job.

7. The image file will have a name or number such as sunflowers13.jpg or 17569038574747-23434.jpg. Do not rename it. Name your text file CC-lastname.txt [or .rtf or .doc]. Place both of these files in your Chapter 2 folder and turn them in.

Attribution

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PART VII

ACC CHAPTER 3: SYMMETRY

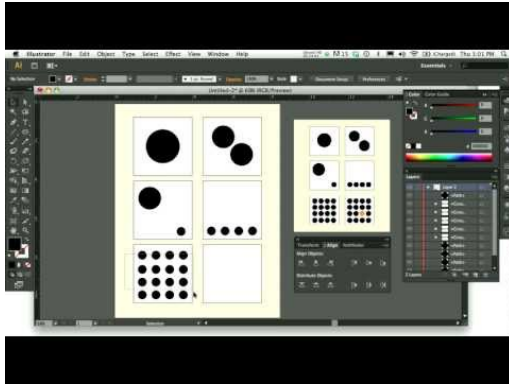
Download Materials for Chapter 3

[Click here to download the Chapter 3 work files](#)

There are no files needed to complete this chapter.

Download and view the completed exercise examples.

Screencast for Chapter 3



A YouTube element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/designandproductionforpr/?p=765>

View the Chapter 3 video [30.53min] and refer to it as needed.

This video gives an in-depth look at the chapter work and includes techniques and tips not included in the text content.

Symmetry is achieved when the weight of a composition is evenly balanced. Symmetrical forms are perceived as being stable. In order

to achieve symmetry in any composition, the designer must create balance with the compositional objects in both their positive and negative spaces in relationship to the grid. The positive space often contains the active design elements while the negative space in a symmetrical composition is usually passive.

The opposite of symmetry is asymmetry. Asymmetric compositions can be balanced or imbalanced, but the overall weight distribution between the positive and negative space will be uneven. The negative space in an asymmetric composition may be more active than the positive space.

The designer chooses to create symmetry or asymmetry within the composition in order to reach the visual or psychological expectations of her audience. These decisions connect the concept of the presented material to the presentation. For example, a logo for a bank should feel secure and restful, connoting safety and trustworthiness, while a horror movie poster should feel emotionally charged, suspenseful and frightful. Logos for banks tend to be symmetric compositions, and asymmetric designs are used to convey unstable ideas.

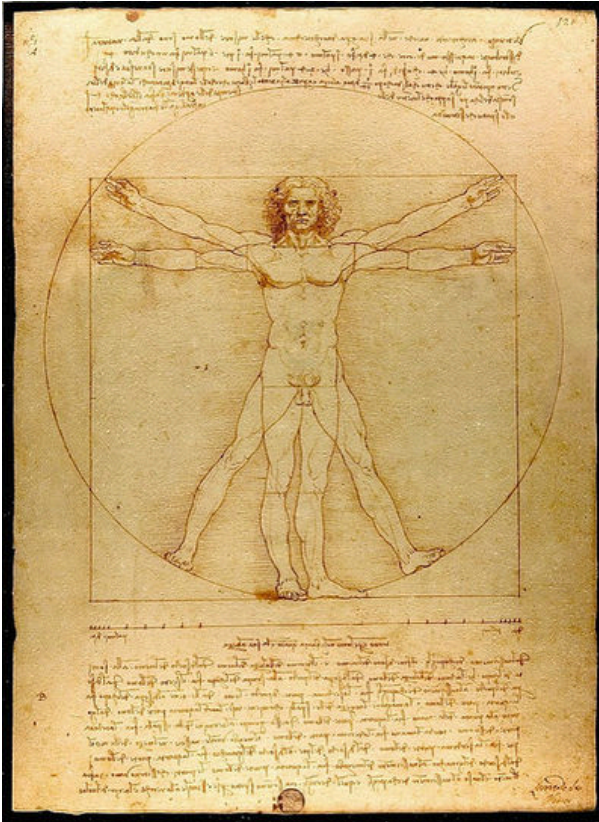


The Bookman, Advertisement for the New York literary journal, "The Bookman", April 1896. <https://www.flickr.com/photos/digitalfoundations/2265836214/>

This advertisement is symmetric as the scale and lightness of the female figure in the foreground is counterbalanced by the scale and darkness of the male figure on the right side of the image. The symmetry is reflected over the y-axis in the center of the

composition. The typography is centered at both the top and bottom portions of the advertisement.

Leonardo da Vinci's classic drawing of the human form demonstrates the principle of symmetry in the human body.



Vitruvian Man,
Leonardo da Vinci,
Drawing on paper, 1492.
Photograph by Luc Viatore, 2007.

<https://www.flickr.com/photos/digitalfoundations/2261880622/>

Symmetry is achieved in Adalpertus' book painting across both the x and y axes.



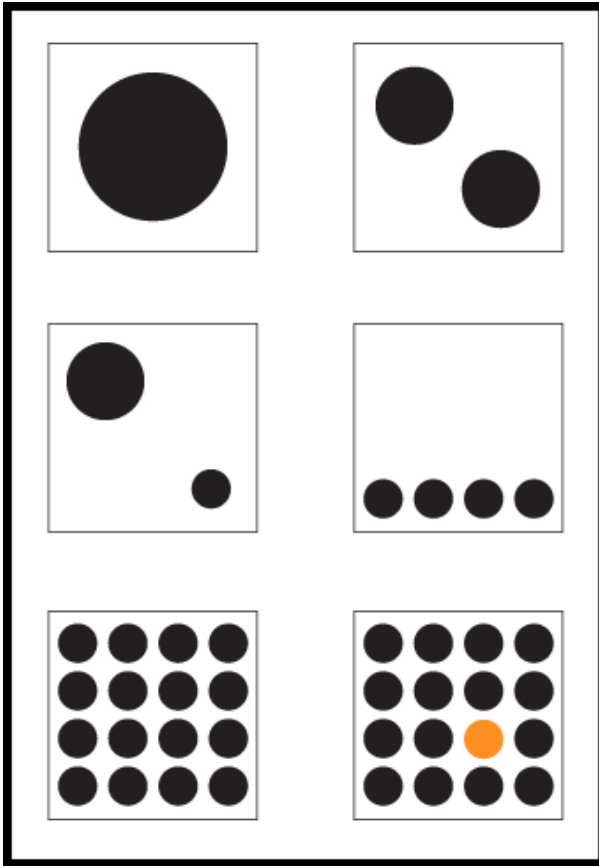
Codex Aureus of St. Emmeram, Scene: Portrait of Abbot Ramwoldus, Book painting on parchment by Adalpertus, 1000. <https://www.flickr.com/photos/digitalfoundations/2261881892/>

Before touching the pencil or mouse, one can exercise these design principles as lessons in weight distribution.

The grid is created by the x-axis along the hips and the y-axis from the toes to the head.

- Standing straight, with perfect posture, and your body weight equally balanced on two feet (with legs hip-width apart and a slight bend in the knee, if we might be so specific), puts a body in a stable, symmetric position.
- Now that you have achieved symmetry, lift one foot off of the floor. Bend the lifted leg at the knee as much as possible without falling over. You may feel somewhat less stable and off-balance. Your body has achieved asymmetry.

Preview of the completed exercises



Completed exercise. Notice the balance and alignment of the composition.

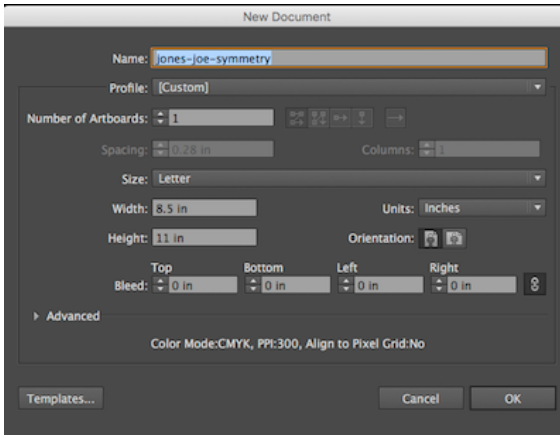
In the following Chapter 3 exercises (2 - 7) the compositions will each be created within one of six individual squares (illustrated here). All of the exercises are created in one single document. For these compositions the grid is simple: the horizontal and vertical intersection at the middle of each square is the grid. See and “feel” the visual weight that is constructed between the four quadrants (upper left, right, lower left and left) in each composition.

3.2 Exercise 2: Symmetry with passive negative space

XTINE BURROUGH AND MICHAEL MANDIBERG

In this exercise, the black circle in the center of the composition is the positive space and the white surrounding area is the negative space. The negative space is not active, it is dictated by the active positive form. The circle is evenly distributed within the composition. It is perfectly symmetric in relation to both the x and y axes, from the left to the right and the top to the bottom.

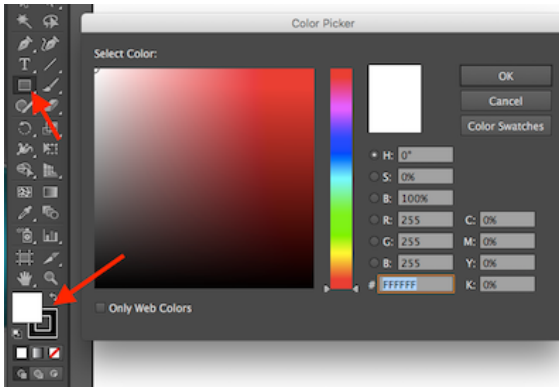
1. Open Adobe® Illustrator®. Create a new document in Illustrator® (File > New) using the default settings pull-down menu to create a letter size page in RGB color space. Name your document 'lastname-firstname-symmetry'. When defining a new file, several settings must be taken into consideration. When you choose a new print document (as opposed, say, a new video document), Illustrator® loads some of the default settings – file resolution, document sizes, and so on – appropriate to that particular type of file. In the New Document dialog box, choose Letter from the Size pull-down menu. Letter (8.5 by 11 inches) is a common document size for print media. When we chose a new print document, the Size pull-down menu loaded standard sizes for the medium. If we selected a Web profile, the Size pull-down menu would have loaded standard settings for web design. For this exercise we will use 1 artboard and change our Units of measure to Inches. Click OK.



*Creating a
new
document
in Adobe®
Illustrator®*

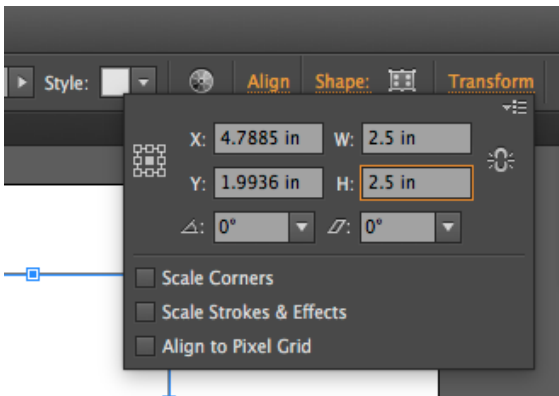
Now, save your document. Menu bar > File > Save. You do not need to change any of the default settings. The default file format is Adobe Illustrator (ai). This is the 'native' or original file. Later you will save the file as a PDF (Portable Document Format).

2. Click on the rectangular shape tool (shortcut key M) to create one square that has a white fill and a black stroke. Set the fill and stroke colors before drawing the rectangle. The fill and stroke icons are stacked on top of each other at the bottom of the Tool Palette (see chapters 1 and 3 for working with the fill and stroke). Double-click the icon that is on top and select the color you want to use from the Color Picker. Once you set the color for the top icon (fill or stroke), click once on the bottom icon (if you took care of fill first, now you will set the color for the stroke) and define this color by using the Color Palette (Window > Color Palette).



Location of the Rectangular Shape tool and Color Picker

- With the white fill and black stroke colors defined, hold the shift key while dragging the Rectangle Tool on the Artboard. The result is a square instead of a rectangle. Click with the mouse and begin dragging before holding the shift key (SHIFT) and release the mouse before letting go of SHIFT. The square we made was about 2.5 X 2.5 inches. To size the square first select it, then go to the Control Panel > Transform and set the W (width) and H (height) at 2.5 (inches).

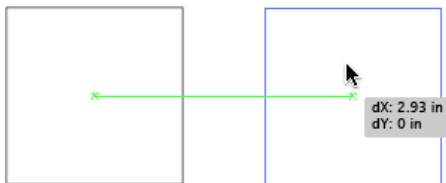


Example of how to size the square by using the Control Panel > Transform functions

4. While copy and paste are accessible through the Edit menu, we will use the Selection Tool to duplicate and position five copies of the square.

Hot Key: While you are working, CMD (command) is the hot key for the Select Tool.

Choose the Selection Tool and hold the option key (OPT) and click on the original square, then drag the mouse to the right. In Adobe® Creative Cloud®, Smart Guides are active by default. Smart Guides help to easily align and center objects with other objects and also the artboard. Hold the shift key to keep the movements restricted to a 0, 45, 90, or 180 degree motion (in other words, you'll position the new square along the same baseline or x-axis to the right of the original square)

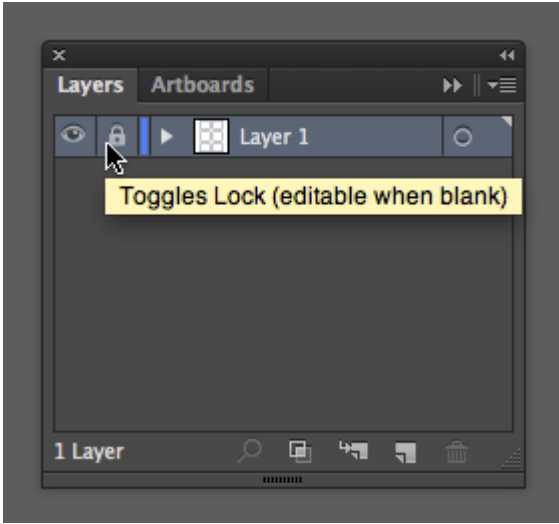


Duplicating and moving a square on a horizontal axis.

Hot Key: The relationship between SHFT and the Select Tool is two-fold: 1. Shift will constrain the proportions of objects as you drag to resize a shape

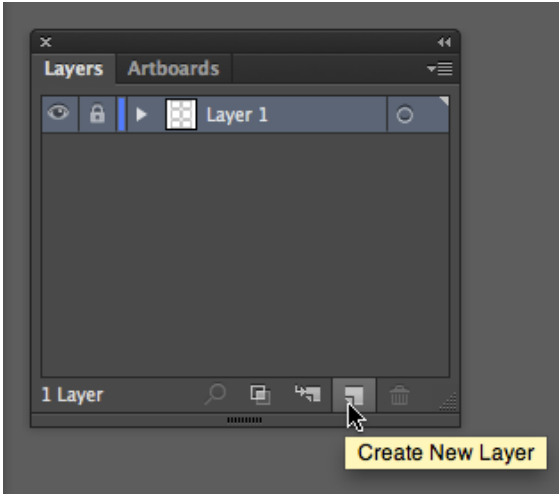
or image, and 2. Shift keeps the movement of objects aligned vertically or horizontally on the Artboard.

5. Now that you have two squares that are exactly the same, side by side, select both squares at one time by marqueeing over them (using your Selection Tool click and drag over both of them beginning on the artboard) or by selecting the first square and then holding shift while clicking with the mouse to add the second square to the selection. Group the two squares using (Menu bar) Object > Group.
6. Grouped objects can be moved, transformed, and have their colors edited as one unit while their individual properties are maintained. In this case, the squares will be copied and positioned together.
7. Copy the two squares two more times, moving down the page.
8. Use the Select Tool to position the squares into place. Be attentive to the space between the margins of the page and the space between the outlines of the squares.
9. Use the Layer Palette (Window > Layers) to lock the squares on Layer 1. Next to the eyeball at the left of Layer 1, click on the square illustrated below. A lock icon will appear, indicating that the layer is locked. Locked layers cannot be modified until they are unlocked. This is a protective measure that a designer often takes when part of a project is complete and she doesn't want to accidentally select or move objects that are already established.



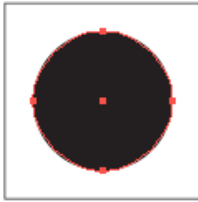
Location of the Toggle Lock on the Layers panel.

10. Once the layer is locked, create a new layer to work on by clicking the “Create New Layer” icon at the bottom of the Layer Palette. Layer 2 will appear above Layer 1. This is the layer that will contain the rest of the vector art objects in this chapter. Be sure that it is active (it will be highlighted) before proceeding.



Creating a new layer from the Layers panel

11. Create a black circle in the middle of the top left square with the Ellipse Tool. The Ellipse Tool might be buried beneath the Rectangle Tool in the Tool Palette, access it by holding a mouse click for a couple of seconds on the Rectangle Tool. All of the Shape Tools will be visible. Move the mouse over the Ellipse Tool to select it. With this tool, click and drag within the top left square. Hold the shift key once you begin dragging the mouse so that the ellipse becomes a perfect circle. Remember to change the color fill to black.



*Positioning
of your
black circle
is in the top
right
square.*



Be sure to save your files frequently!

3.3 Exercise 3: Symmetry with less passive negative space

XTINE BURROUGH AND MICHAEL MANDIBERG

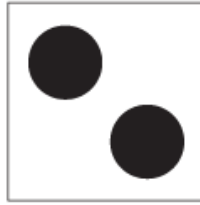
In this exercise, the two new circles create a balanced, symmetric composition. The visual weight is the same in the four quadrants created by the intersection of the x and y axes; and the circles are reflective over a diagonal line. However, notice the tension between the two circles at the middle of the page. This tension is created when the two active forms are so near to each other that the eye cannot help but notice the negative space between them. The negative space fights for the viewer's attention. Therefore, the negative space is slightly less active than it was in the first exercise.

1. Copy the black circle and move it into the second square by using the Select Tool to click and drag on the original circle while holding OPT. Drag the new copy into place and release the mouse before releasing the key.

Watch Out For This: If you are new to using the mouse and the keyboard together, practice using your non-mouse hand to activate hot-keys while keeping your mouse-hand on the mouse. It is ineffective to lift up the mouse hand!

2. The new circle should still be selected, and anchor points surround the edges of the selected area. Use the Selection Tool to reduce the scale of the circle by clicking and dragging on one of the four anchor points at the edges of the circle towards its center. Hold SHIFT while reducing the scale of the circle to

keep the proportions of the circle the same.



*Results of
copying,
moving and
sizing your
circle.*



FYI: The units of increment that an object moves when using the arrow keys are defined in the General Preferences (Illustrator® > Preferences > General). They are referred to as “Keyboard Increments” and the default setting is 0.0139 inches. All preferences are user-defined.

3. Hold down OPT and SHFT and click on the circle with the selection tool, then drag to the bottom right corner of the square. This will duplicate the circle and move the new square at an exact 45 degree angle.

3.4 Exercise 4: Balanced asymmetry

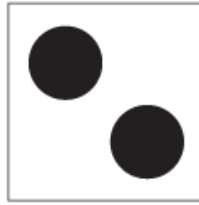
XTINE BURROUGH AND MICHAEL MANDIBERG

In this exercise the two circles create an asymmetric composition. The weight distribution between the four quadrants of the composition is not even, as most of the visual weight is felt in the upper left quadrant. The composition does remain balanced, as the negative space between the two circles activates the viewer's attention and becomes part of the visual weight on the page. The white area is still the negative space; however, the white area between the two circles is within the path of the viewer's eye movement from the top (larger) circle to the bottom (smaller) circle.

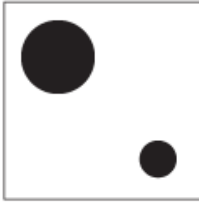
1. Copy the second circle from the previous exercise and drag it into position in the third square.

Watch Out: Did your circle turn into an ellipse? Without holding the shift key, the circles transforms into ellipses. Be sure to release the mouse before releasing the shift key when drawing forms that are modified by SHFT.

2. Make another copy of this circle and drag it to the lower right of the composition.



Results for square 3. Moving, sizing and duplicating circles.



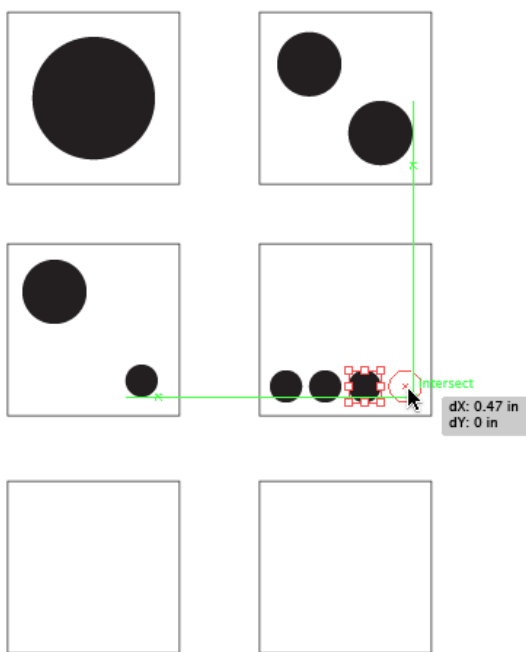
3. Scale the circle down using SHFT with the Selection Tool. Remember to save your files often!

24. 3.5 Exercise 5: Asymmetry with imbalanced visual weight

XTINE BURROUGH AND MICHAEL MANDIBERG

In this exercise, the negative space is the white area surrounding the four black circles. The four black circles are asymmetric in regards to the overall composition. The negative space creates more mass than the positive space, and the four black circles pull the viewer's eye to the bottom of the composition. What is also noteworthy about this exercise is that the four black circles are read as a line by the gestalt law of similarity, where like elements (four circles) are read as a whole line before being perceived individually.

1. Copy the smaller circle in the fourth rectangle and move it to the empty composition to the right.
2. Create three copies of the small circle within the composition.

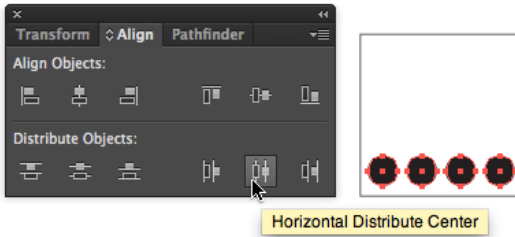


Results for square 4. Duplicate and aligning circles.

3. Select all four circles using the Selection Tool by marqueeing over them (click and drag over all four, beginning on the Artboard) or by selecting the first circle and then holding SHFT while clicking on each one time with the mouse to add the remaining circles to the selection.

In the lab, we call this “shift-clicking”. Since we will probably refer to “shift-clicking” in future chapters, this always means holding SHFT while clicking on an object in order to add to a selection.

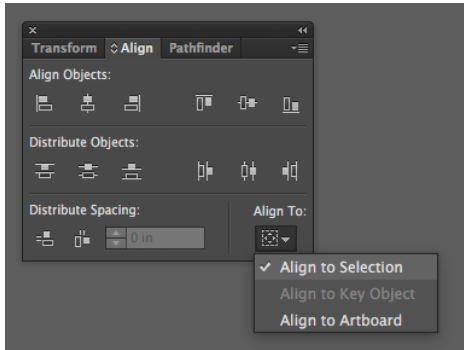
4. With the four circles selected, view the Align Palette (Window > Align). This panel will be used to distribute the four small circles evenly. Click the fifth button from the left under the “Distribute Objects” part of the Align Palette. Hold the mouse over this icon to see a pop up dialog box that displays, “Horizontal Distribute Center”.



Location of the Horizontal Distribute Center on the Align panel.

If the circles were not duplicated with the SHIFT key activated (to keep their position in order on one line), the Align Palette can also be used to align the objects with the button, “Vertical Align Top”.

Watch Out: One time I was demonstrating this and my circles were misbehaving. It turned out I had “Align to Artboard” activated within my Align panel. If your distribution seems far off, be sure that this option is not active in the bottom section of the Align panel.



*Location
of align
to
Artboard
function*

To access this option go to the menu bar > Window > Align. In the Align panel click on the small 'hamburger' menu icon on the tab bar, choose Show Options and then select Align to Selection.

3.6 Exercise 6: Symmetry with patterning

XTINE BURROUGH AND MICHAEL MANDIBERG

Gestalt psychology is important to visual creators because it provides a theory for the way humans perceive groups of shapes in a composition. While there are four distinct properties and six laws (termed, Pragnanz), one of the main themes is the understanding that viewers see a group of like objects as a whole unit before seeing the individual parts. Termed the law of similarity, the individual circles will be read only after the viewer sees the entire pattern presented here as a square. It's nearly magic: a group of circles becomes a square.

1. Select all four of the circles in the row in Exercise 5. Click Object > Group. Grouping objects is convenient as the separate objects maintain their autonomy while acting as part of a set that moves, transforms, and receives color information together. Grouped objects can always be ungrouped (Object: Ungroup).

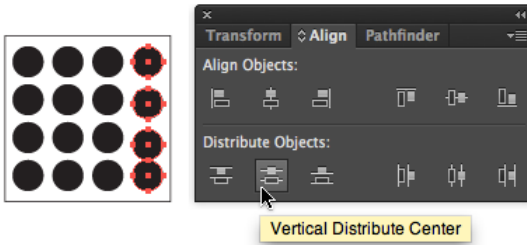
Hotkey: CMD+G is the hot key for grouping objects. CMD+SHFT+G is the hot key for ungrouping objects.

2. Hold option as you click on the grouped row of small circles and drag it to the next composition. Duplicate the row three more times while adding SHFT so all four rows of circles have their left and right edges on the same margin lines. Use the Align Palette to fix the rows if they aren't organized (try

selecting each row and using the button, “Horizontal Align Left.”)

NOTE: If all 4 rows are grouped together, the circles cannot be aligned properly.

3. Select each column and click the second button in the Distribute Object section of the Align Palette (“Vertical Distribute Center”). This will space the circles evenly on the y-axis.



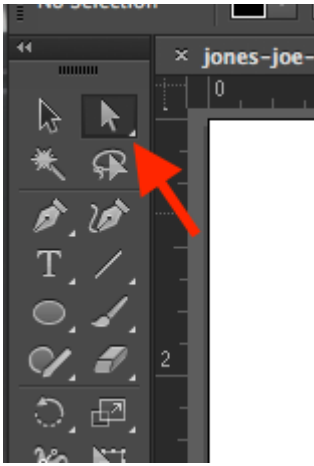
The location of Vertical Distribute Center function on the Align panel. Results of square 5.

3.7 Exercise 7: A focal point is defined within symmetric patterning

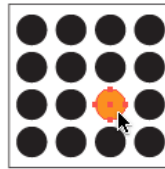
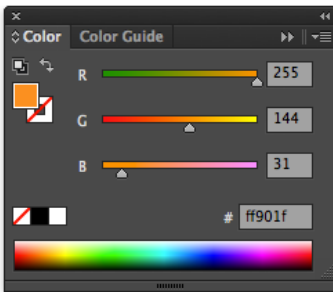
XTINE BURROUGH AND MICHAEL MANDIBERG

In the last exercise, the repetition of the sixteen circles created a pattern. In this exercise, the repetition is broken by changing the value and hue of one circle (one part of the whole) in the lower right quadrant of the composition. A focal point is created by the contrast of value and hue. When the contrast between like and unlike forms is as extreme as it is in this exercise, the designer can direct the viewer's eye to a particular part of the composition. Utilizing contrast to create a focal point is an essential design skill.

1. Select all of the circles in Exercise 6, OPT-drag them to the final composition. Hold SHIFT as you drag to move the set of circles along a straight path.
2. Once the group of black circles is composed within the last composition, change the fill color of one of the individual circles to set a focal point. All of the black circles are part of a group. If the group is selected and the fill color is modified, all of the circles are modified. While this is useful, it is not our current goal. Instead, use the Direct Selection Tool to select just one circle. The Direct Selection Tool can be used to modify a path, an anchor point, or to alter one part of a group of objects. With your Direct Selection Tool click inside one of the circles and be sure to click inside the circle and not on the path around the edge of the circle. We do not want to modify the path, we want to modify the color of the whole circle.

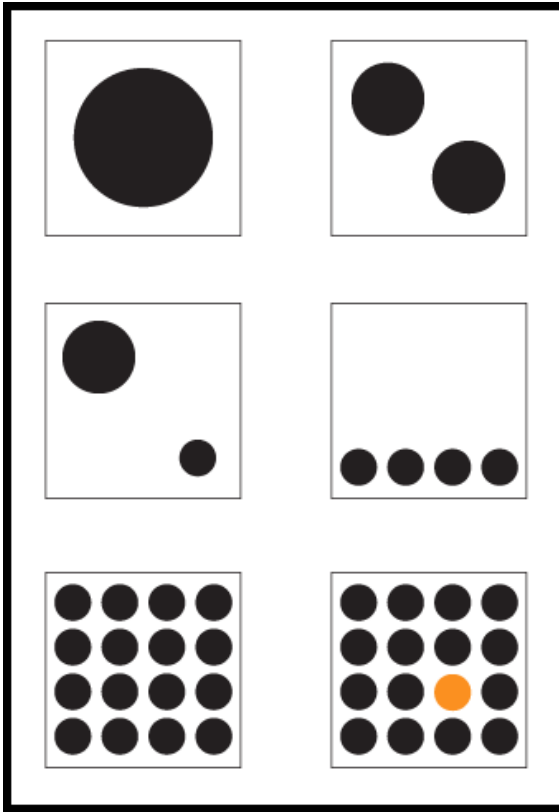


Location of the Direct Selection Tool



Using the Color panel to add color and change focal point

3. Set the fill color to a color of your choice by using the Swatches Palette, the Color Palette, or the Color Picker. Notice that as the value lightens, the contrast increases.



Completed exercise. Notice the balance and alignment of the composition .

Further Reading: Primer of Visual Literacy by Donis A. Dondis and Principles of Form and Design by Wucius Wong

4. Save your file in the native/original file format (.ai). Save a second copy of your file as a Portable Document Format (pdf). To save as a PDF go to the menu bar > Save As and choose the format Adobe PDF. A dialog box will pop up. For now we will go

with the default settings. Choose Save PDF. These are the two files you will turn in.

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PART VIII

ACC CHAPTER 4: TYPE ON A GRID

Download Materials for Chapter 4

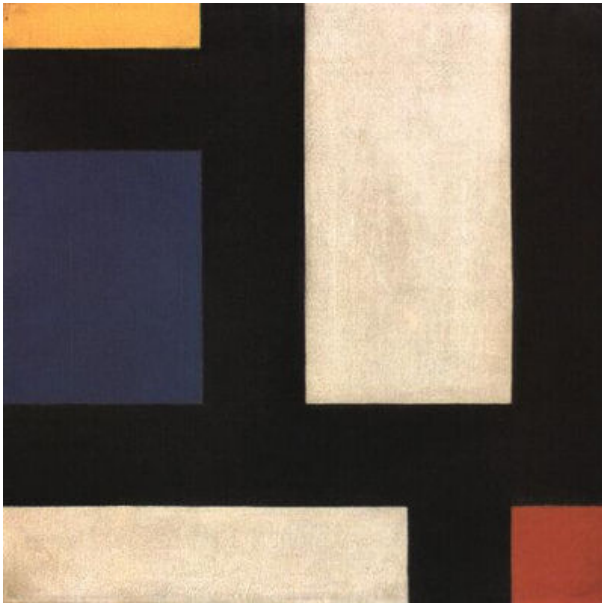
[Click here to download the Chapter 4 work files](#)

There are no files needed to complete this chapter.
Download and view the completed exercise examples.

For many students and educators, The Bauhaus has become a symbolic point of entry to art and design education. The precision of the grid in design and architecture was made relevant through studies at The Bauhaus. In Ellen Lupton's *The ABCs of (triangle, square, circle) The Bauhaus and Design Theory*, the movement is credited as being “the mythic origin of modernism” as founder Walter Gropius and László Moholy-Nagy were devoted to creating a “universal language” and embraced methods of mass production (Lupton and J. Abbott Miller, 2).

The grid is utilized in all areas of design as a structure upon which forms can be precisely placed, reflected, balanced or imbalanced. The grid is the invisible underlying structure that sustains the relationships between all formal elements in print design, interactive design, industrial design, architecture, fashion, and more. Its origins are established in the High Neolithic Era (4500 –

3500 BCE), according to Joseph Campbell who defines the grid as “a geometrical organization of an aesthetic field.” While the origin of the grid as an organizational structure precedes the Bauhaus art movement and institution by more than 5,500 years, the Bauhaus movement perceived the grid as not only an organizational structure, but as a structure that could be easily multiplied and reproduced. By understanding the relationship between the grid and the organizational requirements of automation and mass replication, The Bauhaus is responsible for design solutions utilizing the grid that became popular in the 1920s and is still noticeable today.



Counter-Composition IV,
Theo van Doesburg, oil on canvas, 1924
<http://flickr.com/photos/digitalfoundations/2229001727/>

Piet Mondrian and Theo van Doesburg created oil paintings of grid structures that illustrate the foundations of Modernism. Mondrian was a Dutch painter who contributed to the De Stijl (in English, “The Style”) movement founded by Theo van Doesburg. Although neither Mondrian nor van Doesburg were masters at The Bauhaus, Bauhaus

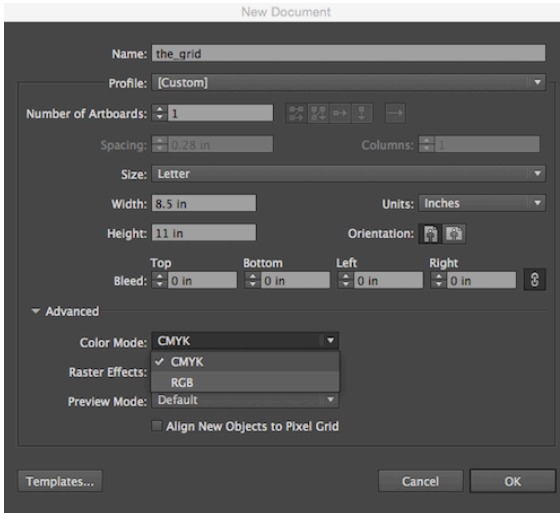
members were aware of De Stijl and influenced by contemporary art movements. These grid-compositions have been an inspiration to artists and designers who rely upon the grid as an organizational design asset.

While the black and white paintings with brief areas of vibrant hues in primary colors appear to be simple horizontal and vertical intersections, the renderings might allude to a city map, an electrical circuit board, or an abstracted blueprint. The negative space in the composition can be perceived as the windows of tall buildings. The grid is understood as a layout or a supporting structure while these compositions are the essence of the often unnoticed foundations of modernity. Formulating an abstract concept from simple lines and planes is a practice in translating visual cues into language-based meanings. It is the goal of any visual communicator to learn to do this as both the reader of the message and the generator of visual content.

4.1 Exercise 1: Using guides to create a grid

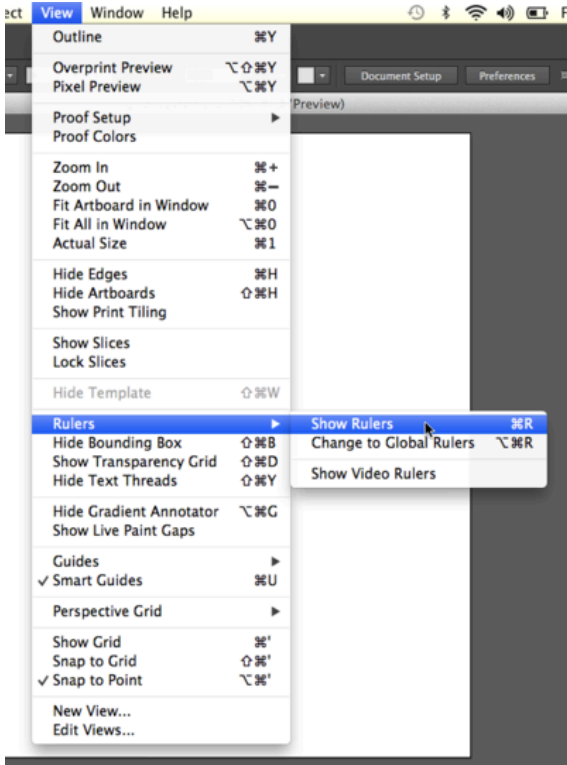
XTINE BURROUGH AND MICHAEL MANDIBERG

1. Create a new document (File > New) using the “Print” pull-down menu at letter size, in portrait orientation (8.5 by 11 inches, as opposed to 11 by 8.5 inches), named “the_grid.” Click on the small arrow located next to Advanced ▷ to view more options. Choose the color mode RGB.



Create a new document dialog box.

2. Rulers can be turned on or off. They appear at the top and right side of the document window. If the rulers are off, turn on the rulers by choosing View > Rulers > Show Rulers . Right-click or CTRL-click on the ruler to see all of the available units of measurement. Choose inches from the pull-down menu.

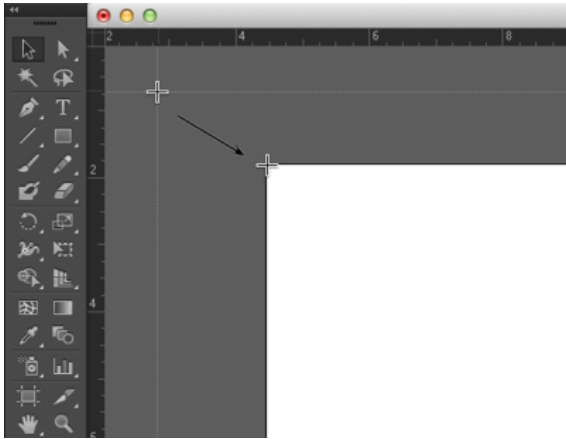


View >
Show
Rulers”
width=”400
”
height=”541”
> The
location of
the Show
Rulers
command

Hot Key: CMD-R reveals and hides rulers.

The rulers will now demonstrate that the Artboard is 8.5 by 11 inches. Sometimes the rulers load with zero at the top, left edge of the document, orizontally; but vertically, zero begins at the lower left corner of the document. To reposition zero so that it is located in the same place both vertically and horizontally, put the mouse in the top left corner of the ruler area, where the vertical and horizontal rulers seem to overlap, then click and

drag to the top left corner of the page on the Artboard. Clicking and dragging from this area repositions zero on the Artboard.

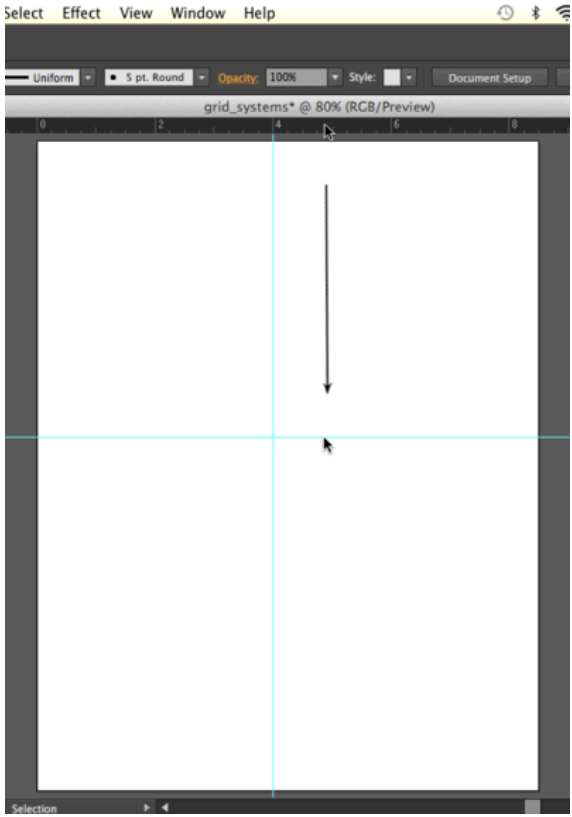


Location of the Ruler Guides

3. In this step we will pull guides from within the rulers of the document. Guides are available in all Adobe® Creative Cloud® applications. They are always pulled from the rulers. Guides are used to create a grid on the page. The grid occurs when two guides (one horizontal and one vertical) intersect. The grid is used for assessing the relationship of the formal elements within the composition (images and text) to the positive and negative space (where other elements are and where there is nothing but empty space). Click on the Selection Tool, then place your mouse cursor within the ruler area at the top of the document. Click on the ruler and drag the mouse in a downward motion. A guide will be set in place when you release the mouse. Release the first guide at 5 inches on the ruler against the left edge of the page.

Watch Out! If you release the mouse too soon, guides will be made in places where you don't want them! In Illustrator®, guides are automatically locked when they are released. To get rid of a guide that is locked into position, first unlock it by clicking View > Guides > Lock Guides. When the guide is not locked, simply click on it with the Selection Tool and press Delete on the keypad.

4. Repeat this step for the vertical guide, by pulling from the vertical ruler on the left edge and releasing the mouse at 4 inches on the ruler against the top edge of the page.



Moving and adjusting guides

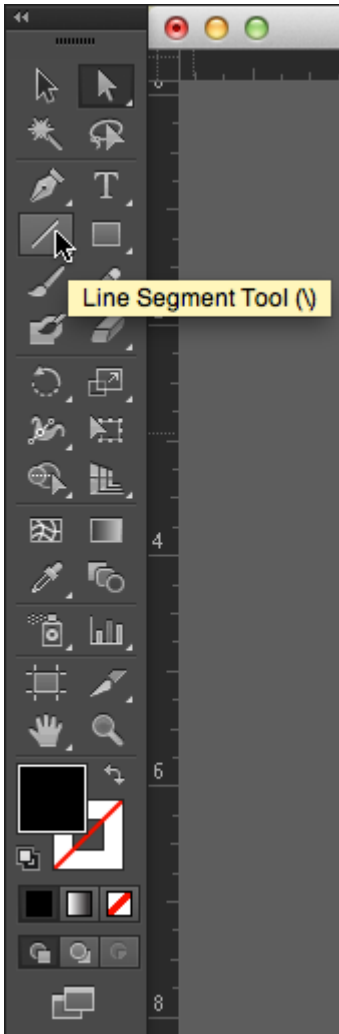
Remember to save your files as you work!

4.2 Exercise 2: Lines

XTINE BURROUGH AND MICHAEL MANDIBERG

Lines can be thin or thick, bumpy or smooth, dotted or solid, or straight or curvy. A line is the result of connecting any two points on a plane. In this exercise we make a straight, thick, black line. In later chapter exercises, you will create lines by alluding to them with repetitious single forms or by the gaze of the photographically reproduced subjects within the composition. Lines can be used to provide direction, to separate parts of the page, or to support elements on which images or typography rests. Many of the typographic visual references from *The Bauhaus* (1919 – 33) include heavy lines that are used to separate areas of the page and provide direction for the viewer's gaze. Notice that while the line we will create does separate the headline from the body copy on the page, it does not cut the page into two distinct parts by running from edge to edge of the document. By leaving negative space at the left edge of the composition, this line creates negative space that pushes the viewer's gaze towards the body copy within the composition.

1. Press the letter “d” on the keypad to load the default colors into the fill and stroke icons at the bottom of the Tool Palette. The default colors that load into fill and stroke in Illustrator® are black and white. The default colors that load into the color chips within the Tool Palettes of any of the Adobe® Creative Suite® programs are black and white. The letter “d” on the keypad always loads black and white into the color chips in the Tool Palette.
2. Click on the Line Segment Tool. Clicking and dragging with this tool creates a new line. Clicking then holding the shift key (SHFT) while dragging creates a new line at a 0, 45, or 90 degree angle. Create a new straight line across the horizontal guide.



The location of the Line Segment Tool

3. Release the mouse and the line will be selected. If you click someplace off of the line and accidentally deselect it, reselect it using the Selection Tool. With the line selected, look in the Control Palette at the top of the document window. Notice that the line has values associated with it, including a fill color

(automatically set to nothing, as signified by the red stripe across a white field), a stroke color (black) and a numeric value, indicating the weight of the stroke. Change the numeric value of the stroke weight on the line to 30 by typing 30 into the value box.



The Control panel changes according to the tool you choose.

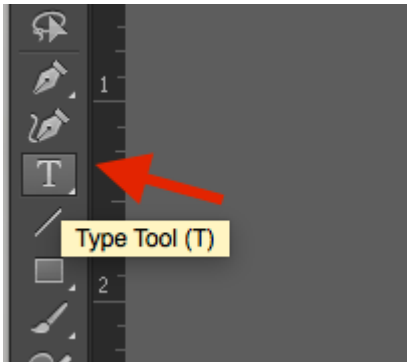
4. Adjust the line so that it begins at about an inch into the page from the left edge by using the Selection Tool. The line may extend beyond the page edge on the right side. Anything that is outside of the page, represented by the black frame of the Artboard, will not be printed.
5. Deselect the line by clicking anywhere on the Artboard outside of the anchor points surrounding the line with the Selection Tool.

4.3 Exercise 3: Using the Type Tool to create a headline

XTINE BURROUGH AND MICHAEL MANDIBERG

Headlines are typically larger than body copy and maintain a heavier weight on the page than most other elements. The scale of the headline often relates to the scale of an accompanying photograph or illustration (it may be the same width or half of the width, for example, as a photograph on the front page of a newspaper). System fonts (the fonts that are installed on all computers, such as Arial, Chicago, Times, New York, and so on) are usually reserved for the body copy on web pages; and they are not typically used as headlines. For print designers, it is a good idea to stay away from system fonts! Web designers have to rely on them for body copy. Display fonts (ornamental fonts, such as those that are free to download on (<http://chank.com/freetypes.php>) are not legible enough to be used for body copy, but are often selected for headlines as they tend to be more ornate. Sans serif type was first invented by William Caslon IV (1816) and was reserved, as John Kane writes in his *A Type Primer*, “almost exclusively for headlines” (36). Using a sans-serif font for headlines is not a rule, but often commands attention as they are sleek and authoritative in comparison to serif fonts. In this exercise, Gill Sans was the typeface used for both the headline and the body copy. The ultra-bold font style creates a weighty headline, and the regular variation of the typeface is very easy to read as body copy.

1. Select the Type Tool in the Tool Palette (shortcut key T)



The location of the Type Tool on the Tool Bar

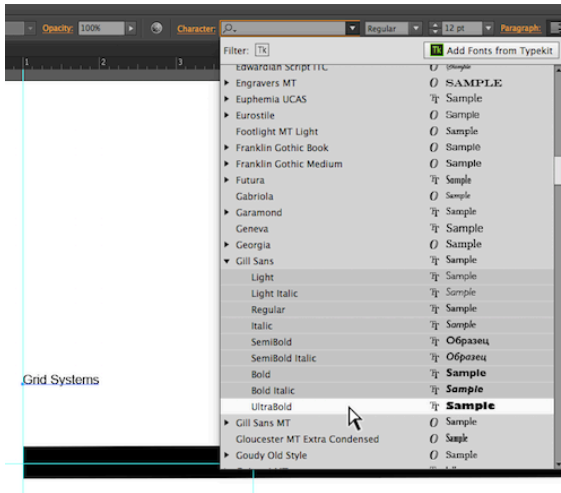
2. Click anywhere on the Artboard with the type tool. Do not drag. Clicking just one time will change the Type Tool into a flashing cursor. When you see the flashing cursor begin typing the headline, “Grid Systems.” Illustrator® is a smart program, but it doesn’t know when you are finished using the type tool. You have to tell it “I’m done;” and there are many ways to do this (see the sidebar). When you are finished typing your headline, click on the Selection Tool. The type is automatically selected as an object and the flashing cursor is gone.

Tip – How to tell Illustrator® you are done using the Type Tool: 1. Hold CMD and click anywhere outside of the type on the Artboard. The type is now deselected. 2. Press the Escape Key on the keypad. Notice your Selection Tool is automatically activated.

3. Once the type is created, it can be edited by using the Selection Tool and the Control Palette or the Character Palette. If your type is not selected, click on it with the

Selection Tool.

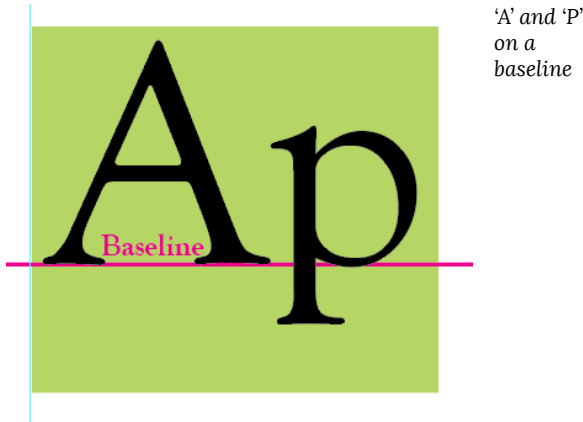
- In this exercise, Gill Sans Ultra Bold was used for the headline. While the type is selected, choose Gill Sans Ultra Bold (if you have it installed) or any other font of your choice from the Character pull-down menu either from the Control Palette or from the Character Palette (Window >Type > Character).
- The font size can be edited by typing a number into the font size box in the Control or Character Palette or by scaling the type with the Selection Tool. To scale the type, click on any of the four anchor points at the corners of the selected type object and drag towards (decreases the scale) or away from (increases the scale) the center of the type while holding SHFT. In this exercise, the headline is 44 points.



Menu of font choices

- Use the Selection Tool to pick up the headline and move it so that the baseline is within the black line and the S in Systems is just to the right of the vertical guide.

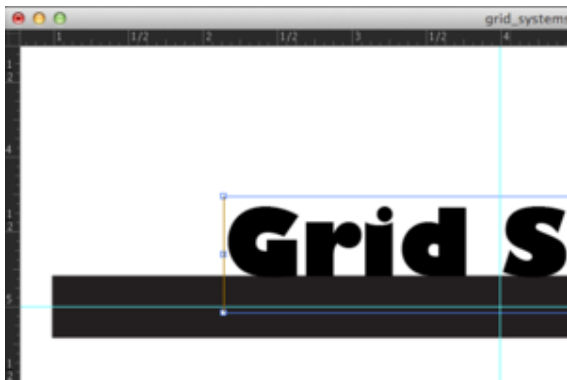
The word “baseline” refers to the invisible line upon which typographic letters rest, as demonstrated here:



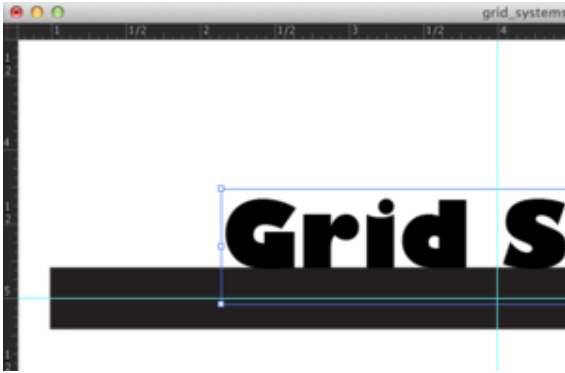
7. Kerning is the space between the letters in a single word. When you set body copy (for instance, a letter typed in Microsoft Word), you usually do not have to be concerned with kerning. The digital fonts are created to be well-kerned at smaller font choices (such as 10 – 12 points). However, when working with display text, such as a 44 point headline, the kerning should be studied. Traditionally, the amount of space between each letter should be even. In this exercise, we will adjust the space between the i and r in Grid and the s and t as well as the t and e in Systems. Place the type cursor just between the i and r in the word, Grid. Click when you see that the cursor looks like a single line so that you are able to edit the word.

Watch Out: If you accidentally click when the Type Tool looks like a T with a dotted-box around it, you will make a new type object. If you accidentally create a type box use the Selection Tool to select it and then hit the Delete Key on your keypad.

Once the Type Tool is between the i and the r in Grid, use OPT + the Right or Left Arrow keys on the keypad to nudge the letters to the left or right. This is the method of manually adjusting the kerning of the display text in Illustrator®, Photoshop® and InDesign®. Repeat this for the s/t and t/e in the word, “Systems”. If you have used a different font you may need to adjust kerning between other letters. Be sure to save your work!



The two images demonstrate the word “Grid” before and after kerning. Above is before kerning.



*After
kerning*

Be sure to save your work often!

4.4 Exercise 4: Creating body copy with the Type Tool

XTINE BURROUGH AND MICHAEL MANDIBERG

Body copy is the content of an article, a book chapter, an essay on a web page, and so on. Body copy should be set within a text box in all of the Creative Cloud® programs. As body copy is usually set within rectangles, consider the overall shape of text to normally create a rectangular shape on the page. By utilizing a grid system, the production artist controls how many columns of text appear in the final layout.

The artist should be interested in creating legible body copy. Legible body copy is not too big, too small, too lengthy, too short, too light, or too dark. For a considerable amount of body copy (a full article, for example), the copy should be set in columns between 3.5 and 4 inches in length or 35 – 65 characters. This is the point at which many readers begin to read back over the words that they have already read. Instead of re-reading the same words, a 3.5 inch line of body copy encourages the reader to move to the next line of type at about the time that she is ready to move her eyes from right to left.

Assessing body copy is easy: squint your eyes while looking at the printed body copy. The overall grayscale value of the printed rectangle (body copy) should be about 40 – 50%. It should not read as stripes of black against the page. In this exercise we will consider adjustments that can be made if the copy is too light or dark.

Watch Out: If the final product will be printed, the designer should always take time to assess the printed

version of the composition. It is incredibly difficult to assess printed typography on the computer screen.

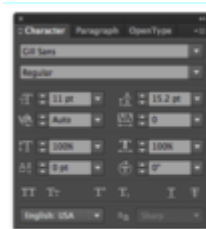
1. Create a new vertical guide at the end of the last “s” in Systems.
2. The type tool will create a type box when you click and drag with the Type Tool instead of clicking one time and entering text. Create a type box at about 7.25 inches (vertically), between the two vertical guides. If you want to you can set a guide at 7.25 inches. In the example we have used a paragraph of “dummy” (or placeholder) text that graphic designers have been using since the 1500s. The text begins with the two words, Lorem ipsum, and is often simply referred to as “Lorem ipsum” (ie. “Put some Lorem ipsum in there for now, we should be receiving the copy in a couple of days.”). Lorem ipsum is used as placeholder body copy when the actual text is not available, as the letters within the Lorem ipsum text are more or less evenly distributed. Looking at “dummy text inserted here, dummy text inserted here” repeated enough times to create a block of body copy draws attention to itself as the repetition of such few amount of letters becomes a noticeable pattern. <http://www.lipsum.com/> offers dummy text by the word count, paragraph count, and byte count. The text generator is at the bottom right of the web page. Generate two paragraphs of text.
3. In the Control panel set your character fonts to Gill Sans (regular) was used at 11 points in this exercise. Copy and paste the Lorem ipsum text from the text file into the new text box.
4. The body copy pasted into the new text box should be left-justified by default; but if it is not, use the Control or Character Palette to set the justification to the left. While the text is left justified, there is a sharp line created by the single letters in a

column on the left side. This line extends to the headline, as it is aligned with the S in Systems. By the property of continuation, a line is made from the S to the body copy on the page. While this “line” created by the left margin is not as literal or heavy as the black line made in Exercise 2, it is just as relevant to the layout as it provides an intersection with the black line, further defining the grid on the page.

5. Leading is the space between lines of type. The body copy is set at 11 points, and the leading is set at 15.2 points. This is traditionally referred to as 11/15.2. Insert the Type Tool into any area of the body copy and then press CMD + A on the keyboard to select all of the type within this type box. With all of the type selected, press OPT + Down Arrow to open the leading. In the following two images, the leading has been adjusted and the text box has been resized in consideration of the margin space at the right and bottom of the composition. Notice how opening or loosening the leading creates a slightly lighter grayscale value when you squint your eyes and look at the block of text. Be sure to save your work!



Example 1 –
Leading is
set to 15.2 pt
(points)



Example 2 – Leading is set to 15.2 pt (points) with line highlighted in black.



Example 3 – Leading is set to 17.2 pt (points) to increase the line spacing

Although this did not occur in our exercise, two other typographic problems to look out for are orphans and widows. An orphan is a single word that dangles on the last line of body copy, and a widow is a single word at the top of a new column of text, before a paragraph break. These are undesirable type happenings that create imbalance and draw attention to a place on the page where

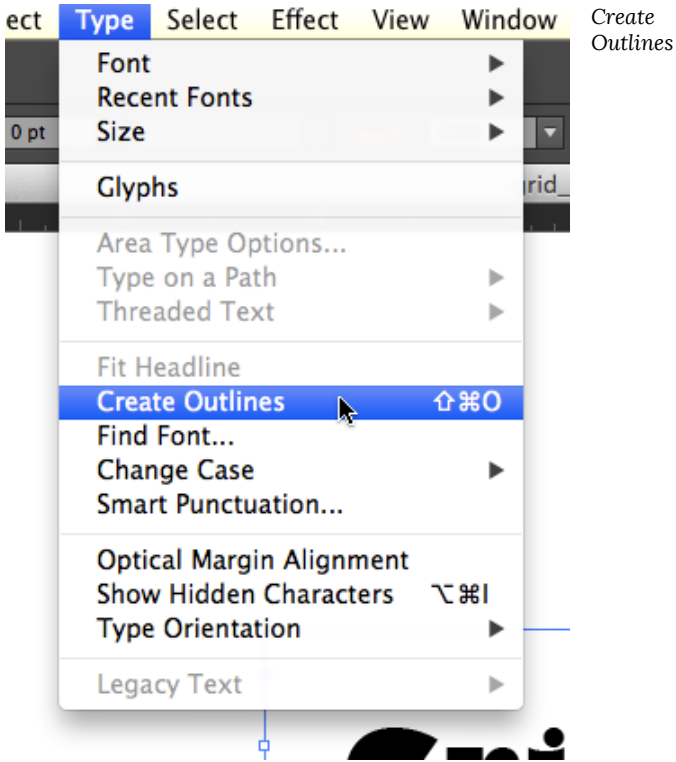
you don't necessarily want the viewer to focus.

4.5 Exercise 5: Using color to direct the viewer

XTINE BURROUGH AND MICHAEL MANDIBERG

In this exercise, the dot over the “i” will be replaced with a red square. A red square is also placed towards the bottom of the composition, near the start of the body copy see the exercise example in ch4-ourfinalfile.ai). By repeating this form on two parts of the page, a relationship is made between the headline and the body copy. Red is used intentionally to push the viewer’s eye from the headline to the body copy.

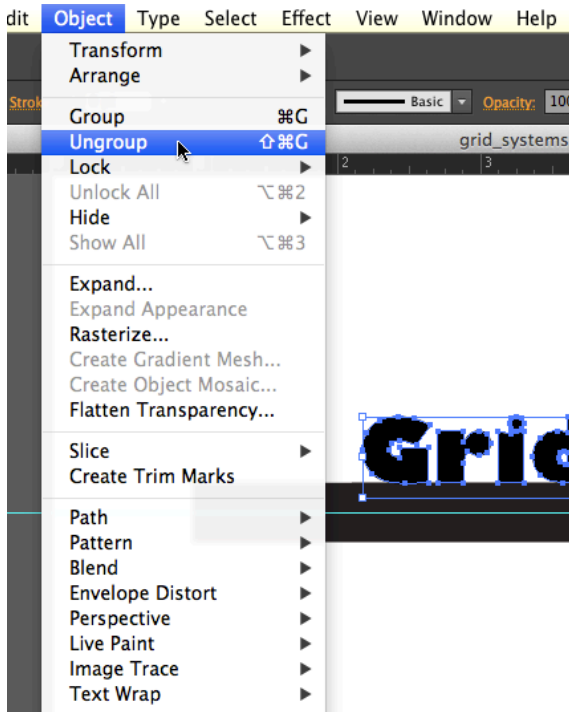
1. To create a focal point in the headline, replace the dot over the i in “Grid” with a red square. Removing one part of a letter is easy, but the letter must first be transformed from a line of editable text to a group of shapes. Before we do this, it must be noted that creating outlines of the original type will annihilate editing possibilities on the text object. When creating outlines around a piece of text, it is a beneficial practice to duplicate the text and leave it in the white space outside of the Artboard for reference or later editing possibilities. With the Selection Tool, click on the “Grid Systems” type, press the option (OPT) key and drag the duplicate copy of the text off of the Artboard. Select the original “Grid Systems” type on the Artboard, then click Type > Create Outlines.



Hot Key: Create Outlines: CMD + SHFT + 0

After choosing “Create Outlines,” the type will be grouped together, so that each of the single letters would move or be transformed as one whole group.

2. Ungroup the type by clicking Object > Ungroup.



Locating the 'Ungroup' function

- Use the Direct Selection Tool to select and delete the dot over the i. When you click to select the dot over the i, the rest of the i will be selected. Marquee over the top portion of the dot (see the illustration below). Zooming in on the type will increase the likelihood of getting this the first time you try it, so don't be afraid to use the Zoom Tool or CMD + =. When part of the top of the i is selected, hit the delete key on your keypad until you see that the top portion of the i is missing. See the following three images, where the Direct Selection Tool marquees over the top half of the letter i, then the delete key is pressed two times.



*Example 1:
Select the
dot above
the letter 'i'.*



*Example 2:
Partial
deletion of
the dot.*

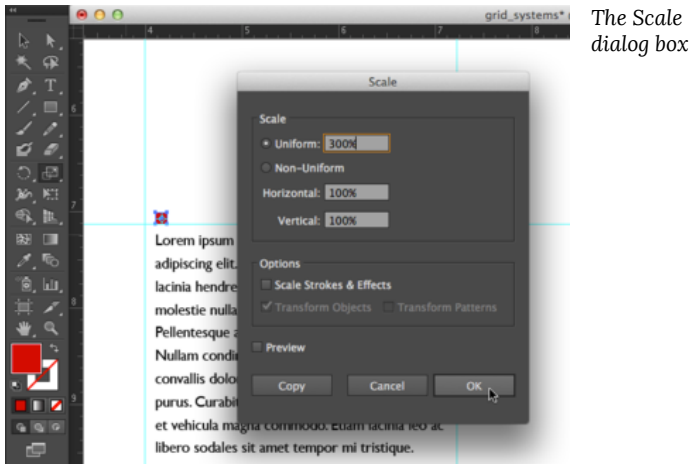


*Example 3:
Full deletion
of the dot.*

4. Create a square in place of the dot over the eye with the Rectangle Tool. Change the fill color to a red hue of your

choice.

5. Duplicate the square and move it to the bottom of the composition, just above the first word in the body copy by using the Select Tool and holding OPT while dragging.
6. While the copy of the square is still selected, double-click the Scale Tool in the Tool Palette. Scale the square by 300%.



7. Finally, position it in place above the copy at the bottom of the page, to the right of the guide.

4.6 Exercise 6: Adjusting shapes with the Direct Select Tool

XTINE BURROUGH AND MICHAEL MANDIBERG

1. Click on the top left anchor point of the “d” in “Grid” with the Direct Selection Tool. Notice that the anchor point increases in size as your mouse moves near it with the Direct Selection Tool (this is new to version CS3). Hold SHFT and click on the anchor point on the top right of the “d” in “Grid” to add it to the selection.



*Example 1:
Selecting
the top left
anchor
point*



*Example 2:
Increase the
height of
your
selection*



Example 3:
Final result
of shape
adjustment

2. With only the top two anchor points of the letter d selected, expand the size of the d's ascender by using the Up Arrow key on your keypad. In this exercise, we pressed the Up Arrow while holding the Shift key three times.

Final results
of
completed
exercise



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam sodales lectus sed diam. Nam condimentum ultrices nulla. Duis eget quam ut nibh adipiscing imperdiet. Pellentesque id erat. Etiam sit amet felis. Sed a quam sed elit placerat auctor. Aenean molestie, libero at accumsan mollis, felis ligula iaculis lorem, vel aliquam lectus dolor eget eros. Fusce a diam a pede hendrerit volutpat. Donec et eros non purus vehicula suscipit. Morbi tincidunt mollis augue. Donec ultrices purus eu mi. Mauris ac massa a magna aliquet iaculis. Sed eget elit. Praesent pretium, diam sed tempus porttitor, dolor diam sodales pede, ac malesuada nisi diam id metus. Proin rutrum, nibh sit amet egestas hendrerit, odio nisi dapibus tellus, ac pharetra nunc

3. That's it! Save your file as an Illustrator® native file (.ai) and as a Portable Document Format (.pdf).

Further Reading: The ABC's of Bauhaus, The Bauhaus and Design Theory by Ellen Lupton, A Type Primer by John Kane, Thinking with Type: A Critical Guide for Designers, Writers, Editors, & Students by Ellen Lupton, Making and Breaking the Grid: A Graphic Design Layout Workshop by Timothy Samara

PART IX

ACC CHAPTER 5: COLOR THEORY & BASIC SHAPES

DOWNLOAD CHAPTER MATERIALS FOR CHAPTER 5

[Download Materials for Chapter 5](#)

There are no files needed to complete this chapter.
Download and view the completed exercise examples.

German Bauhaus school educators Josef Albers and Johannes Itten helped define and expand upon color theory during the years 1919 – 1923. Albers created a course in color theory that inspired the tutorial in this chapter. Students who attend art and design universities typically complete these color studies using pigment and brushes or with Color-Aid paper, however formal color studies are demonstrated in the digital environment with the following four exercises where hue, value, and contrast are exploited to achieve various color relationships.

The traditional (analog) color wheel utilizes the RYB (red-yellow-blue) color model. In this subtractive color model, red, yellow, and blue are the primary hues (what we think of as colors), which can be mixed together to create any other color within the color wheel. Opposite colors on the wheel are called complementary, while analogous colors sit side-by-side on the wheel. When the primaries

are mixed together in the subtractive system, the resulting product is black. In the digital spectrum, the RGB (red-green-blue) additive color system is used on television screens and computer monitors. Colored light is mixed to create hue and value with red, green and blue as the primary colors. When the primary colors in the RGB model are mixed together, the result is white.



Color wheel 1

The CMYK (cyan, magenta, yellow, and black) color model is another digital spectrum that is specific to the print industry. Artists and designers often create high volumes of printed media using the CMYK color model to synchronize the digital file with the four corresponding printing plates. This system is also subtractive, even

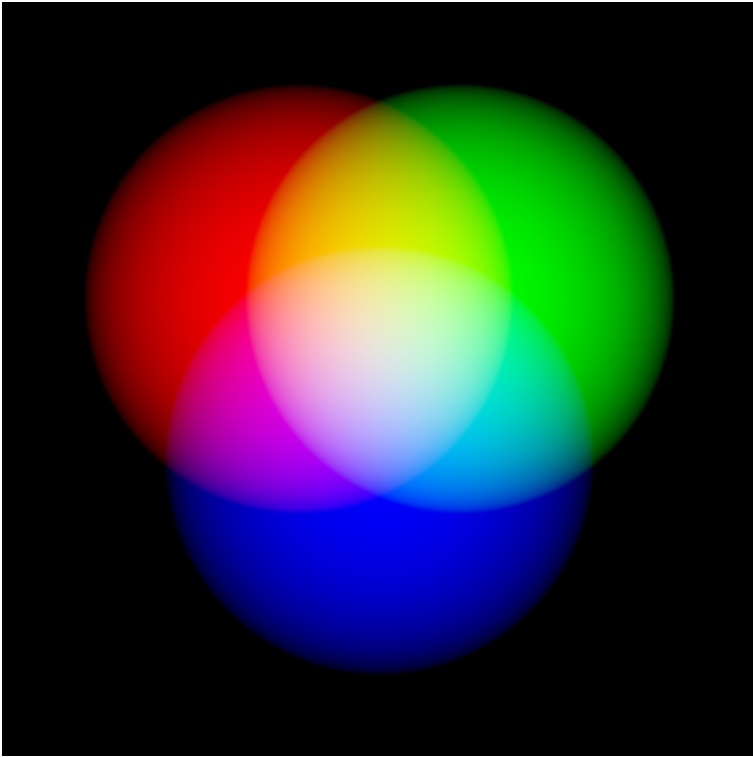
though it is utilized in a digital environment, so mixing equal parts of cyan, magenta, yellow and black produces black. The CMYK color mode enables digital producers to access Pantone® colors, a set of industry specific colors that are made to render a clear translation between the color that is presented on the screen and the color that will result from the printer's equipment.



Color Wheel 2



Color wheel 3. Farbkreis, Johannes Itten, 1921. https://en.wikipedia.org/wiki/File:Farbkreis_Itten_1961.png



Color Wheel 4, RGB Color Wheel http://commons.wikimedia.org/wiki/Image:Additive_RGB_Circles-48bpp.png

Vocabulary

- Hue is color (e.g. red, blue, green, yellow)
- Intensity, Saturation, Chroma and Brilliance all refer to how much pigment is in a color, which translates to how vivid a color appears.
- Value is measured by how much white or black is mixed with a hue, or, it can be registered as the grayscale equivalent of a color.
- Shades are a hue mixed with black.

- Tints are a hue mixed with white.
- Analogous colors are adjacent on the color wheel.



Homage to the Square, Joseph Albers, 1950 – 1975. Analogous colors are demonstrated on this stamp, featuring one of Albers' homages. Albers began working on this series in 1950 and made thousands of works addressing the square over the course of twenty-five years. <https://www.flickr.com/photos/digitalfoundations/2229001663/>

- Complementary colors directly oppose each other on the color wheel.



Jahre
Deutscher
Werkbund,
stamp,
Germany.
Complement
ary colors
are utilized
in this stamp
celebrating
Jahre
Deutscher
Werkbund. http://commons.wikimedia.org/wiki/Image:100_Jahre_Deutscher_Werkbund_-_Postwertzeichen.jpg



Sunflowers, Vincent Van Gogh, 1888, oil on canvas. Analogous colors are used in Van Gogh's sunflowers to create color harmony. http://commons.wikimedia.org/wiki/Image:Vincent_Van_Gogh_0010.jpg

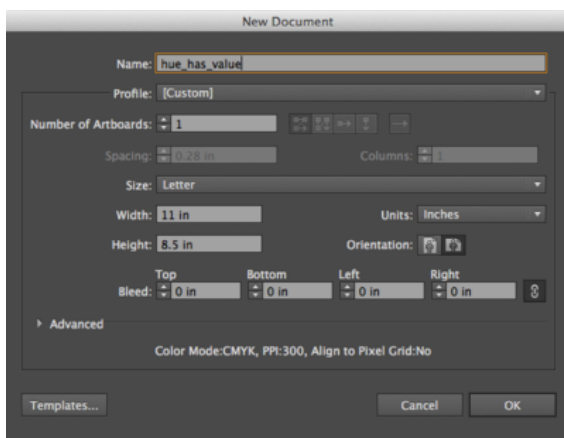


Portrait der Frau Manet auf blauem Sofa, Edouard Manet, 1880, oil on canvas. Complementary colors are used in Manet's painting to create contrast between the blue couch and woman in the foreground and the orange wall in the background. https://commons.wikimedia.org/wiki/File:Edouard_Manet_042.jpg

5.1 Exercise 1: Hue has value!

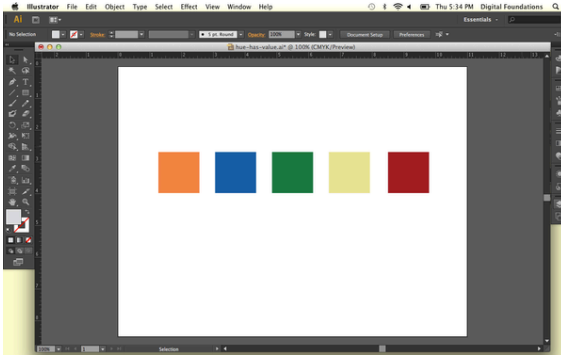
XTINE BURROUGH AND MICHAEL MANDIBERG

1. Create a new document in Illustrator® using basic CMYK color mode in landscape orientation. Adjust the settings so the units are measured in inches and choose letter from the Size pull-down menu. We named our document hue-has-value.



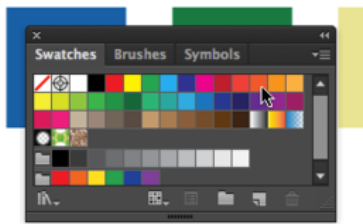
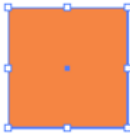
Create a new document in Adobe® Illustrator®

2. Using the Rectangle Shape Tool, draw five squares on the Artboard. Check to make sure your smart guides are turned on. The guides help you with alignment. View > ?Smart Guides. Hold down the shift key (SHFT) while dragging each square to keep the proportions equal. Evenly distribute the squares by selecting all 5 squares, clicking “Horizontal Distribute Left” under the Align Panel (Windows > Align) as we did in chapter 3.



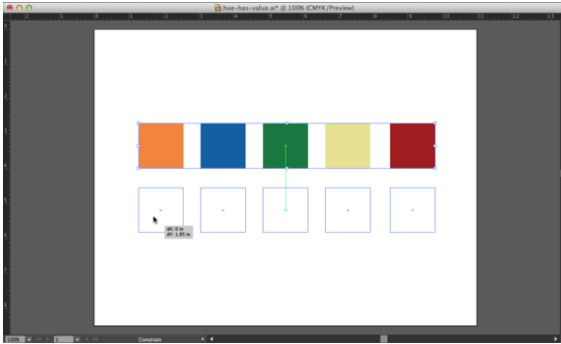
Using the Rectangle Tool, duplicating and aligning functions to create 5 squares.

3. For each square, choose a fill color of a different hue with different values. Do not use a stroke. Remember to select the shape before you select a new color from the Swatches or Color Panel.



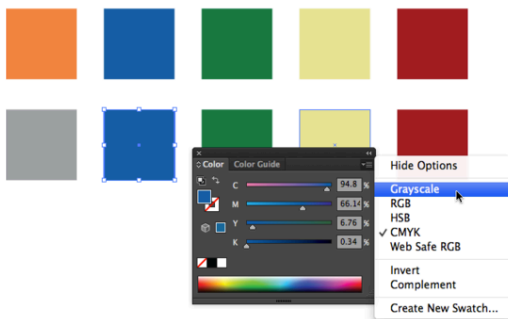
Each square has a different hue with a different value. Choose color from the Swatches panel (above) or the Color Fill (below).

4. Select all of the shapes by marqueeing over all of them with the Selection Tool or hold SHFT and click each shape with the Selection Tool. Hold the option key (OPT) while dragging the squares to create a duplicate set. If you hold the shift key after you begin dragging the mouse, the duplicate copy will move only in straight or 45 degree movements.



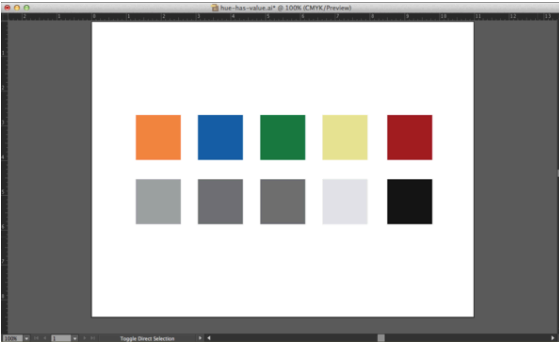
Selecting and duplicating all squares simultaneously.

5. Select one of the duplicate squares with the Selection Tool then click on the Color Panel pull-down menu. The Color Panel is located in the panels on the right side of your Illustrator® workspace. The pull-down menu can be accessed by clicking on the down arrow located in the top right area of the Color Panel. Choose “Grayscale.” This removes the Hue from the square and results in demonstrating the value of the associated hue. Repeat this step for each of the squares in the duplicate set.



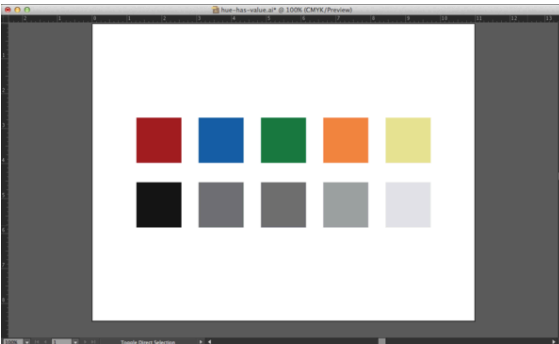
Changing colors to corresponding values using the Color > Grayscale function.

6. Observe how each hue has an associated value.



Results of hues with associated values

7. Rearrange each color-grayscale pair according to the grayscale value, with the closest to white at the right, and black at the left. Select each pair (either by marqueeing with the selection tool, or SHFT-clicking on one square followed by the next) and drag it left or right in the grayscale order. Be sure to hold down shift once you have started to drag the mouse as this will keep your movement strictly vertical or horizontal. You may need to select each row and evenly distribute the squares again (see #2 above).



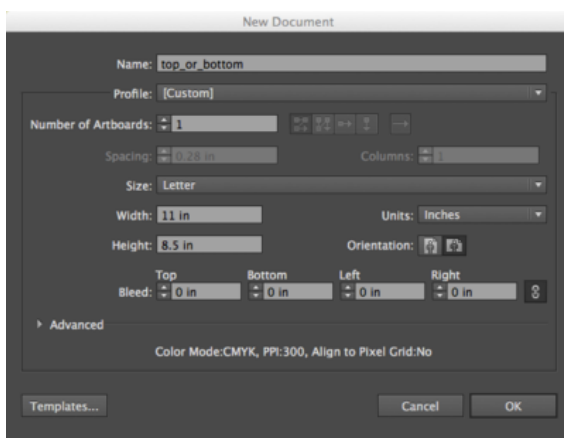
Reordering of hues-grayscale pairs according to grayscale value

Save your document.

5.2 Exercise 2: Top or bottom?

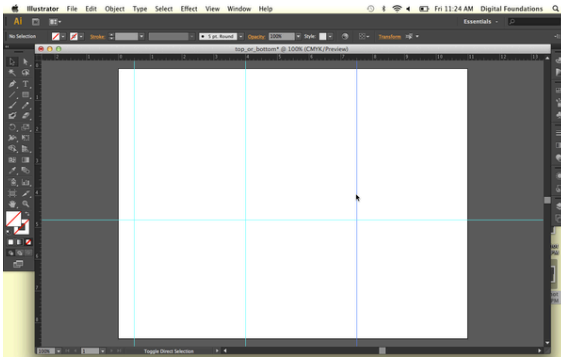
XTINE BURROUGH AND MICHAEL MANDIBERG

1. Create a new file in Illustrator® using basic CMYK color mode in landscape orientation. Illustrator® will remember your settings from the last document you created. If you have not created a new document since completing the above exercise, your document settings will already be programmed. Name the file document top_or_bottom.



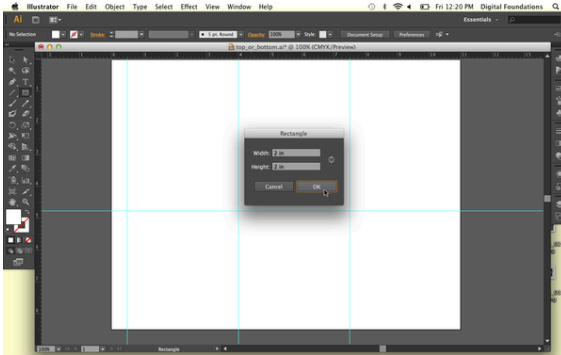
Create a new document in landscape mode (horizontal)

2. Use one horizontal guide and three vertical guides to divide the page. Create the guides by clicking on the ruler and dragging the cursor onto the artboard. Place the horizontal guide at 4.75 inches, which is half an inch below the center of the page. Place three vertical guides at .5, 4 and 7.5 inches. If you don't see your rulers, turn them on by clicking View > Rulers > Show Rulers (CMD+R). You may want to make sure your guides are locked into place. View > Guides > Lock Guides.



3. Create a 2 x 2" square on the top half of the page. Align the bottom of the square to the horizontal dividing line and the left edge to the middle vertical guide. To make the square exactly 2 by 2", double-click on the art board with the Rectangle Tool to see the Rectangle Options Dialog Box. Type "2 in" into the horizontal and vertical measurement boxes.

If the dialog box is set to a different unit of measurement when it first opens, for instance points or pixels, typing "2 in" tells the program to use inches instead of the units of measurement that initially appeared in the dialog box.



Using the Rectangle dialog box to set measurements for your square

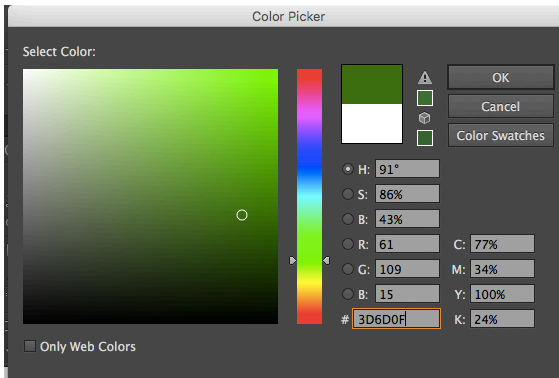
Using the Color Picker

4. Colors have three properties: Hue, Value and Saturation. Hue is the name used to define the color. For instance red, yellow, blue, and so on, are hues. Value refers to how much white or black is mixed into the color. Baby blue has white in it, while navy blue has a greater black value. Saturation is the level of intensity of the color. The color of pale winter tomatoes are less saturated than the color of ripe summer tomatoes.

Double-click on the fill color in the bottom of the Tool Panel. The Color Picker dialog box appears. The Color Picker is another location for choosing colors. The Color Picker has controls for all three properties, hue, value and saturation. Choose a hue on the vertical slider to the right of the color selection area. Then choose a value by moving the color selection circle (in the large color box under Select Color:) up or down vertically. The higher you move the circle, the higher the value and the lighter the color appears. The lower the circle is placed correlates to a lower value and the color becomes darker. Choose a saturation by moving the color selection circle left or right horizontally. The further to the left the circle is

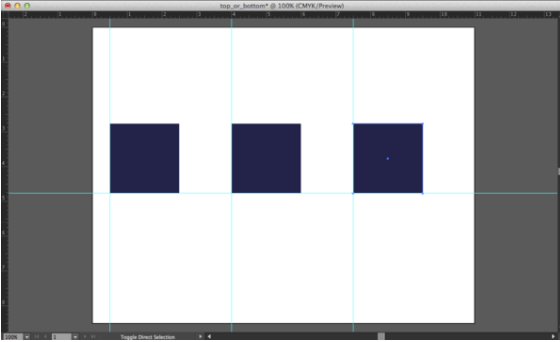
moved, the lower the saturation. The color becomes more gray. The more right you move the circle, the higher the saturation value, and the more intense the color becomes.

5. Make sure that the square is selected before choosing a color in this step. Use the Color Picker to choose a hue with a low value for the fill color of the square. Do not assign a stroke.



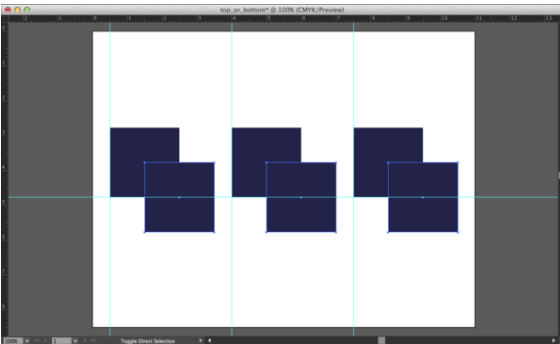
Use the Color Picker to choose a hue with a low value.

6. Option-Drag your square to the right to create a copy (holding down shift after you start dragging will retain it to a movement along the x-axis). Align the bottom of the new square to the horizontal guide, and the left side of the square to the vertical on the left side of the page.
7. Repeat this action to make a copy of the square to the right, once again aligning the bottom edge with the horizontal guide and the left edge with the vertical guide farthest to the right. This will give you squares even spacing.



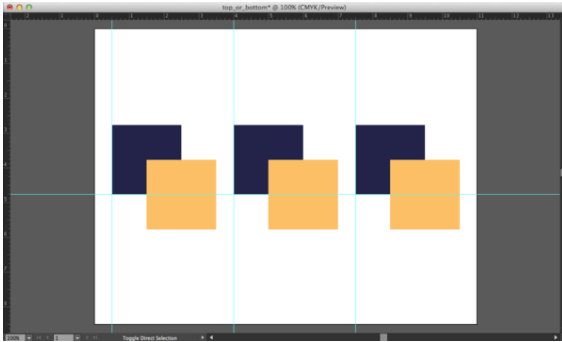
Create 3 squares by duplicating, then align to your guides.

8. Select all three of the squares and Option-drag them down to the right so that 1 inch of the upper left corner of the new squares overlap with 1 inch of the bottom right corner of the original squares. Hold down the shift key to drag the squares at a 45 degree angle.



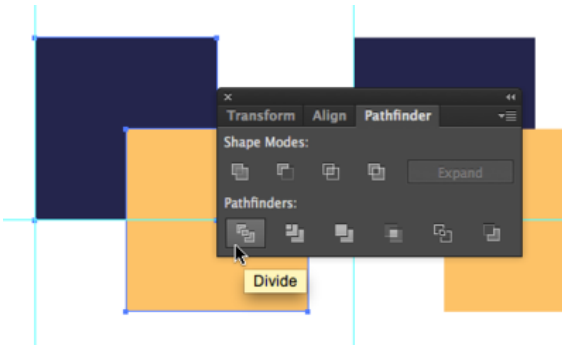
Duplicating and offsetting the squares

9. Give all three of the new squares a different hue with a higher value from the top three: With all three squares selected, double click on the fill square to bring up the color picker. Choose a different hue, and choose a higher value so the color has less black in it.



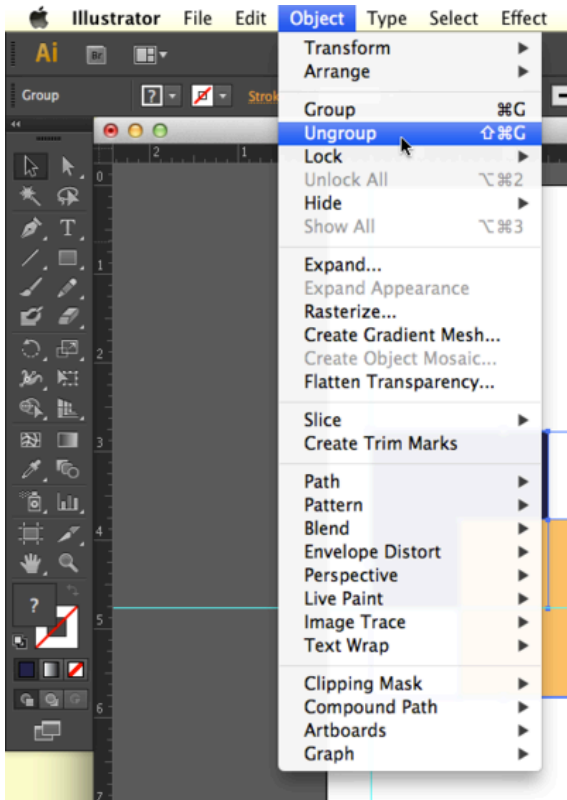
Give 3 bottom squares a higher value hue from the squares on the top row.

10. Select the left set of two squares (drag with the Selection Tool, or shift-click with the Selection Tool).
11. With the two shapes selected, open the Pathfinder Panel (Window > Pathfinder). Click on the “Divide” button, the first button under the Pathfinder heading. Dividing two objects creates a new shape at the intersection of the paths. The overlapping space is the one inch square. It will become its own whole shape, and the three shapes will remain grouped.



The Pathfinder Panel is located on the Main Menu Bar > Window > Pathfinder

12. Select all three shapes and ungroup them by clicking Object > Ungroup (CMD+SHIFT+G). Now they can be selected and treated individually.



*Ungrouping
objects.
Main Menu
Bar > Object
> Ungroup*

13. Repeat steps 10-12 with the middle and right set of squares.

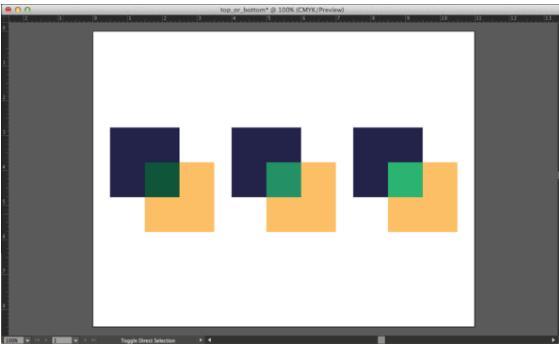
Creating foreground and background depth using hue and value

Now we will modify the color of the middle squares, starting with the left square. The purpose of this exercise is to see how hue and value can be used to create space or depth within a color field. You will set the middle colors to see how that middle square can be pulled forward or pushed back in space, visually, in relationship to the other two squares.

14. For the left set of squares, you will modify the center square such that it appears it is part of the top square, and both it and

the top square are floating above the bottom square. Achieve this by choosing a hue and value that creates strong contrast with the bottom square (you will especially see this at the boundary between the two shapes), and little or no contrast in value with the top square.

15. For the center set of squares, modify the smaller middle square such that it is floating over both of the larger squares. This is achieved by choosing a hue and value that creates strong contrast with both of the other squares.
16. For the right set squares, modify the smaller middle square such that it is part of the bottom square, and both it and the bottom square are floating over the top square. This effect is achieved by choosing a hue and value that creates strong contrast with the top square, and little or no contrast with the bottom square. Be sure to save your document.

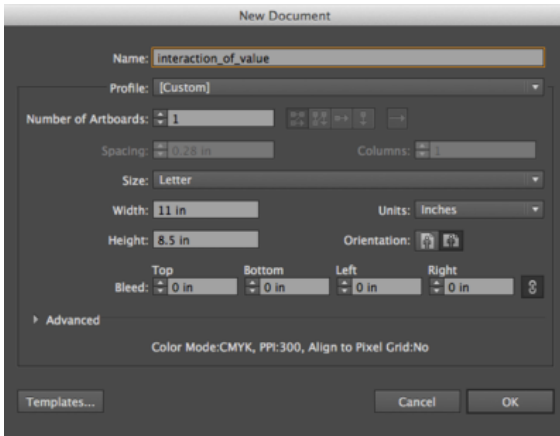


Modifying squares exercise results

5.3 Exercise 3: Interaction of values

XTINE BURROUGH AND MICHAEL MANDIBERG

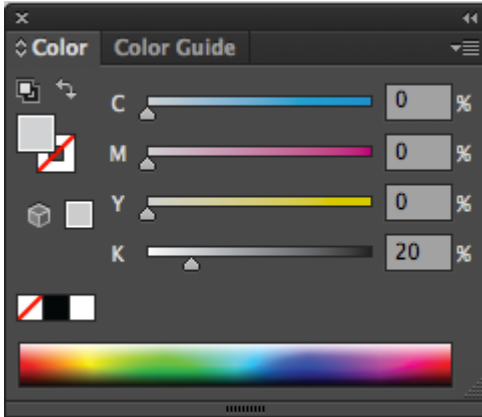
1. Create a new document in landscape orientation. Your settings are the same as the last exercise file. Name your file 'interaction_of_value'.



Create a new Illustrator® document

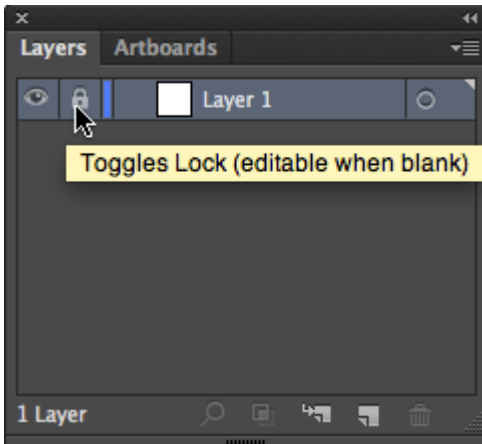
2. Use the Rectangle Tool to create a 20% gray rectangle that covers the whole Artboard, by using the CMYK color sliders to set the K value to 20% and all other sliders to 0%. First, choose your rectangle tool and start by clicking in the upper left corner of your artboard and dragging to the lower right corner. While the rectangle is still selected, turn off your stroke color. Next, display the color sliders by clicking on the drop-down menu in the top right corner of the Color Panel

(located to the right of your Illustrator® workspace). Select “Show Options” by clicking on the tiny icon to the left of the “Color” label on the panel tab that toggles the options for the panel.



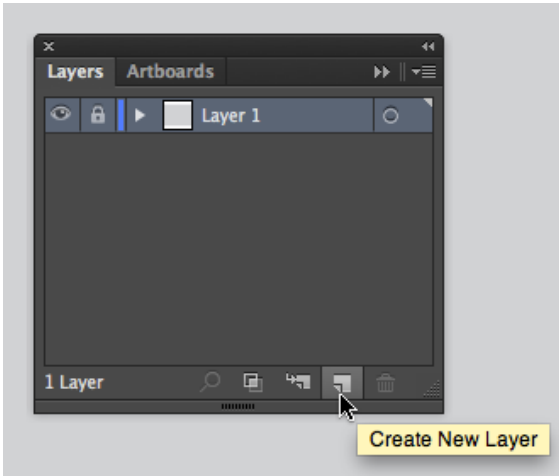
Creating a 20% gray by using the CMYK color sliders. The color sliders are accessed through the Color Panel.

3. Open the Layer Panel (Windows > Layers or locate the Layers icon in the panels to the right of your artboard). The gray shape should be located on Layer 1. Lock Layer 1 so that the gray shape does not move while completing the following steps.



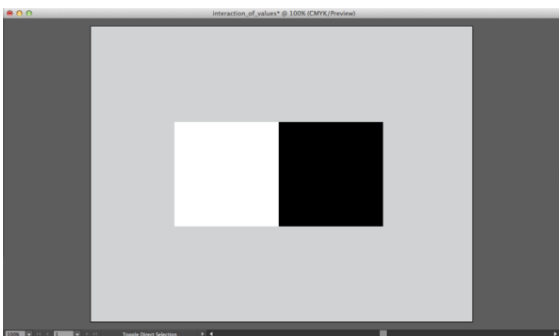
Locking layers by toggling (turn on/off) the lock icon

Create a new layer using the button at the bottom of the Layer Panel.



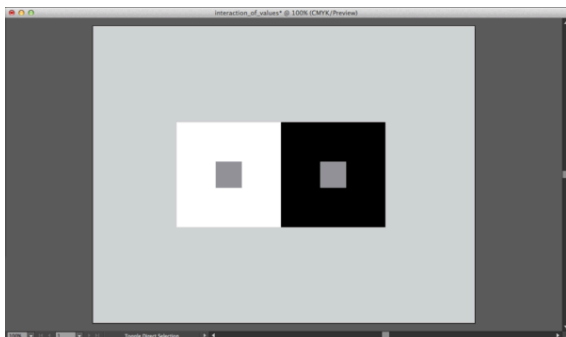
Create a new layer from the Layers Panel

4. With Layer 1 locked and Layer 2 selected (highlighted in the Layer Panel), the following steps will be accomplished on Layer 2.
5. Create Two 3" x 3" squares on top of the gray background. Fill one with white, eliminate any stroke color, and fill the other with black. Place the squares side by side, so that the left edge of one touches the right edge of the other in the middle of the gray area.



Two squares, one white and one black

6. Create one .75" x .75" square in the center of the white square. Fill the square with 50% black (middle gray).
7. Option-drag a copy of this square to the middle of the black square with the Selection Tool. Use the Align tools if necessary (Window > Align).



Exercise 3 results. Notice how the middle gray squares inside the black and white areas appear to have different values.

When values are placed near or on top of each other, we perceive their values as interacting and affecting one another. It is important to keep this in mind when choosing hue and value combinations, as one value will always influence the appearance of another.

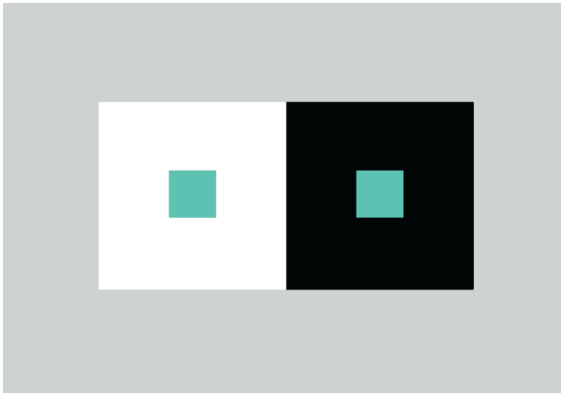
Time to save your file!

5.4 Exercise 4: Interaction of colors

XTINE BURROUGH AND MICHAEL MANDIBERG

And now for the magic trick: in the next exercise three colors appear as four colors.

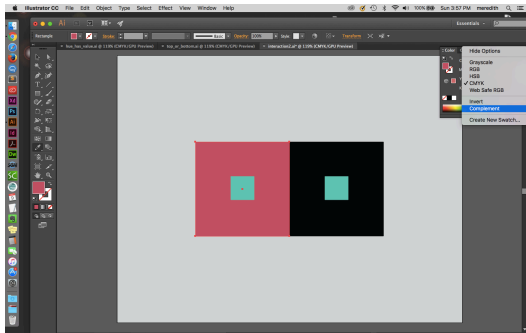
1. Re-save your Exercise 3 file with a new name using File > Save As “interaction2”.
2. Shift select the two smaller squares and use the Color Picker or the Color Sliders (Window > Color) to assign the same new hue to them.



Interaction of colors. Notice how the same hue looks different according to the colors it is next to.

3. Select the larger square on the left (in this example, the white square is selected) and assign it a middle value and a complementary hue to the hue you just chose for the smaller square. You can use the Color Picker or the Color Panel, or you can “cheat” and follow these steps to find the complementary color:

- a. Select the large square to the left, then use the Eye Dropper Tool to click on the smaller square. This will fill the large square with the same exact color that you used in the inside smaller square and for a moment, there will be no distinction between these two shapes and the smaller square disappears. The large square remains selected, so do the next step before you accidentally deselect!
- b. While the large square is still selected, use the pull-down menu from the top right corner of the Color Panel to choose “Complement.” This will assign the exact complementary color (in the color model that you have assigned to your document) to the larger square.

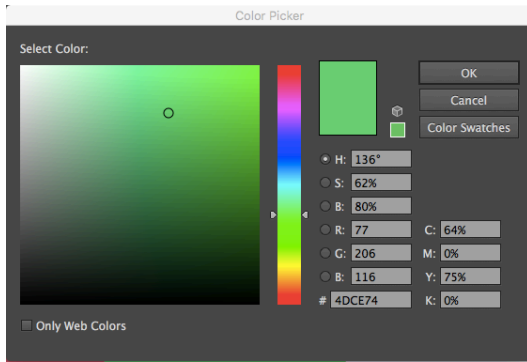


Analogous color study

- c. Now we will change the squares to the right to show analogous color works. Select the larger square on the right (in our example, the black square) and assign it an analogous hue to the hue of the smaller square (ours is green) with a middle gray value. Remember analogous colors are colors next to each other on the color wheel.

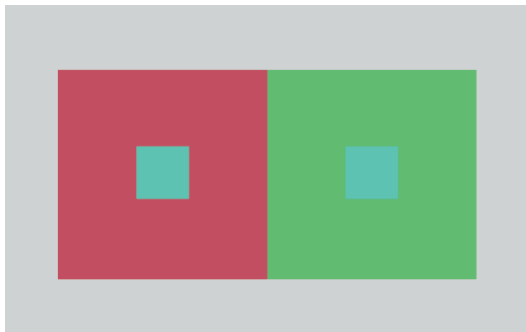
First we used the Eye Dropper Tool to set the fill of the larger, black square to the same hue/value combination used in the small square (a repeat process from step a).

Then in the Color Picker, we slid the hue cursor up slightly for the analogous hue and a little to the left for a value closer to middle gray.



Using the Illustrator® Color Picker and color slider to alter hues and values

- d. Notice that the two small squares look like they are different colors. They are, in fact, the same color, but the presence of the complementary and analogous colors influences our perception. The complementary color emphasizes the perception of the hues, and the analogous color subtracts the perception of the hues.



Notice that the two small squares look like they are different colors.

Time to save your files!

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PART X

ACC CHAPTER 6: LINE ART AND FLAT GRAPHICS

DOWNLOAD MATERIALS FOR CHAPTER 6

[Click here to download chapter 6 work files](#)

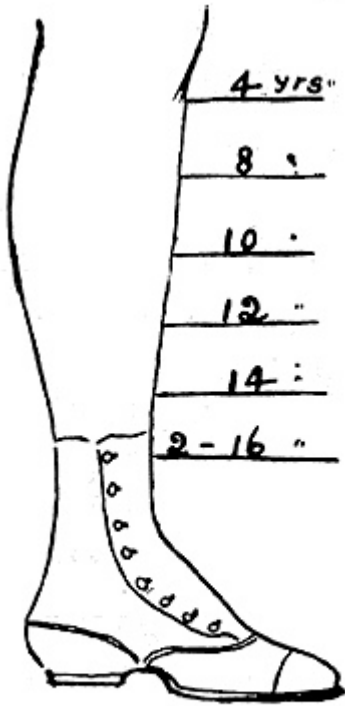
There are files needed to complete this chapter. In this chapter you will need to turn in the ch6-hand.psd file with your files. Make a copy of the file and place it in your chapter work folder prior to doing the work. The completed file is also available for you to view.

Line art is a composition made strictly in black and white, which does not include a shift in tonal scale. The gradation of colors in a photograph of a sunset would not be considered line art, while a newspaper headline is line art, as it is a work in typography, typically created in black on white. Line art most closely relates to drawing with a bold marker, as the ink is either on the paper or it is not. The result is a composition understood through the exploitation of positive and negative space.

Historically, line art referred to flat graphics or illustrations made in ink on paper, and was a method of efficiently producing “camera-ready” materials for the commercial printer. If the work of art consisted of a gradation or more values than black and white, the

technical requirements for silkscreen printing became more cumbersome. Layers of line art would have to be created and photographed, so the printer could recreate the gradation on the single printed page with individual screens of overlapping color or value. Since the 1980s, digital technologies have influenced both the commercial printing industry and the designers and media crafters who send files to print. Printing has become less focused on “camera-ready” materials now that print-ready files eliminate the need for re-photographing original art.

2131



“The proper length for little girls’ skirts at various ages, a diagram from Harper’s Bazar, 1868, showing a mid-Victorian idea of how the hemline should descend from slightly longer than knee-length for a girl of 4 years old to almost ankle-length for a girl of 16.” (The description is quoted from Wikimedia Commons:

http://commons.wikimedia.org/wiki/Image:1868-s_kirt-lengths-girl-ages-Harpers-Bazar.gif)

The proper length for little girls’ skirts at various ages.



In this political poster by Ronen Eidelman the portrait is represented as a flat graphic while the type is large and bold. The contrast between the vibrant red and paper white is intense. The message is quickly understood through a design that is both minimal and dynamic. <http://www.flickr.com/photos/digitalfoundations/2265205253/in/photostream/>

The original “flat graphic style” can be located in Plakatstil, which translates from German to English as “Poster Style.” Plakatstil is the opposite of decoration. It is bold and minimal, the type is large, while the image is sparse and colors are bright. Lucien Bernhard’s 1906 poster design entry to a contest held in Berlin by the Priester Match Company is considered the first work to embrace this new graphic style, possibly inspired by the industrialization of city life and a desire for fast-paced communication.

Although line art and flat graphics are especially utilized for the commercial purposes of logo and identity pieces, the outcome of drawing a single line is as personal as your signature. Artists such as Pablo Picasso and Egon Schiele (see chapter 1) are often identified by their line quality. Two lines can contrast one another due to the weight of each line (the thick or thinness of the line), the amount of pressure used to draw the line, or the boldness or starkness of a line that is heavy or one that is broken up into smaller pieces that reach towards a single direction.

The Pen Tool

The Pen Tool is prominently used for creating flat graphics or line art. It can be used to make complicated forms by tracing images and combining simple shapes. In addition to contouring and tracing, the Pen Tool is often used to create shapes that are used for masking. The Pen Tool can be a little difficult to learn, as the process of using this tool sometimes feels counter-intuitive. The artist has to know where her next point is before plotting it. Visualizing lines, shapes, and space before they exist can be challenging. In this exercise the paintbrush is used to create quick gesture drawings of the lines and shapes that will be recreated accurately with the Pen Tool to eliminate the type of forethought that accompanies the use of this tool. With enough practice on top of template layers, newbies are sure to develop Pen Tool intuition.

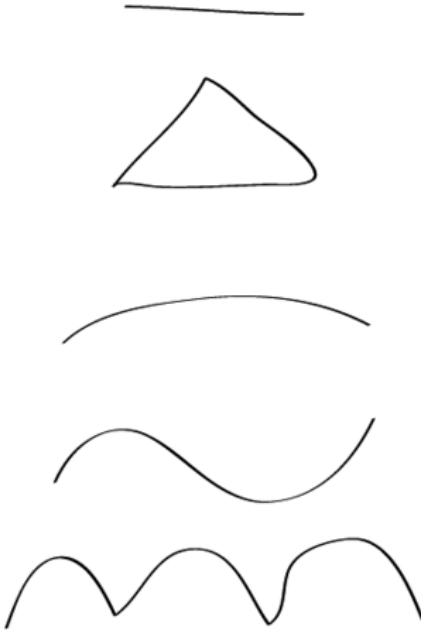
6.I Exercise I: Gesture drawings on a template layer

XTINE BURROUGH AND MICHAEL MANDIBERG

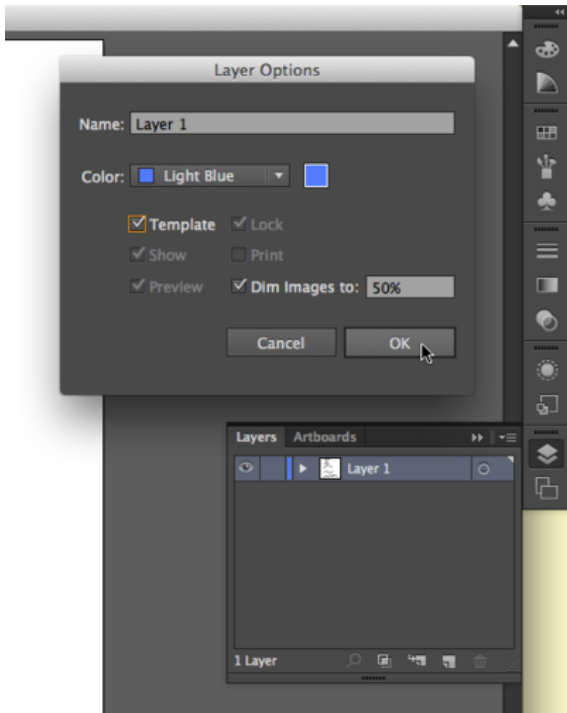
1. Start with a new print document in Adobe® Illustrator® set to standard letter size dimensions. You may change the unit of measure to Inches. Name and save your file as lastname-ch6-pen-curves.ai.
2. To begin, we will set up a template layer with quick, gesture strokes using the Paintbrush Tool. Select the Paintbrush Tool from the tool panel. Hit the letter D on the keypad to set the default colors into the fill (white) and stroke (black). Set your stroke size to 6 pts (See Control Panel > Stroke). Draw a straight line by clicking and dragging with the Paintbrush Tool. Deselect the straight line by clicking off of it with the Selection Tool.

Key Command: Another way to deselect in Illustrator® is to use the CMD key to access the Select Tool and then click off of the Artboard to deselect.

3. Draw a triangle with the Paintbrush Tool. The results of the paintbrush drawings are vector shapes, which always result in anchor points outlining the path. The Direct Selection Tool can be used to modify an anchor point. It is the tool to use when you want to modify part of a shape, but not the whole shape.
4. Deselect the triangle and draw the remaining curves pictured below.

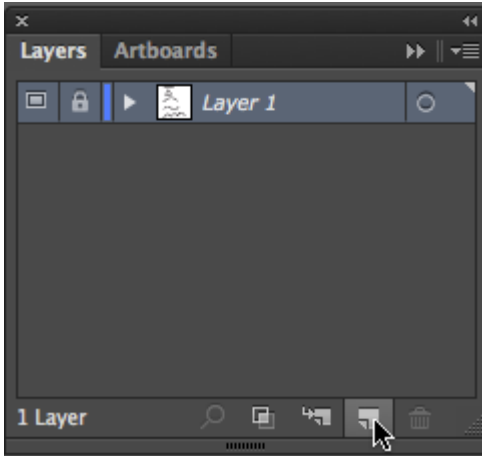


5. Open the Layer panel by clicking in the panel shown in the illustration below or use Window > Layers. Double-click the icon for Layer 1 in the Layer panel. Click on the “Template” button and then click “OK”. The template feature will lock the layer, so that you will not accidentally modify the paintbrush work. Template layers also dim artwork on those layers (this will be especially noticeable in exercise 4).



A look at layer options

6. Create a new layer in the Layer panel. We will use the Pen Tool on Layer 2.



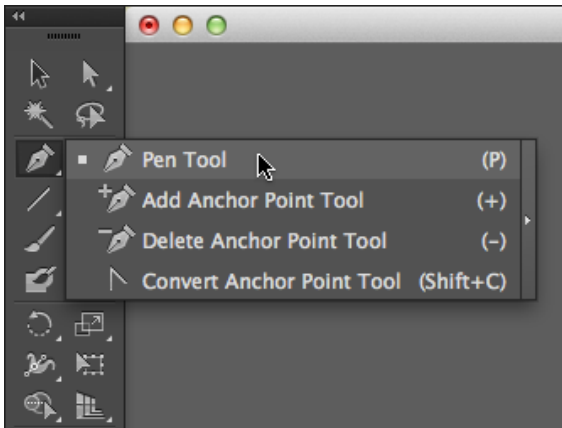
Create a new layer in the Layer Panel

Remember to save your files!

6.2 Exercise 2: Recreating straight lines with the Pen Tool

XTINE BURROUGH AND MICHAEL MANDIBERG

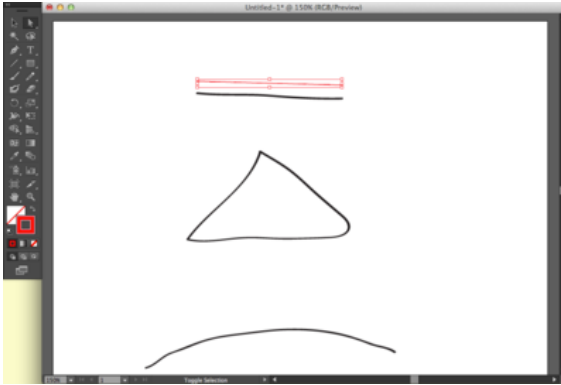
1. Select the Pen Tool from the Tool panel. Click and hold your mouse on the tool to see the additional tools used on vector paths. Click on the vertical bar arrow on the right to undock the panel. The Pen Tool plots anchor points each time you click the mouse. Click once on the stroke icon at the bottom of the panel and set the stroke to red, so that you will see your work when it sits on top of the black template layer. Set the fill color to none.



Location of the Pen Tool on the Tool Bar

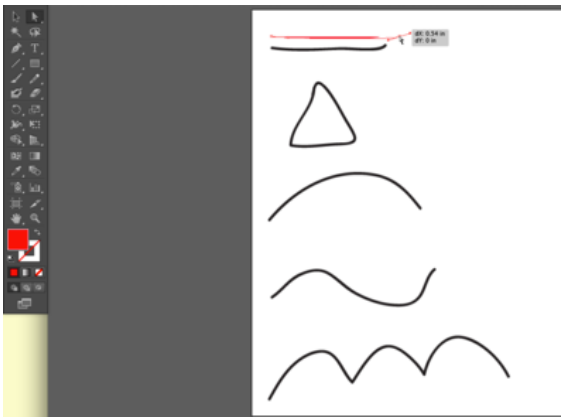
2. To make a straight line in red, click one time at the beginning of the black painted line. Release the mouse. Move the mouse to the end of the black line. Click one time. In two clicks, the

Pen Tool creates two anchor points and joins the points with a straight line. If you are having trouble seeing the red line increase the stroke size to 6pts.



Creating a line with the Pen Tool

3. Once the line is made, it can be modified with the Selection Tool for moving, rotating, or transforming or by the Direct Selection Tool, to modify one anchor point at a time. Deselect the line, then use the Direct Selection Tool to click once on the anchor point at the end of the line and drag it to increase the length of the line.



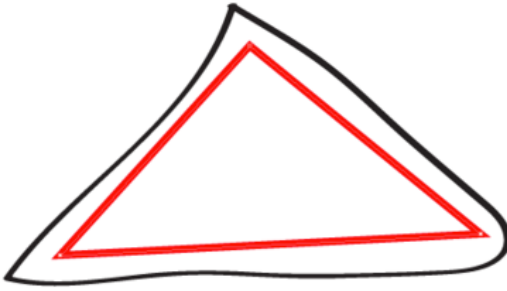
Modifying a line with the Selection Tool

Watch for this: The anchor points grow larger as the mouse hovers near them, making it easier to find the anchor points when nothing is selected.

4. Use the Selection Tool to select the line and change the weight of the stroke from the Control panel. Notice how the line can be bold and aggressive with a larger stroke size or faint and slim with a stroke size that is less than 1 point.
5. Deselect the line.

Part A: Recreate the triangle with the Pen Tool

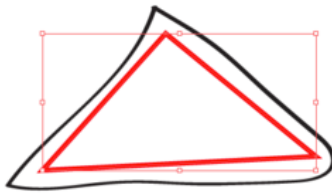
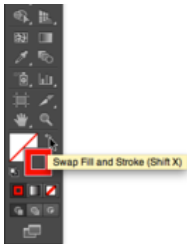
1. Click once at one corner of the triangle with the Pen Tool. Release the mouse. Click on the next corner of the triangle. Release the mouse. Click on the third corner of the triangle. Release the mouse. The fourth click needs to be exactly where the first anchor point was made. Image Caption: Notice in this image that the Pen Tool displays a small o, symbolizing that the path is closed and a whole object is made when the last click with the Pen Tool is made directly on the first anchor point. This is referred to as “closing the path.” When a path is closed, or a shape is whole, it is easy to fill the shape with a color using the Selection Tool and the color tool panels.



Notice in this image that the Pen Tool displays a small *o*, symbolizing that the path is closed and a whole object is made when the last click with the Pen Tool is made directly on the first anchor point. This is referred to as “closing the path.” When a path is closed, or a shape is whole, it is easy to fill the shape with a color using the Selection Tool and the color tool panels.

2. Select the triangle with the Selection Tool if it isn't already selected. Click the curved arrow above the fill and stroke tools in the tool panel. The stroke and fill colors switch places, (in this example, the triangle becomes red with no stroke, as opposed to a triangle with no fill, outlined in red).

Key Command: The letter x on the keypad will switch the fill/stroke color in Illustrator® (in PhotoShop the same hot-key switches the foreground and background colors).



*Location of
:Swap Fill
and Stroke
on the main
Tool panel*



*Filling the
triangle
with color*

Part B: Modify anchor points using the Direct Selection Tool

Just for practice, use the Direct Selection Tool to modify two anchor points at a time. Click on one anchor point of the triangle. Hold the shift key and click a second anchor point (so one whole side

is selected), then begin dragging the mouse to move both anchor points at one time. Alternatively, you can marquee over one side of the triangle, and two anchor points will be selected. You can click and drag with the mouse to move these anchor points, or you can use the up, down, left, and right arrows on the keypad. SHFT + ARROW modifies the placement by ten pixels.

Part C: Create a second shape to add dimensionality

1. Begin by creating a second shape (a parallelogram) using the Pen Tool. Plot the first anchor point near the top of the first triangle.
2. Use the edge of the first triangle to help visualize the dimensionality of the second shape. Plot the second anchor point to create a parallel line between the two shapes.
3. Set the third anchor point so the area recedes in space, creating a unified perspective between the two shapes.
4. Close the path by using your fourth mouse click to return to the first anchor point. If the shape isn't perfect, you can always go back with the Direct Selection Tool to modify individual anchor points.

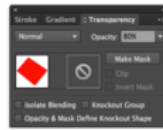


*Closing
straight
lines to
create a
parallelogram*

Part D: Atmospheric Perspective

Stand outside early in the morning or at twilight and look far down the street towards the horizon. Objects that are further away appear less saturated than those that are near. Atmospheric perspective accounts for the perceptual change that happens to the overall opacity of objects as they recede in space.

1. Select the parallelogram and fill it with the same color you used in the triangle.
2. Open the Transparency panel (Window > Transparency). While the parallelogram is still selected, change the transparency to 80%. Flat, basic shapes created with the Pen Tool can be combined to imply complicated shapes and three-dimensional space.



Change the transparency of your shape using the Transparency panel (Window > Transparency)

6.3 Exercise 3: Curves

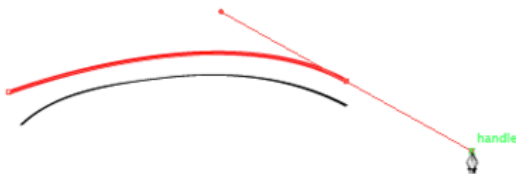
XTINE BURROUGH AND MICHAEL MANDIBERG

Part A: One curve

1. The first curve is created in two points. The first anchor point is made by clicking and dragging the mouse slightly upward to imply the direction of the curve. Do not drag all the way over the curve like you are using a pencil or paintbrush, this tool does not work like a pencil or paintbrush. Release the mouse.

Watch Out! If you set the Pen Tool with a fill and no stroke, the path is filled with color as each point is plotted with the Pen Tool. This can be confusing, even to professionals, while initially setting anchor points.

2. Click once at the end of the curve and drag slightly downward until the curve looks similar to the template.

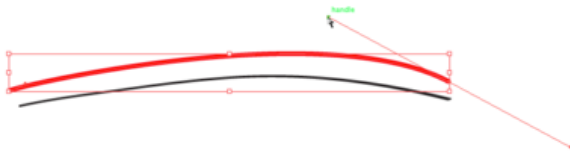


Creating a curve using the Bezier Handles

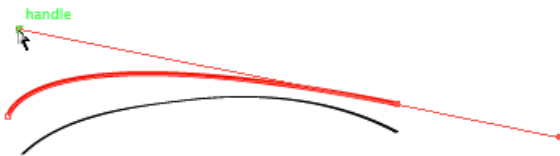
Deselect the curve.

Part B: Bezier Handles

When you are finished you will have one curve with two anchor points. Each anchor point will also have bezier handles, which are used to modify sections of the curved line. With the Direct Selection Tool you can modify the anchor points, the line segments, and each bezier handle. Every curve has a mid-way point, the bezier handles pull on each side of this point.



Location of the Bezier "Handle"



Clicking and dragging the handle to change the shape

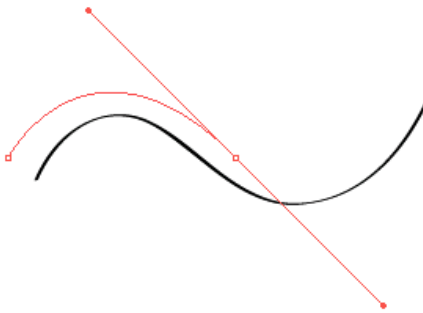
Part C: Two curves in a row

1. Click and drag with the Pen Tool in the direction of the first curve. Release the mouse.



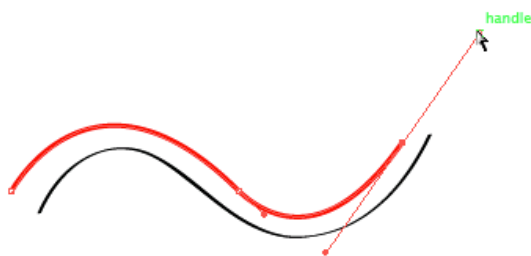
You only need to click and drag a short distance to set the first curved point

2. Click at the end of the first curve and drag down with the mouse – this tells the Pen Tool the direction of the next curve. Release the mouse.



Creating a second anchor point to set the direction of the curve

3. Click at the end point of the last curve and the final curve is made between the last two anchor points.



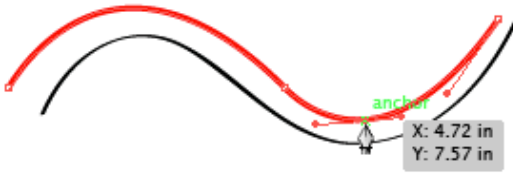
*It takes time
and
practice to
master the
Pen Tool!*

When you are working with the Pen Tool, you have to think ahead of the tool, towards the place where the line changes. Where does the curve change directions? This will inform where you click and how you drag the mouse.

Part D: Deleting and adding anchor points

You can click on an anchor point with the Direct Selection Tool and hit the delete key, or if the anchor is in the middle of a path, you can use the Subtract Anchor Point Tool (Pen Minus) to click on an anchor point you want to delete. You can use the Add Anchor Point Tool (Pen Plus) to add an anchor point any place on a path if you need to add a curve or hard angle after you've finished creating your path with the Pen Tool.

*Deleting and
adding
anchor
points*



Deselect before working on the next exercise.
Are you remembering to save your files?

6.4 Exercise 4: Curves and angles

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The last sample on the template is an example of a curve next to an angle, next to a curve, next to an angle, and so on. The Convert Anchor Point Tool is used to create this juxtaposition. This tool becomes active if you place your mouse near an anchor point while drawing a path. It is also available as a separate tool, hidden beneath the Pen Tool in the Tool panel.

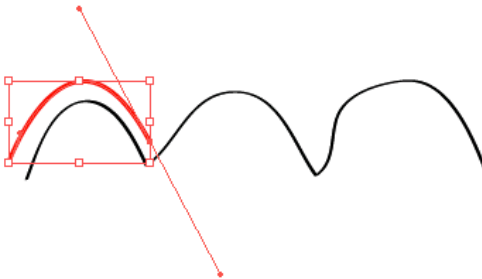
1. Use the Pen Tool to click once and drag in the direction of the curve at the first anchor point.

Step 1



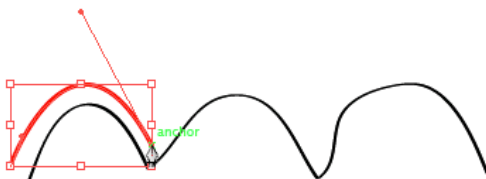
2. Click at the second anchor point and drag to finish the first curve.

Step 2



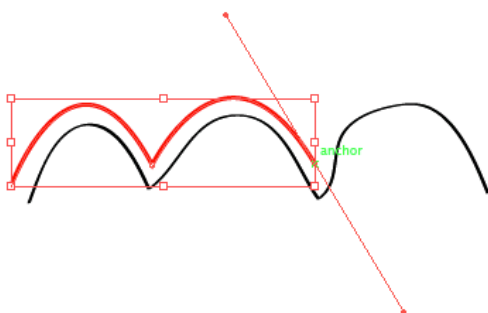
- Now place the Pen Tool close to the anchor point you just created, wait until you see the Convert Anchor Point Tool, then click the mouse. The bezier handle disappears because you no longer have a curve.

Step 3



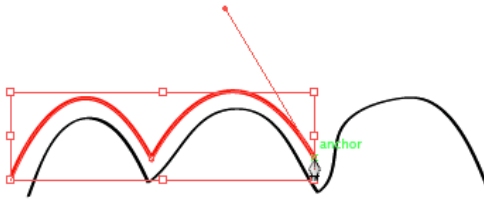
- Click after the next curve and drag the mouse down to create the curve.

Step 4



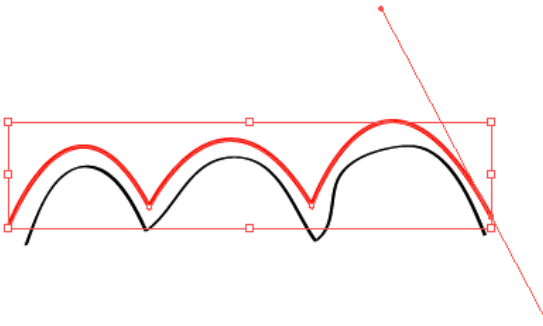
- Click on the anchor point to convert it to an angle.

Step 5



6. Repeat this process until you trace the template.

Step 6



By understanding how to create straight lines and curves, and by converting anchor points from curves to angles or angles to curves, any image can be traced.

...and yes! It's time to save your files!

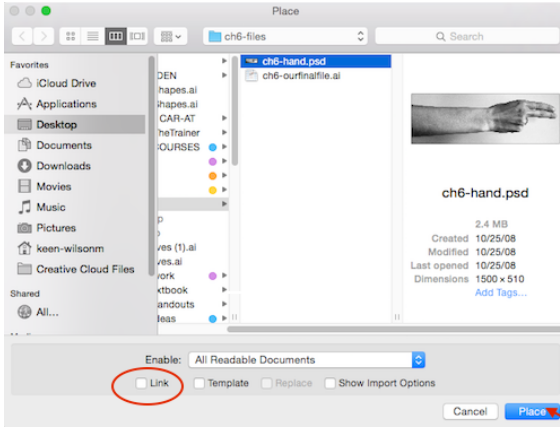
6.5 Exercise 5: Tracing an image and creating a clipping mask

XTINE BURROUGH AND MICHAEL MANDIBERG

Clipping Masks

The Pen Tool is often used in combination with images or vector art to create clipping masks. A clipping mask is used to redefine which parts of an object are revealed to the viewer. They are commonly used on photographic images to “remove the background” from a figure in the image. Included in the files for this chapter is a photograph of a hand in front of a flat wall (ch6-hand.psd is a Photoshop® document). First the Pen Tool will be used to draw a path around the arm, then the resultant path will be used as a clipping mask to hide the rest of the photograph.

1. Start with a new print document in Adobe® Illustrator® set to standard letter size dimensions. You may change the unit of measure to Inches. Name and save your file as ch6-clippath-hand.ai.
2. Choose File > Place to place the image of the hand (ch6-hand.psd) on the new layer. The cursor will ‘load’ the image. Click any where on the artboard. Do not click and drag. That will change the image size.

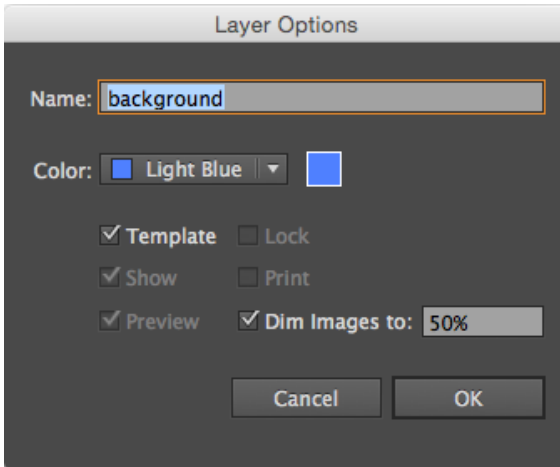


Locating and unchecking the Link box. Image: http://wiki.digit-al-foundations.net/index.php?title=File:Fig06_Ex5_04_CS6.png

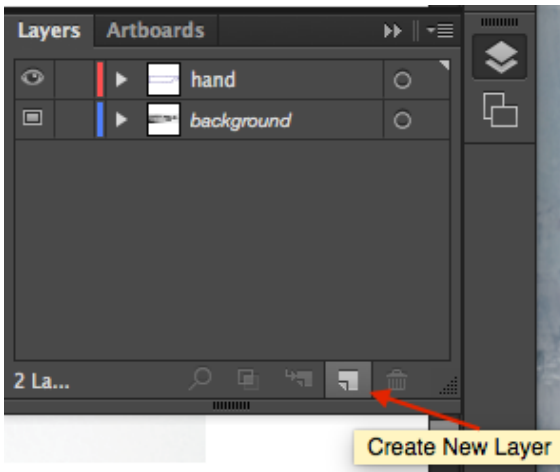
Watch Out: The “link” checkbox in the Place dialog box is used to link (when checked) or embed (when unchecked) the image file in the Illustrator® document. Linking files can be useful as the images are not actually stored in the Illustrator® document, so the file size of the Ai document is not affected by large images. However, linked files must remain available on the hard disk or in the folder, in the same relative position as they were when the relationship between the linked image and Illustrator® file was created in order to view and print the Ai document. For beginning students, it is recommended to embed images, or keep “Link” unchecked.

3. Double-click the icon in the Layer panel and click on the “Template” checkbox. The image will appear dim. Name your layer ‘background’. Create a new layer above this template

layer. Name this 'hand'.



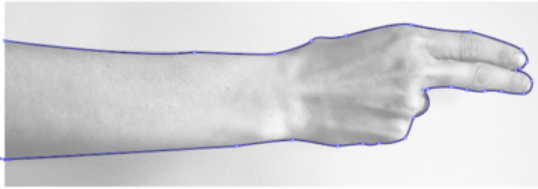
Setting up Layer Options to create a Template layer with the image dimmed to 50%



Create a New Layer from the Layers panel

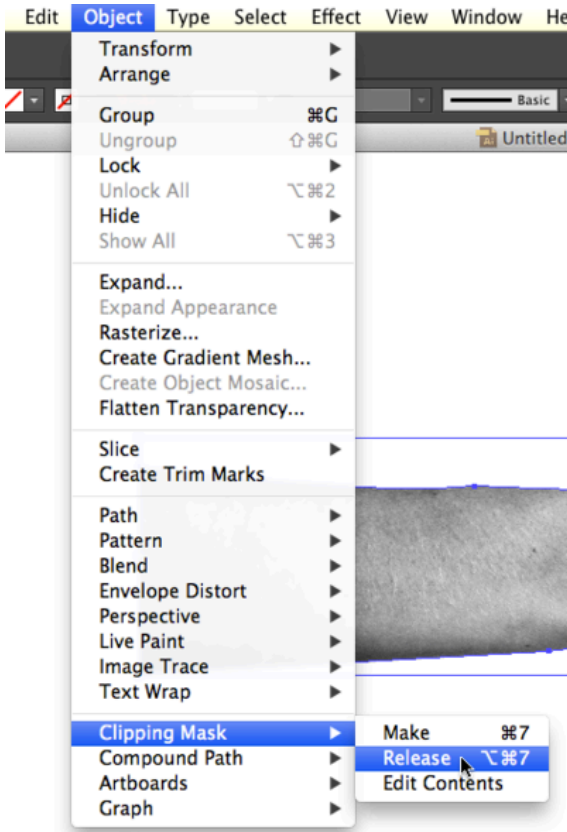
4. Use the Pen Tool to trace the hand. Remember to start and stop on the same anchor point. Also remember that the path doesn't have to be perfect, as the Direct Select tool can be used

to modify it once it has been created.



A tracing of the hand and arm using the pen tool

5. To transform the path into a clipping mask, you will select both the path and the image. First, unlock the background template layer. Next make sure you are on the hand layer. Using the Selection Tool click on the path (around the arm/hand) then hold SHFT and click on the photograph background somewhere above the arm/hand selection. You will see anchor points around the path you just plotted and on the four corners of the placed photograph. Choose Object > Clipping Mask > Make.



Transforming the path into a clipping mask. Main menu > Object > Clipping Mask > Make

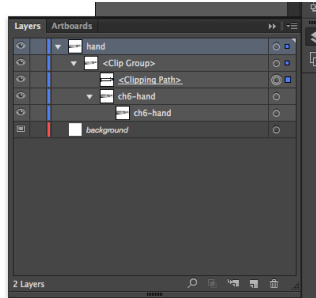
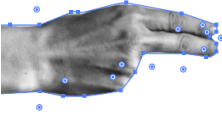
A clipping mask is used to define the areas that are revealed to the viewer, while any part of the image outside of the path is hidden.

Tip: If you are making a clipping mask, you should have a path that is placed inside the photographic

image. That is, the photographic image should be larger than the path that will be used to mask it. If the path is larger than the entire image, the mask will simply reveal everything, in which case you don't really need a mask.

Tip: Be sure to click on the path, then shift-click the photographic image someplace outside of the path. Shift-clicking inside an area that includes both the path and the image deselects everything!

6. Modifying the clipping mask or the image that is masked is possible, as long as you select just one or the other with the Direct Selection Tool. For first time users, this is not always as easy as it sounds. The most fool-proof way to select the mask and not the image is to use the Layer panel. Expand Layer 2 on the Layer panel. Now you have a group that contains the clipping mask and the photographic image. Expand the group so that you can see all of its parts by clicking on the sideways triangle to the left of the word, "Group", in the Layer panel. Now you will see the mask and the image. To the right of each path on a layer there is an area where a small colored box appears if that particular path is selected. Clicking on this part of the Layer panel will select a path within the Art Board. Click to create a blue box next to the clipping mask in the Layer panel. You should see the anchor points surrounding the mask within your document. Use the Direct Selection Tool to modify the mask without touching the photographic image.



left:
Successful
masking of
the hand
and arm.
right: The
Layers
Panel after
clipping has
occurred. To
open
secondary
layers,
toggle (click
on) the gray
triangle
next to the
main layer.

7. The Selection Tool can be used to move the entire image and mask as one unit, since they are grouped together within the Layer panel. Once a clipping mask has been made, it will remain grouped in the Layer panel unless you release it. Save your file.

READ ONLY, do not complete this step.

To delete the clipping mask, you can click on it with the Selection Tool then choose Object > Clipping Mask > Release. Now both the path that was used as the mask and the image are available as two separate objects. They can be deleted or modified as individual objects.

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PART XI

ACC CHAPTER 7: SCANNING

Download Materials for Chapter 7

[Click here to download chapter 7 work files](#)

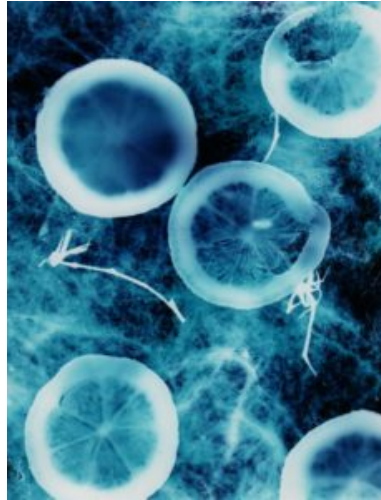
The first photograms were made by photographic pioneers, William Henry Fox Talbot and Anna Atkins in the mid-1800s. Photograms are made by placing objects on sensitized paper, exposing the objects and paper to light, and processing the paper to reveal the print. A camera is not necessary for the production of this type of graphic image; and the result is more like an abstract impression of the object than a highly detailed rendering. A scanogram is the digital method of producing a “contact” image, similar to a



A Photogram of Algae, Anna Atkins from, *British Algae*, 1843, the first book composed entirely of photographic images.

photogram, using a flatbed scanner. Like a photogram, a scanogram is made by placing objects on the “sensitized area,” or the scanner bed, where the surface is exposed to the digital capturing devices that generate a file.

Photograms have been made by artists (see Anna Atkins’ renderings of natural elements or Man Ray, Lissitzky and Moholy-Nagy’s collages) and by commercial designers (see Paul Rand’s package design and book jackets). The process is fun to explore, because the result always differs from the artist’s expectations.



A photogram of lemons, uploaded to Wikimedia Commons in August 2005 by user name Cormaggio.

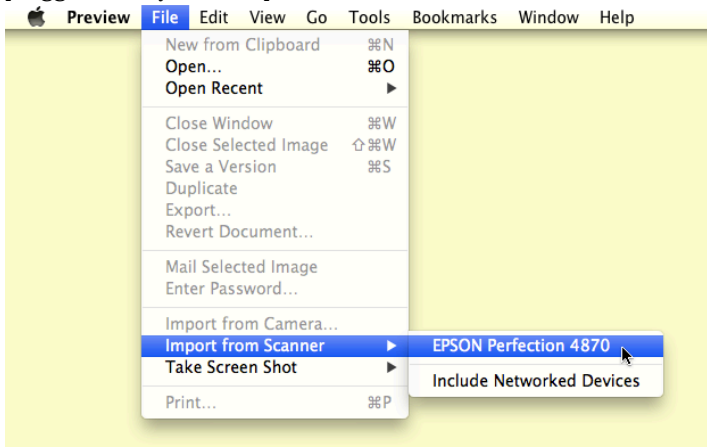
7.1 Exercise 1: Creating a scanogram and understanding file resolution

XTINE BURROUGH AND MICHAEL MANDIBERG

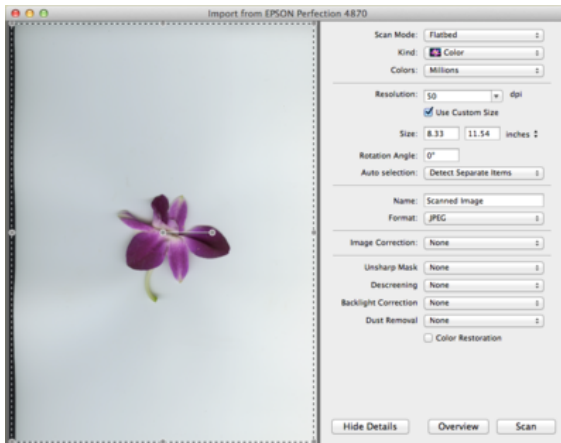
Scanners are hardware devices that use light and sensors to capture an image and through special software send the image data from the scanning bed to the computer hard drive. All flatbed scanners operate in the same manner, but the scanning software varies among various brands. In this exercise, the basic ideas of scanning, resolution and file size will be addressed.

1. Typically, a scanner is used to create a digital image of a printed work. In this exercise, a scan will be made of a three-dimensional object. Start by placing your object on the scanning bed and close the lid. If the object you're scanning doesn't allow the lid to close completely, put a dark piece of cloth over the scanner so the light from the device doesn't bounce out of the surface of the scanner (a jacket or dark sweater will work). Our example object for this exercise is a flower from an orchid – it lays flat so it will be easy to close the lid on the scanner.
2. Open the scanning application. On the Canon scanners in the labs where we teach, the application automatically opens through Image Capture (a Macintosh application that is useful for capturing digital images from scanners and digital cameras), located in Macintosh > Harddrive > Applications > Image Capture. Here we will use Preview, however the following steps can also be performed in Photoshop® which we demonstrate at the end of this exercise. Open Preview and click File > Import from Scanner and click on the scanner

plugged in to your computer.



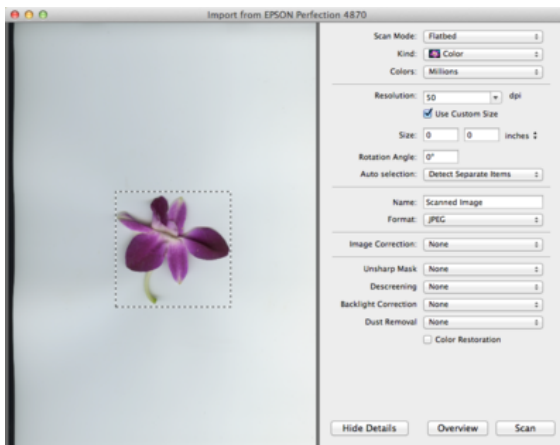
3. The scanner may automatically create a preview of whatever is placed on the scan bed. If it does not, a preview of the last item scanned may be visible. If a preview does not happen when the application is launched, look for a button to create a preview (it is often labeled, “preview”, “overview”, “view” or “prescan”).



As a result of clicking on the “Overview” button in the bottom left area of the scanning application, the size of the flower is small in comparison to the entire scan bed.

4. The scanner will digitally capture the entire flatbed area. If your object is smaller than the flatbed, select just the area that

you want to digitize by marqueeing (clicking and dragging with a selection tool – on most scanners just click and drag) over the image area. In Preview, part of the scan will be selected after pressing overview. You can adjust the size of the selection by dragging the corners to fit your image. You may have to look for a selection tool in order to constrain the area of the scan to just the image area on the flatbed. At this point, your selection designates the location of the object on the flatbed. If you lift the lid and move the object, you will have to re-preview the digital file in order to adjust the selected area.



Notice the selection edges are very close to the edges of the flower on the scanning bed.

5. This is the crucial step. Before scanning the selected area, the artist must decide upon the final file resolution. The resolution specifically accounts for how many pixels are present in one inch of the digital file.

Resolution for printed images

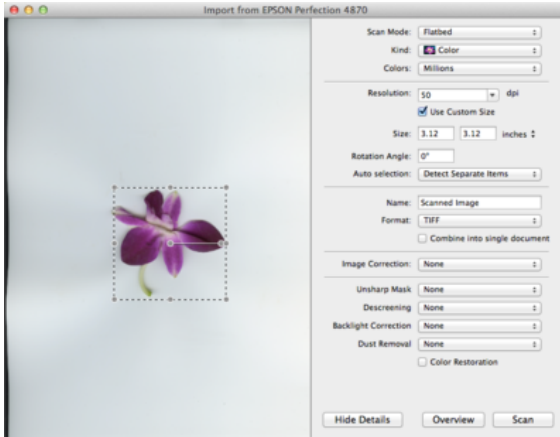
Resolution is measured in dots or pixels per inch (dpi or ppi).

The resolution of the scanned image is a necessary factor in the final print or on-screen output. In consumer or prosumer situations, such as personal ink jet printers or laser printers at stores that will make prints from your digital images, the print will look fine at a resolution of 200 to 300 dots per inch. In professional print environments, the rule is simple: ask the printer for the print specifications including file resolution and color space.

Resolution for screen presentations

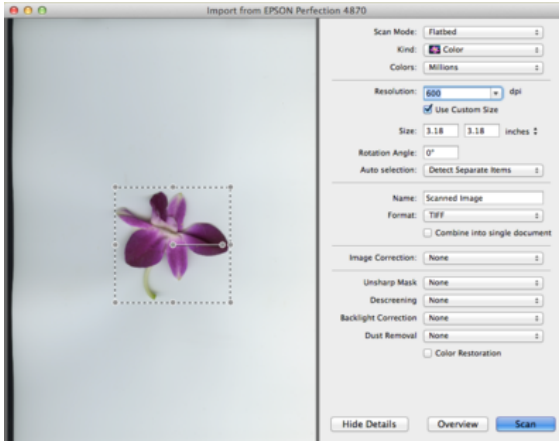
Any image that will be used on-screen, for instance on a website or in a video, will need to be saved only at screen resolution, or 72 dots per inch. The file size is directly connected to the amount of pixels saved in each inch of the bitmap or raster file. Image files saved at screen resolution are much smaller in file size than images that are saved for printing.

To determine the resolution to enter into the scanner software, simply acknowledge the size of the object on the flatbed, then decide how large you want the object to print on the page. If the object is, for example, 4 by 5 inches and the objective is to make a 4 by 5 inch print, scan the object at 200 – 300 dots per inch. If you want to make an 8 by 10 inch print, either scan the object at 300 dpi and increase the scale to 200 percent, or scan the object at 600 dpi at 100 percent scale.



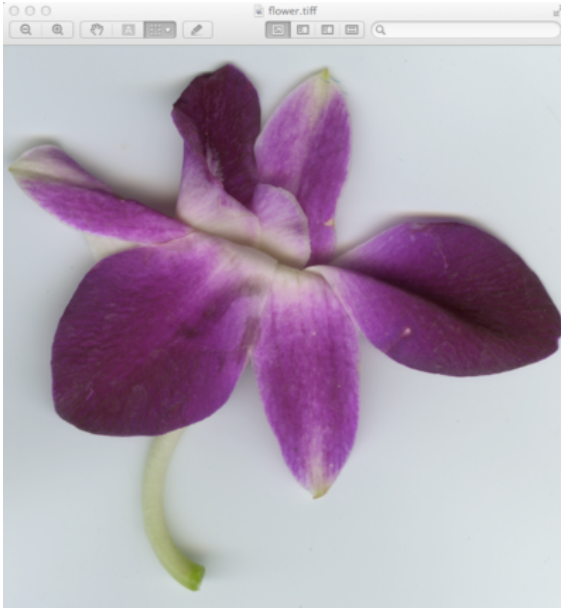
In Preview after resizing the selection, the size of your final image is displayed next to the scan preview. Our image is roughly 3 by 3 inches. This is important information, as it will help me to determine what resolution I will use when I scan the file.

6. Use the guidelines above, choose a resolution and be sure that the color mode is appropriate (black and white line art, grayscale or color).



Here you can see that I am scanning at 600 dots per inch. I know that I can make a very good print on my ink jet printer at 300 dots per inch. Since 300 multiplied by 2 is 600, I know that I will be able to make a very good print of this scan at close to 6 by 6 inches, or the width and height multiplied by 2.

7. Finally, choose a file format for saving the scan. File formats such as JPEG, PNG, and PDF are used to compress the size of the file, and therefore often result in a loss of digital information. File formats such as TIFF and PSD are less “lossy” (the image does not lose digital information due to compression), and are therefore better format choices if the intent is to manipulate the image in an editing program such as Photoshop®.

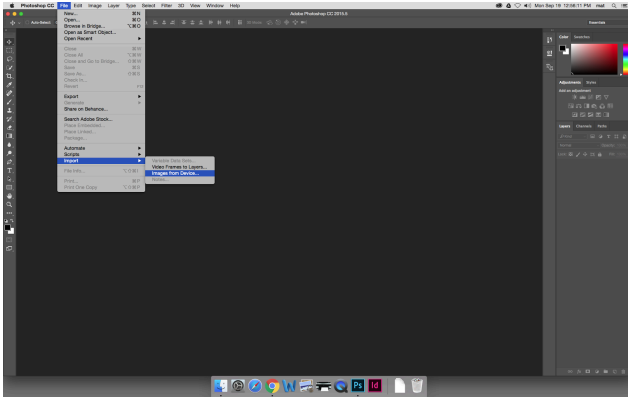


Here is my final TIFF file as seen in Preview. I will be opening this file in Photoshop® for the next exercise.

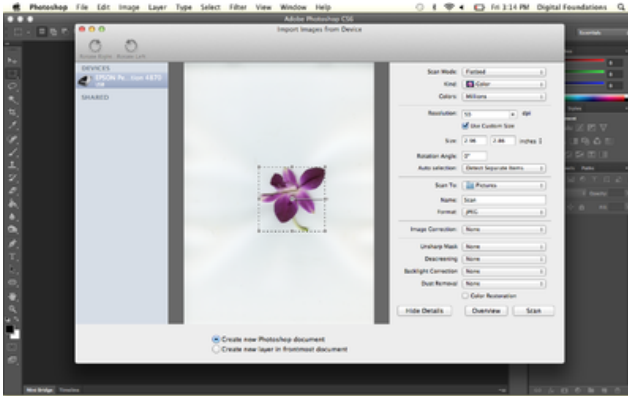
8. The last step is to click on a button that reads something like “scan” in order to create the digital scanogram image file. Once your image is scanned, save it as *ch7-yourlastname-scanogram.tiff* (or .jpg if you’re saving in JPEG format).

Scanning in Photoshop®

To scan an image in Photoshop®, click File > Import > Images From Device.



A dialog box will appear where you will be able to perform steps 3 through 8 from Exercise 1.



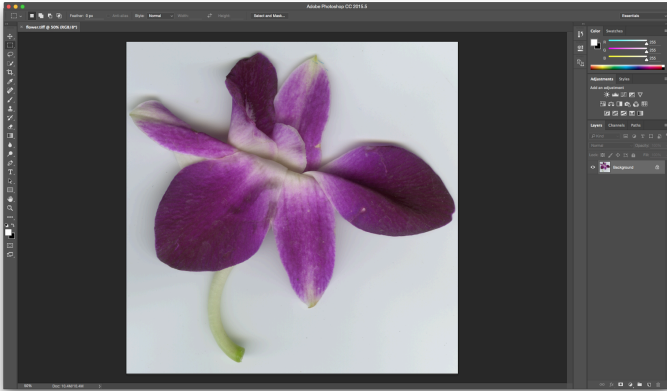
7.2 Exercise 2: A brief tour of tools and palettes in Photoshop

XTINE BURROUGH AND MICHAEL MANDIBERG

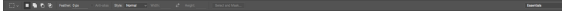
Note: the screenshots in this exercise depict the steps using our sample file, flower.tiff. You should use your own scanogram file that you created in Exercise 1.

1. Open your scanogram file in Photoshop® by dragging it to the Photoshop® icon in the dock or using File > Open from within Photoshop®. Set the default workspace by clicking on Window > Workspace > Essentials (or use the Workspace drop-down menu at the upper right of the screen). Notice that the tools are located in the Tool Palette on the left side of the screen. The arrow at the top of the panel can be used to view the tools in a single or double column.

In the Creative Suite programs, panels are accessible from the Window menu.



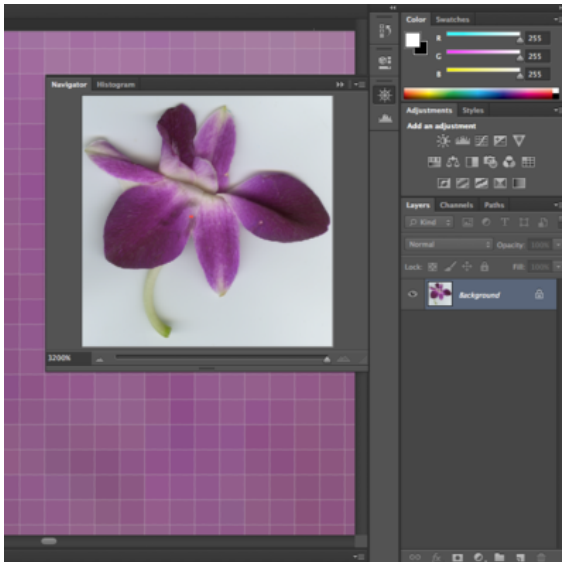
2. Click once on any tool and notice the Options Palette at the top of the screen. All tools have specific options that are used to determine how each tool functions.



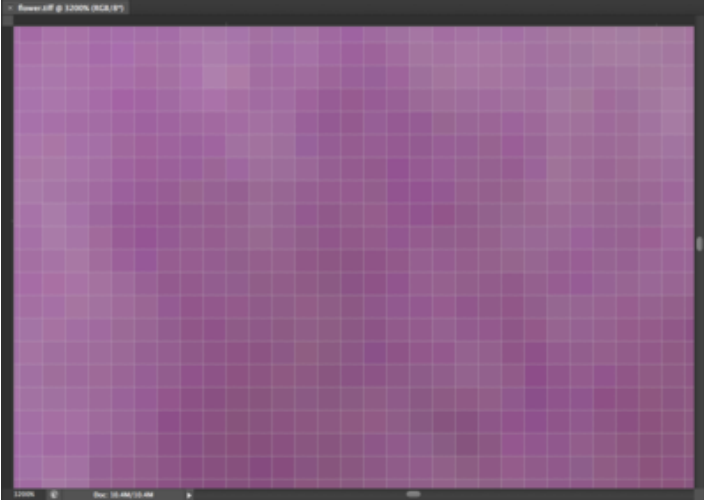
The Rectangular Marquee Tool was selected in the Tool Palette. This is an image of the Options Palette, located under the menus at the top of the screen. When a different tool is selected, its options are shown in this panel.

3. Palettes are also seen on the right side of the screen. All panels

can be hidden or displayed by using the Window menu. Use the Window menu now and click on Navigator to display the Navigator Palette, which can be used to explore various areas of an image. The larger the resolution or dimensions of an image, the more likely it is that the whole image will not be viewable on the screen at 100 percent of its actual size. Using the Navigator is one method of moving around within a large image, but you will soon learn shortcut key alternatives to using this panel. This is worthwhile because the fewer panels that you need to keep open on your screen results in more screen space for viewing image details! Push the slider on the bottom of the Navigator Palette all the way to the right to zoom all the way into the image.



The small red square in the Navigator Palette indicates which part of the image is viewable on screen. Notice the slider is pushed all the way to the right, and in the bottom left corner we are zoomed in to 3200 percent.



4.

Enlarge the view of the image by zooming in and the individual pixels that comprise the image are in plain view. A pixel is the most basic picture element, or a single color unit of the bitmapped digital image file. That last sentence was full of jargon. Let's revisit those words:

Pixel

The word pixel is a combination of two shortened words: picture and element. Each pixel is one unit of color information. Pixels only exist when a real-world object is scanned or captured digitally.

Bitmapped or Rasterized

A digital file is considered bitmap or raster (two words used interchangeably) if it is comprised of pixels. The alternative is a vector file, where the image is made of mathematical

coordinates whose relationships define areas of mass and contour. Adobe® Illustrator® is a vector-based application. Photoshop®, which is primarily used to work on photographic images, is commonly thought of as a bitmap or raster application. If the real world is captured digitally, it is converted into pixels.

5. Double-click the Zoom Tool in the Tool Palette to see the image at 100%. It is important to view digital images at 100% as this is the “true” representation of the file. This is as good as it gets on the screen.

Hot key: CMD+0 will change the viewing percentage so the image is as large as it can be on your screen. This hot key works in all of the Adobe® Creative Cloud® applications.

Notice that the Zoom Tool options includes a zoom out button (Zoom Tool with a minus sign). Click on this and then click anywhere within the image. Keep clicking and you will continue to zoom out of the image. The button, "Actual Size," will also put the file at 100%. The button, "Fit Screen," will make the image as large as it can be viewed on your screen.

6. Double-click the Hand Tool to see the image as large as it can be within your particular monitor settings. Now we'll try some key commands. Zoom in more than 100% by using CMD+= and then use the Spacebar key (SPACE) to access the Hand Tool. Hold SPACE and use the mouse to click and drag on the image. This moves the image around within the workspace, much like using the scroll bars at the edges of the document. In Photoshop®, you will never need to use the scroll bars because you will always use the Hand Tool.

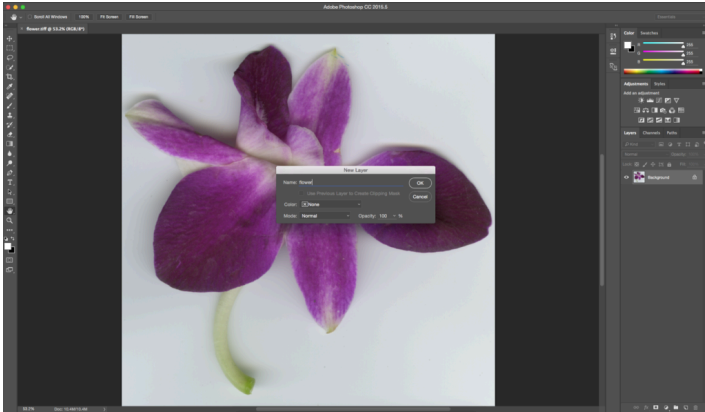
Hot key: Holding the spacebar on the keypad changes most tools to the Hand Tool. This is useful for quick, temporary access to the Hand Tool.

7.3 Exercise 3: Image Size, file size, and resolution

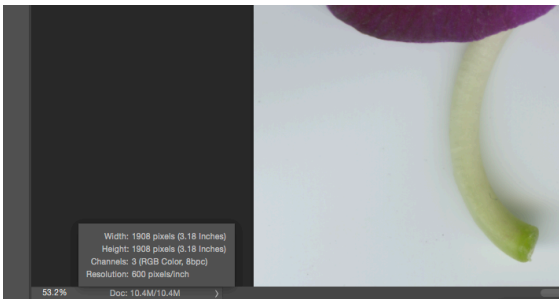
XTINE BURROUGH AND MICHAEL MANDIBERG

1. When an image or object is scanned or input from a digital camera, it appears in the Layers Palette as “Background Layer.” Look in the Layers Palette (Window > Layers) and notice that the background layer is locked. Double-click on the words “Background Layer” in the Layers Palette to use the Rename Layer dialog box. When you rename the layer it is automatically unlocked. A layer is like a single sheet of transparency paper. A “blank” or empty layer is transparent. When a scan or digital photograph is first opened, it lives on the “Background” layer. Layers can be added and deleted using this panel. Unlocking the background layer is a good habit, as it encourages the user to rename the layer (which is always a good idea) and enables the layer to be affected by tools and effects that can be “locked out” when the layer is locked.

Tip: Double-clicking on the icon of the layer will open the Layer Style dialog box. If this happens, hit Cancel, then try again by double-clicking specifically on the name of the layer.

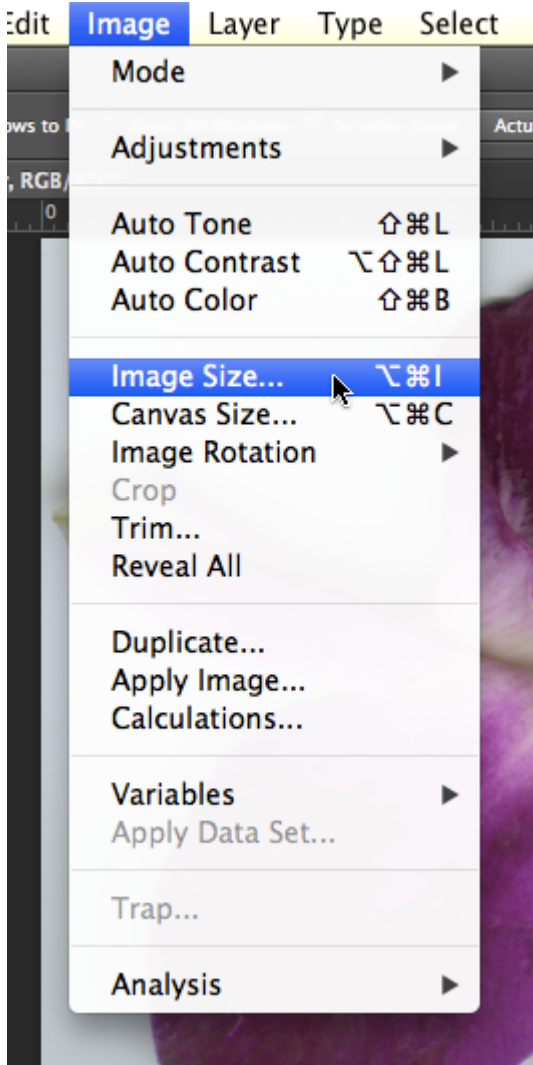


2. The Status Bar runs along the bottom of the file. Click and hold on the area of the Status Bar that reads, “Doc:” followed by a number in kilobytes or megabytes. You’ll see the file’s dimensions (in pixels and printed dimensions), color mode, and resolution.

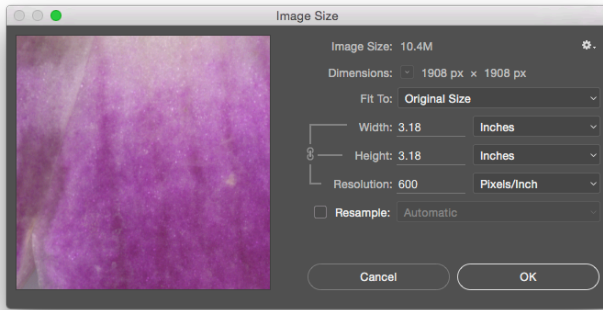


Click on the status bar to see the overall size of the print on the page. Our print would be very small at the current file settings.

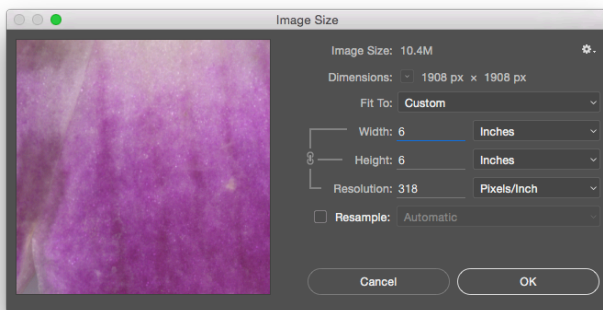
3. Click Image > Image Size to see the resolution of the image.



4. Our scan (flower.tiff) is about 3 by 3 inches at 600 dots (on the print) or pixels (on the screen) per inch.



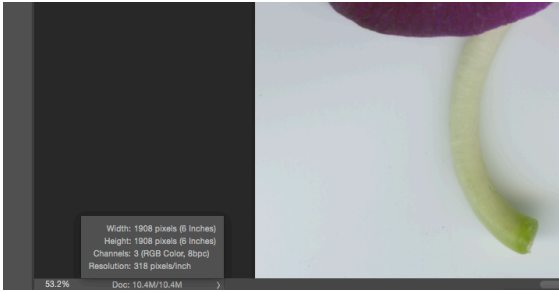
5. Uncheck “Resample Image” if it is checked, so that Width, Height, and Resolution appear linked together. Notice that the pixel dimensions at the top of the Image Size Dialog Box are no longer editable fields. The pixel dimensions will not change if a change is made to the editable Width, Height, or Resolution values. Modifying any one of these values results in corresponding changes to the other two. I set my height at 6 inches. This resulted in a width of 6 inches and a resolution of approximately 318 dpi. A print made at 318 dpi on my personal ink jet printer will be fine, that is, it will not be blurry or pixelated.



Using the Image Size dialog box with “Resample Image” unchecked enables the user to change the dimensions of the

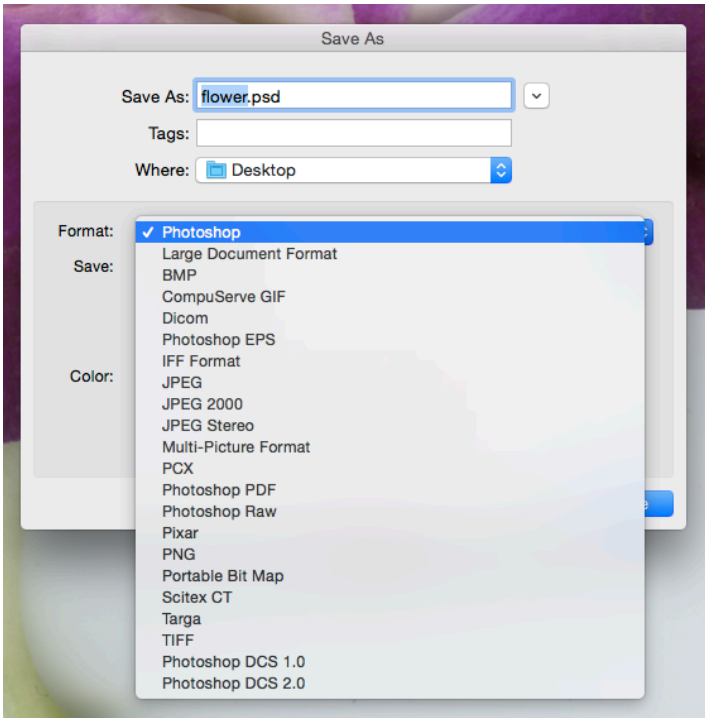
printed image or the resolution (dpi) without changing the overall number of pixels in the digital file. This is a good thing – you would never want to change the amount of pixels within the image, unless you simply want to delete some pixels in order to make the file size smaller. Pixels are created during the scanning process, on a scan bed or within the digital camera. The only way to make “new” pixels is to rescan or recapture the digital file using a higher resolution. It is not possible to create new pixels inside Photoshop® after the fact. OK, that’s actually a lie. You can make new pixels, but you never want to. If Photoshop® resamples the image (or, makes new pixels based on the surrounding pixels) the result is a blurry or pixelated image.

6. Click OK. Notice that nothing seems to happen to your file on the screen. This is because there was no change made to the actual number of pixels in the file. What changed is the amount of pixels that will be printed in one inch when the image is printed. Use the Status Bar to examine the result of changing the dpi in the Image Size dialog box while the option Resample Image was not selected. By nearly halving the resolution, the dimensions of the printed image have doubled. The size of the file stays the same.



Clicking and holding in the Status Bar area demonstrates that my scan will print at a much larger size than it would have printed before I changed my resolution settings in the Image Size dialog box.

7. Choose File > Save As and change the format of the file from TIFF to Photoshop®, name your file *ch7-yourlastname-scanogram.psd*. Always save your work in progress using the native or master Photoshop® (PSD) format, it will give you more flexibility and options for revising your work as needed.



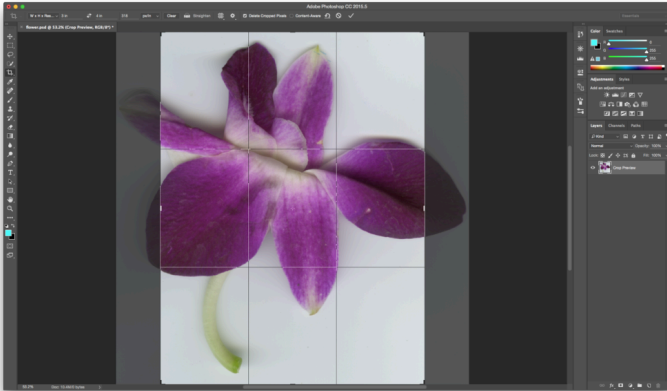
7.4 Exercise 4: Basic adjustments to contrast, hue and saturation levels

XTINE BURROUGH AND MICHAEL MANDIBERG

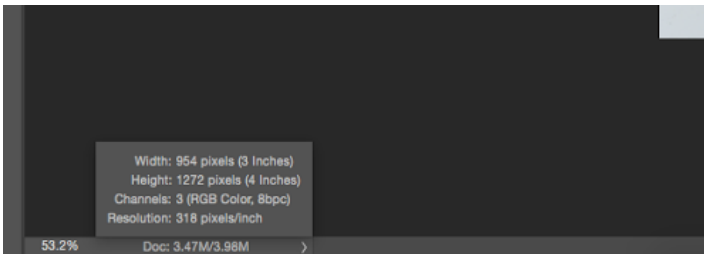
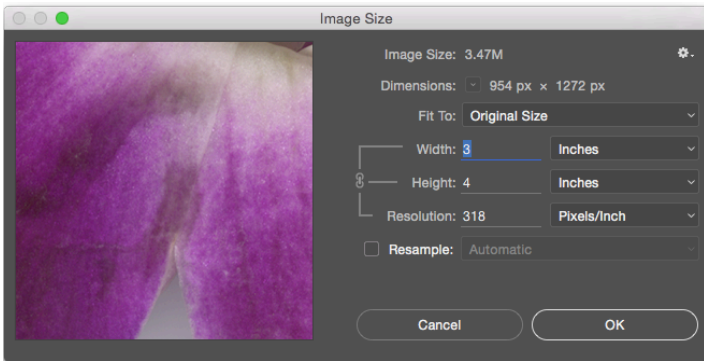
In this exercise we will make adjustments to the contrast, hue and saturation of the scanogram. The methods utilized in this exercise are basic, that is, they are less specific than professional methods for color correction. However, the scanogram creates an image with great density in the shadow areas and overexposed highlights. The range of mid-tone values is usually discreet. As a result, these basic adjustments are easily seen and properly utilized on this type of image file. In this exercise, how the image “feels” is more significant than the details in the specific highlight and shadow areas. Advanced image adjustments are explored in chapters 8 and 9.

1. To start, crop the image so that it is exactly 3 by 4 inches. Click on the Crop Tool in the Tool Palette, then use the Options Palette to set the Crop Tool to make a crop at exactly 3 by 4 inches. Click and drag with the Crop Tool over the image. When most of the image is selected, as in the screen capture below, press Return or Enter on your keyboard’s numeric keypad to finalize the crop. **Note:** Depending upon the dimensions of your original image, cropping to 3”x4” may result in a slight enlargement of your original image or may require that you crop out a portion of your image. Either or both of these situations are acceptable for this exercise.

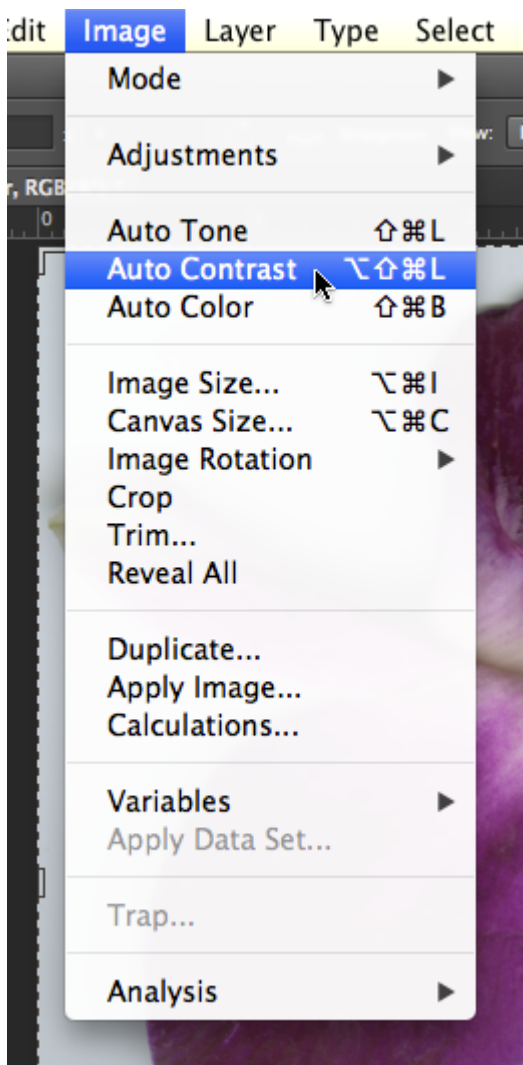




2. Double-check the width, height and resolution in the Image Size dialog box and in the Status Bar.



3. Click Image > Auto Contrast to automatically adjust the contrast within the image file.





*Before
applying
Auto
Contrast*



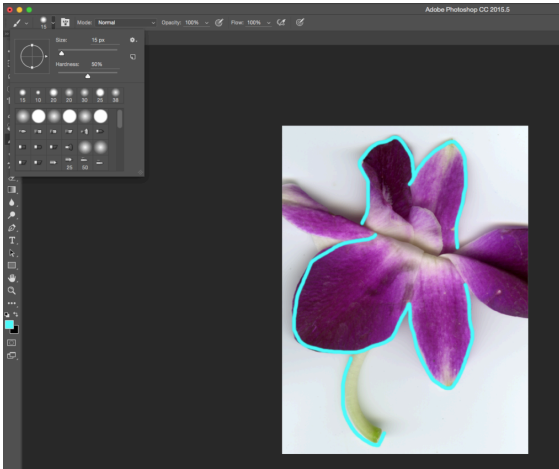
*After
applying
Auto
Contrast*

4. Press CMD+Z on the keypad to “undo” the last step. Press CMD+Z again and Photoshop® “redoes” the last step. In Illustrator®, CMD+Z continuously undoes previous steps. In Photoshop®, the History Palette serves this purpose. We’ll explore the History Palette in the next few steps.

Tip: The menu item for “Undo” is Edit > Undo. It is almost not even worth mentioning as you are best off knowing the hotkeys for this important

Photoshop® command.

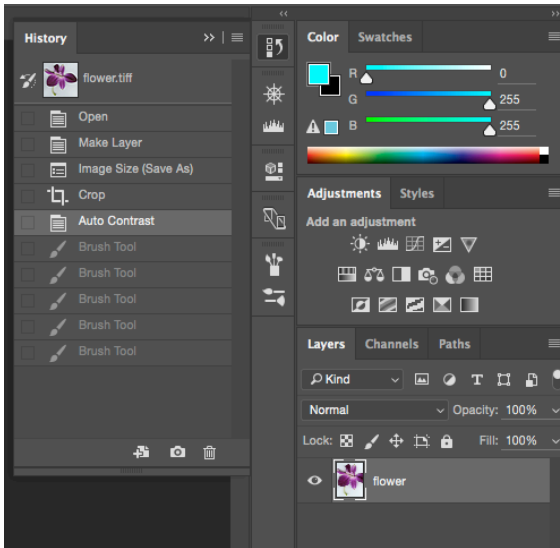
5. Click on the Brush tool and make five random marks with it on the image. Press CMD+Z two times and you will still have five random brush marks on top of the scanogram.



The Brush Tool is selected in the Tool Palette. The Brush Options can be used to select a brush size, a hard or soft edge on the brush, and the opacity of the hue that the brush draws (look towards the top right area of the Brush Tool Options).

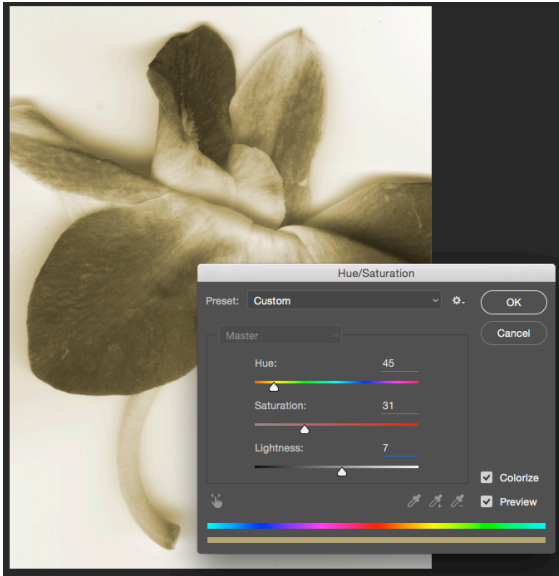
6. Click on the History Palette (Window > History) and notice that it says, “Brush Tool” for each of the times that the paintbrush was used. Click once on each step in order to travel backwards through time. Just clicking on the step is “enough,” that is, nothing needs to be clicked in order to confirm that this is where you want to start working – just, start working and a new step will be recorded in the History Palette. Click on the step in the History Palette that restores the image to the point

after Auto-Contrast was applied.



In the History Palette, clicking on the step just above the five brush strokes, on “Auto Contrast” is the way to **undo** those five brush strokes.

7. Click Image > Adjustments > Hue/Saturation. This adjustment changes the layer’s hue, the intensity or saturation level of the hue and the value of the hues within the image. To create an overall wash of color or monotone effect, click on the “Colorize” button at the bottom right of the dialog box. Changes made to the hue (by dragging the hue slider) will become easily apparent.



The Hue/Saturation adjustment is used to create a monotone wash over the image. Here the image takes on a sepia tone, similar to a traditional photographic bath used to cast a warm tone on the image.

You've completed this exercise and this chapter. Make sure to save your work after these final steps.

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PART XII

ACC CHAPTER 8: TONAL SCALE

Download Materials for Chapter 8

[Click here to download chapter 8 work files](#)

You will need the chapter 8 work files to complete this chapter's exercises.

When evaluating photographic images, in color or grayscale, the range of tones should be taken into consideration. The tonal scale in an image encompasses the changes in value from black to white. Unless the aim of the image-maker is to produce a low key (dramatically dark) or high key (exceptionally light) image, the file and resulting print should include image details in the shadow and highlight areas.

Common problems that are addressed by adjusting the tonal scale are as follows:

1. The image is too *hot* when the white areas are “blown out”, meaning there are no image details in the highlights.
2. The image is *murky* when there is not enough contrast between the darkest black value and the lightest white value.
3. The image displays a *colorcast* when there is evidence of a hue in areas that should be neutral gray or white.

4. The *middle gray* area of the image is too dark or too light, which usually corresponds (especially) to skin tones being too dark or light.

In this first recorded photograph, shown below, the exposure time was 8 hours! Notice the limited tonal scale due to such high contrast among the dark and light values.



VIEW FROM THE WINDOW AT LE GRAS, NICÉPHORE NIÉPCE, 1826, Saint-Loup-de-Varennes, France. Captured on 20 × 25 cm oil-treated bitumen.

This next photograph was commissioned by the Farm Security Administration (FSA). Florence Owens Thompson looks towards the future with worry, as her children bury their heads into her shoulders. The FSA was part of The New Deal, a set of programs initiated by Franklin Delano Roosevelt to stimulate and revitalize weak economies from 1933 – 1938. The FSA hired photographers, such as Lange, Walker Evans and Marion Post Wolcott to document America after the Great Depression. Notice how the range of tonal values expresses the details in Florence’s face and the blanket on her lap.

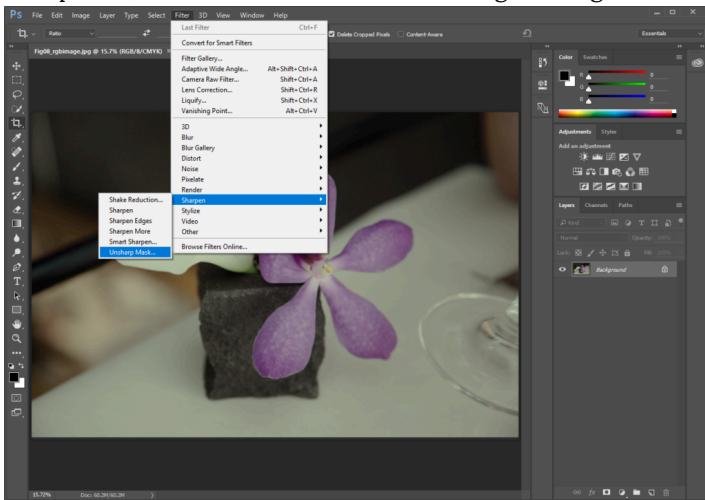


MIGRANT
MOTHER,
Dorothea
Lange, 1936.
Silver gelatin
print.

8.1 Exercise I: Minor adjustments to the original file

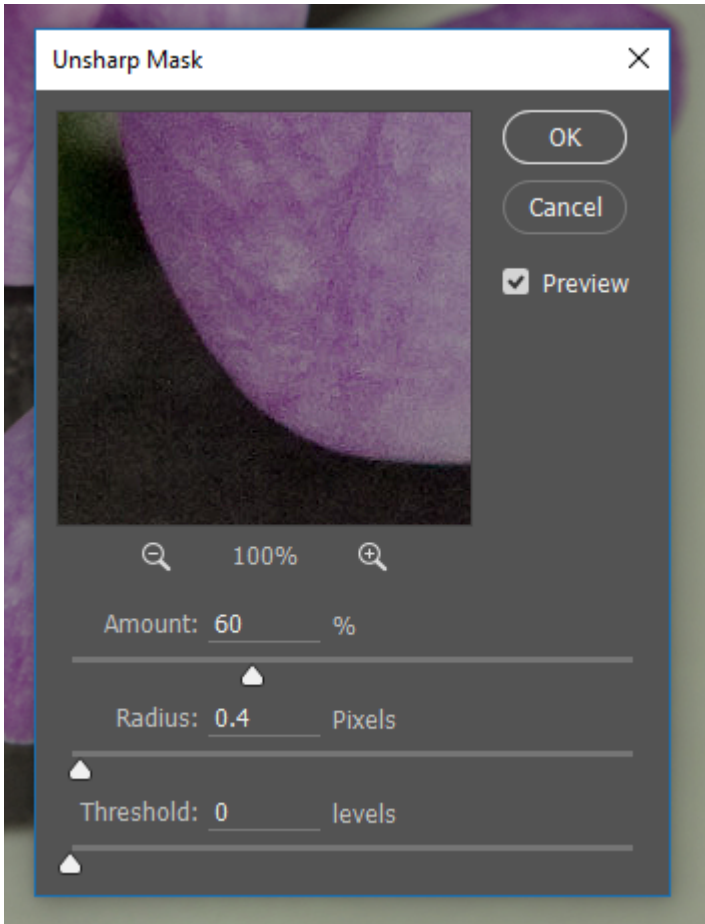
XTINE BURROUGH AND MICHAEL MANDIBERG

1. For this exercise, open in Photoshop® the file named **Fig08_rgbimage.jpg** (a photograph of a purple flower by Fred Benenson) included in the Chapter 8 Download Work Files.
2. Whenever an image is scanned or captured digitally, the process of digitizing a three dimensional reality into a two dimensional file results in a loss of contrast. **Unsharp Mask** is a Photoshop® filter that is commonly used to compensate for this loss. From the menu bar, click **Filters > Unsharp Mask**. Photoshop® has many filters available which can be used to manipulate, enhance, or otherwise alter a digital image.



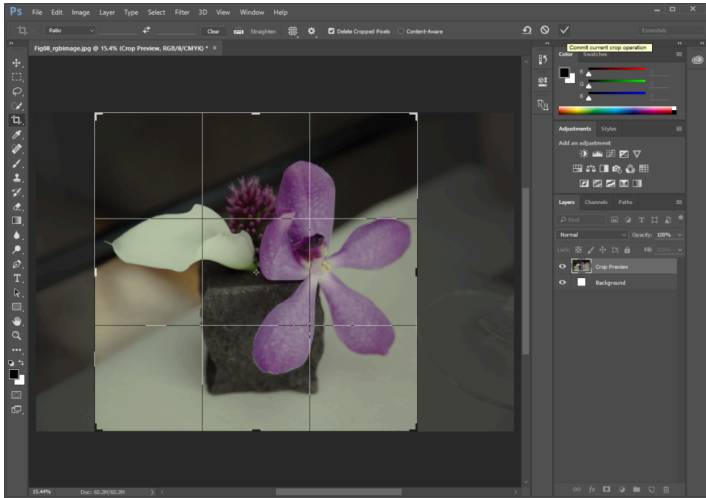
The Unsharp Mask filter analyzes the contrast in edge areas of an image and increases the contrast of those pixels. Be sure that

the Preview button in the Unsharp Mask dialog box is checked. Look at the image while clicking on the Preview button. Unchecking the Preview button displays the “before state” (the unfiltered image) and checking the Preview button reveals what the image will look like after the filter is applied. There are no set rules, but the guiding relationship is between the settings in this dialog box and file size. The larger the file size, the higher you will set values for Threshold, Radius and Amount. With smaller file sizes (anything less than 30 megs) you will probably leave the Threshold at 0, the Radius lower than 1.0 and adjust the Amount to somewhere between 20 and 250 percent, use your best judgement for an image that looks good. You will know when you’ve gone too far, the increased contrast will result in an image that looks pixelated and forced. Applying this filter should produce a minor modification. Once you’re satisfied with the settings, click OK to apply the filter.



3. Now we'll use the Crop Tool to crop the image. Click the Crop Tool in your Tools panel (or press the C key on your keyboard). When you activate the Crop Tool you will see a dashed border with control anchors appear around the image (if you don't see the dashed border and control anchors, click and drag across the image to define a crop box). Click and drag the anchors along the side edges of the crop box to adjust where the crop box is located in relationship to the image. The Crop Tool displays the cropped area by setting a dark gray cast on the parts of the image that will be cropped out of the scene. When

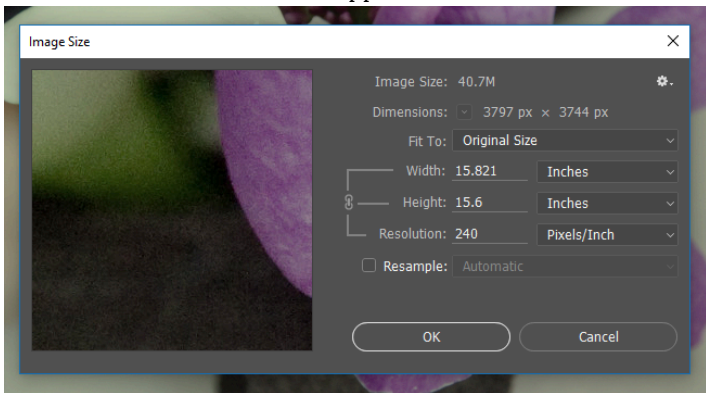
the crop area looks appropriate, press Enter/Return on your keyboard or click on the checkmark in the *Options bar Control panel* at the top of the Photoshop® interface to “commit current crop operation.”(Note: Sometimes you may need to rotate an entire image 90 degrees clockwise or counter-clockwise, or 180 degrees. To do this you can choose **Image > Rotate Canvas** and select the desired rotation from the submenu.)

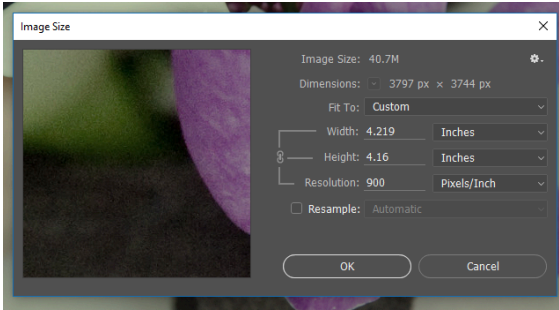


Tip: If it seems like the Crop Tool is sticking to the edges of your image, click on the anchor to readjust the crop area then hold down the CTRL key, which temporarily turns off “snapping” (a feature in the View menu that can be helpful when moving multiple objects into position). Let go of the mouse before letting go of CTRL.

4. When processing, capturing, or cropping images for use in print, it is a good idea to check the Image Size dialog box

(**Image > Image Size**) to evaluate the resolution settings. Think about what size you need this image to be when printed and keep that in mind as you check the information in the Image Size dialog box. Remember from Chapter 7 that a printed image will be clearest if its resolution is between 200 and 300 ppi. Many digital cameras record very large images, but the resolution is set at 72 ppi and may need to be adjusted. Looking at the Image Size information for our Fig08_rgbimage.jpg file, we see it has a resolution setting of 240 ppi and the cropped Width and Height of the printed image will be around 15.8” by 15.6” (your crop may be slightly different). Let’s try adjusting the Resolution to values of 900, 600, and 300 ppi and observe how that changes the printed Width and Height. *Be sure to uncheck “Resample Image” before adjusting the resolution to a higher number.* You should see that as the value of the resolution (measured in pixels per inch) increases, the width and height of the file decreases and the amount of pixel information (labeled as Dimensions near the top of the Image Size box, which should be grayed-out) remains the same. If all of this is not happening for you, and you are trying to increase the resolution of the file, something is wrong – double check your Resample setting and make sure that checkbox is unchecked. When you are finished experimenting with Resolution settings, set the Resolution value to 300ppi and click the OK button.





Notice the button for 'Resample Image' is not checked in the Image Size dialog in the above images. In the Image Size dialog box in the second image, where the resolution value was changed to 900 ppi, the width and height that the image will be when it is printed is reduced to 4.219 by 4.16 inches and the amount of pixels (in the top part of the box) remains the same.

Tip: If you clicked with the Crop Tool and simply want to start over, the ESC key on the keypad will return you to normal editing mode.

Use **File > Save As** and save your file as a Photoshop® file

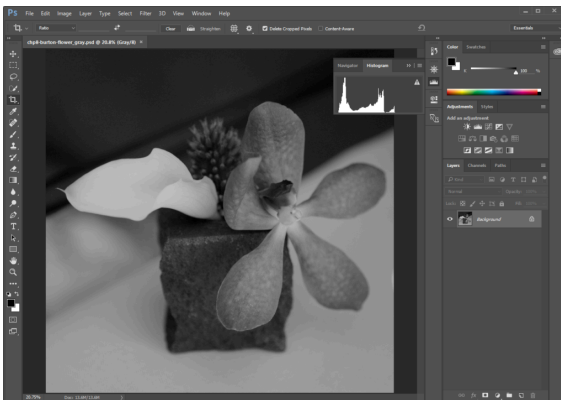
named *ch8-lastname-flower_cropped.psd* - make sure you select **Photoshop** as the **type/format** and use your own last name in place of *lastname* when you name your file.

8.2 Exercise 2: Understanding the histogram

XTINE BURROUGH AND MICHAEL MANDIBERG

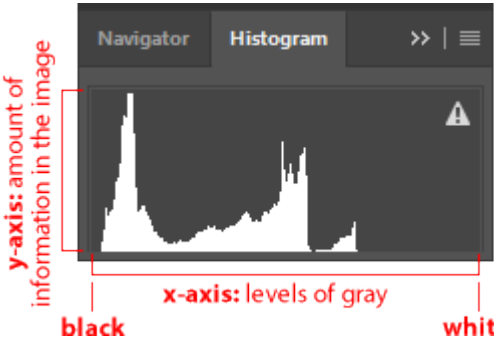
Now we will take a look at the tonal range within the image. This can be done in any color mode, but for the purpose of keeping this process easy for the first time, we'll change the image to grayscale color mode.

1. Click on **Image > Mode > Grayscale** to convert the image from RGB color mode to Grayscale. You will see a dialog box with a message asking if you want to discard color information, click Discard. Use **File > Save As** and save this version of your file using *ch8-lastname-flower_gray.psd* as the file name.
2. The next part of this exercise is to be observant about the value of the light and dark tones in your image. We do this with the use of the Histogram panel. Click **Window > Histogram** to display the Histogram panel.



Notice the histogram for this image is clipped on the shadow side.

This panel conveys information about the grayscale tones in the document. This is true regardless of whether the document is in color or grayscale, as color images are rendered digitally by compositing separate color channels (red, green, and blue, for example), each with corresponding grayscale values. So once again, the Histogram displays information about grayscale values, even if they correspond to color information. Here's the quick version of how to read a histogram:



The overall histogram graph displays the amount of information within the image (y-axis) at the various levels of gray from black (on the left side of the x-axis) to white (the right side of the x-axis). There are 255 levels of gray in any 8-bit image. Consumer scanners and digital cameras typically capture 8-bit images. There are professional scanners and cameras that capture 16-bit images, yielding more options for adjusting the tonal range; but for the beginning digital media student, we will remain focused on 8-bit images.

Tip: The exclamation point triangle icon in Photoshop® usually means “out of gamut,” but in the histogram it is meant to indicate that the panel is showing cached information. Clicking on the icon will refresh the panel information. In this exercise

we are not changing anything, so it is not important to refresh.

Look at the histogram for your open image to make the following observations:

- A. Does the histogram start and end at the beginning (dark values) and end (light values) of the x-axis? This would mean that there actually exists image information in the darkest shadow areas and the lightest highlight areas. If the graph seems to end before the edges of the box containing the histogram, the graph is “clipped” and there is no information at one (or both) end(s) of the spectrum. There is probably a noticeable lack of contrast in the image if the graph is clipped.
- B. Where on the x-axis of the graph is most of the image information stored? In other words, where are the spikes in the graph? This should make sense in terms of how dark or light the overall image appears.

Imagine in the image above of the histogram that the midway point on the x-axis is where 50% gray occurs in the image. In this image the highest spike appears somewhere between the blackest shadow and 50% gray.

- C. Does the histogram have any gaps where information does not exist? This means that there is no image information in areas where gray values between black and white are expected. This is usually a result of “over-tweaking” an image with tonal adjustments, as opposed to something that will be noticeable from a scan or digital camera capture. Sometimes this is a reasonable result of increasing contrast in an image, especially when certain areas are particularly hot (bright or blown out highlights).

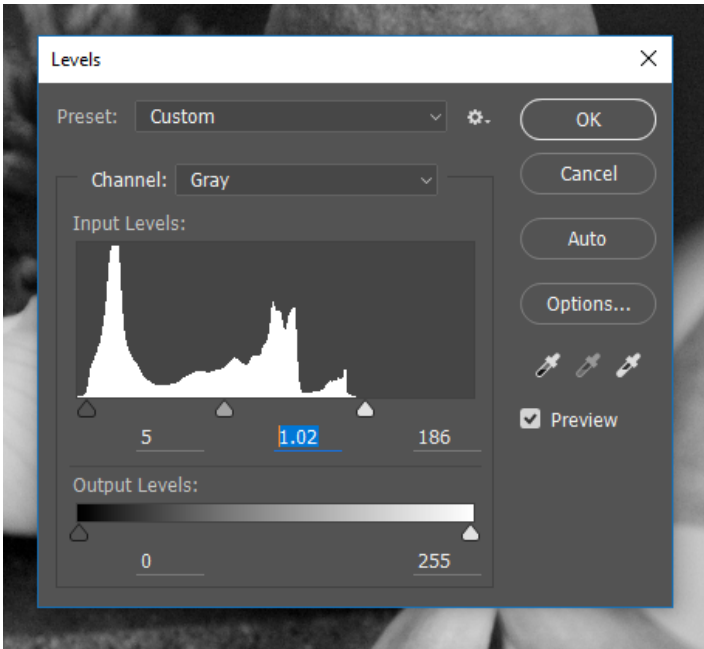
In our image, the histogram has no gaps. In the next exercise we will be making changes to the histogram and you will see gaps as a result.

8.3 Exercise 3: Adjusting the histogram in Levels or Curves

XTINE BURROUGH AND MICHAEL MANDIBERG

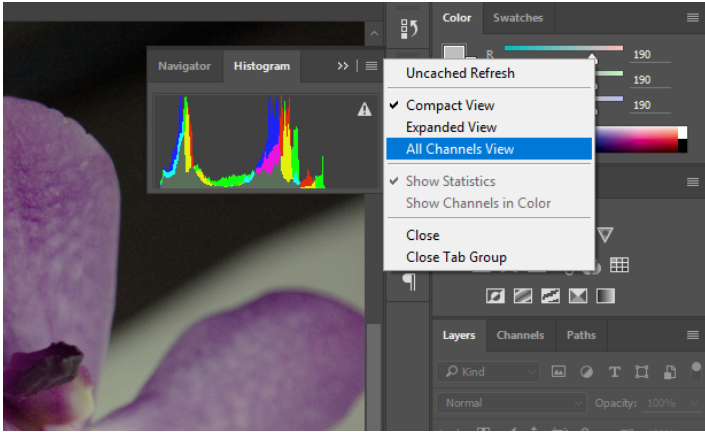
For this exercise we will complete the first step (Levels) on the grayscale image that was used in Exercise 2, *ch8-lastname-flower_gray.psd*. Then we will use the color version of the file, *ch8-lastname-flower_cropped.psd*, again.

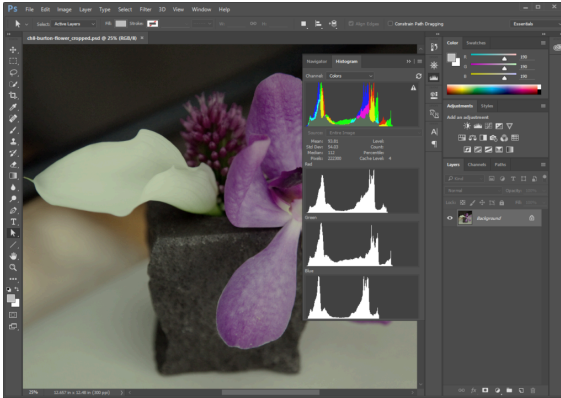
1. Click **Image > Adjustments > Levels**, which is used to control tonal adjustments specifically in the shadow and highlight areas. The Levels dialog box displays the histogram that we just viewed in the previous exercise. At the left side, tonal information is presented for shadow areas, then mid-tones, followed by highlights on the right side. Moving the input level sliders (the small triangles just beneath the graph) to correspond to image areas where there is information on the left and right sides of the histogram readjusts where 100% black and 100% white occur within the image. Tonal manipulations occur as a result of adjusting the numbers associated with each slider. If the objective is to make the image look abstract through high contrast, move the sliders towards each other. If the objective is to make the image seem true to life, the sliders should be used carefully. Adjust the sliders to your taste and click OK.



Use **File > Save As** and save a copy of this adjusted image as *ch8-lastname-flower_gray_adjusted.psd*

2. Open your *ch8-lastname-flower_cropped.psd* image. We'll be making some adjustments to the image so use **File> Save As** and save a copy named *ch8-lastname-flower_curves.psd* – this will be your working file for the remainder of this exercise. Look at the Histogram panel to see information about the grayscale values in this image.
3. From the upper right pull-down menu in the Histogram panel, choose “All Channels View” to see the histogram for the composite RGB channel as well as the single red, green and blue channels that comprise the image. Even though the image is seen in color, the overall scale of gray values should be evaluated. Notice the graphs in the Histogram panel for each of the three separate channels (ask yourself the same questions as we posed when evaluating a grayscale image in exercise two).

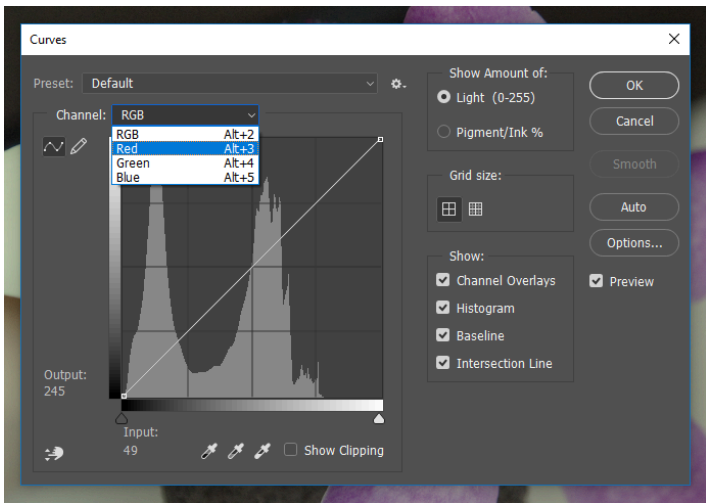


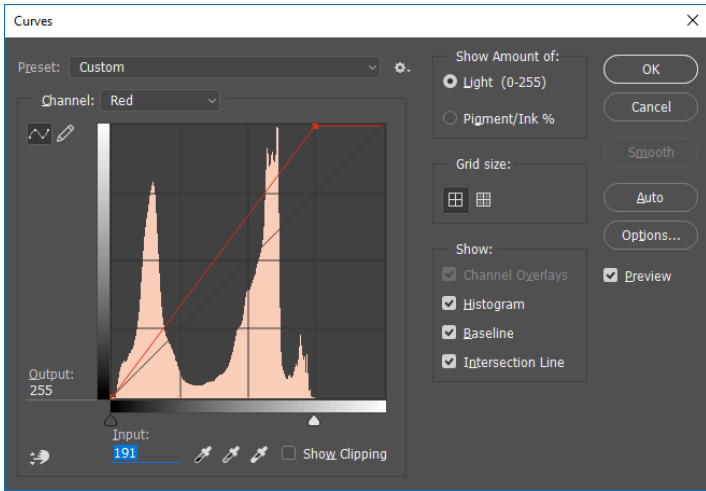


Look at the individual histograms for the red, green, and blue channels. Notice that there is more highlight information in the red channel, while all three channels peak around the same point in the shadow areas. Also notice that the red channel has the most color information across the x-axis while the other two channels have steeper slopes towards the start and ending points of the curves.

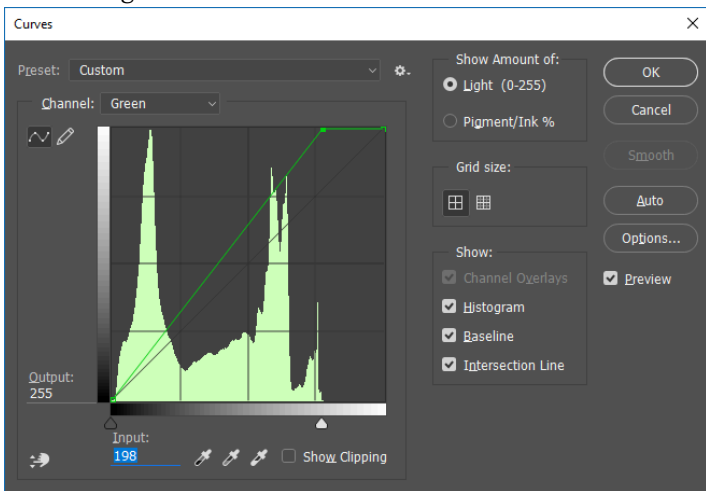
4. Click **Image > Adjustments > Curves**. Once again, the histogram is presented in the Curves dialog box. Curves, like

- Levels, can be used to adjust the tonal scale within the image.
5. This time, don't touch the RGB composite histogram. Instead, adjust each of the red, green, and blue graphs individually so that there is image information where the deepest shadows and lightest highlights appear. To do this, start by using the pull-down Channel menu from within the Curves dialog box to select "Red" (or use Alt/Option+3 on your keyboard). Use the input sliders on the left and right sides to move the edges of the endpoints of the line graph to the point where image information exists.

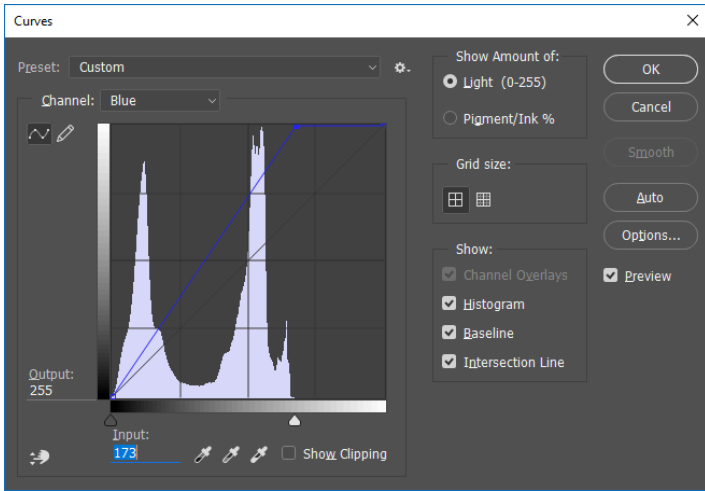




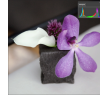
6. Use the Channel pull-down menu to select “Green” (Alt/Option+4). Use the input sliders on the left and right sides to move the edges of the endpoints of the line graph to the point where image information exists.



7. Use the Channel pull-down menu to select “Blue” (Alt/Option+5). Use the input sliders on the left and right sides to move the edges of the endpoints of the line graph to the point where image information exists.



8. Click OK. Adjusting the Curves (or Levels, either adjustment could have been used for this last exercise) manually for each color channel produces a better result than simply doing this one time for the composite RGB channel.
9. Notice the Histogram. It should show a graph with information that spans from the left side of the x-axis (shadows) to the right side (highlights).



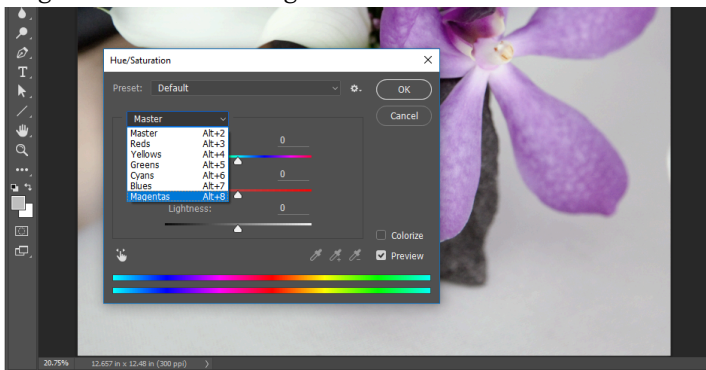
The image on the top is before the curves were altered and the image on the bottom has been modified. Information spans the entire x-axis on the histogram. Notice that the contrast is slightly modified, but the overall change to the image is slight. Be careful about pushing the sliders too far. The modifications should be minimal.

8.4 Exercise 4: Targeting saturation levels

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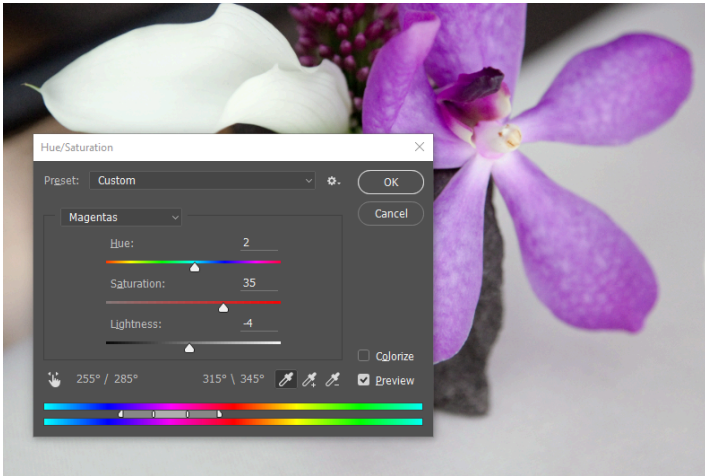
Image > Adjustments > Hue/Saturation can be used to increase or decrease the saturation of specific hues within the image. This adjustment is often used to make a dominant color appear more vibrant within an image, but the result can be hard to notice if the image is not being viewed at 100 percent. Even then, sometimes it is easier to see the results of this image adjustment in the final print. Follow the steps below on your *ch8-lastname-flower_curves.psd* file to demonstrate this concept.

1. Click **Image > Adjustments > Hue/Saturation**. Use the pull-down menu on the word, “Master,” to work specifically on the magenta areas of the image.



2. Use the Saturation and Lightness sliders to modify the image. The image below demonstrates our settings, but remember that our monitors may be calibrated differently. It is best to eyeball these numbers, rather than follow our specific settings. Remember, be sure the image is showing at 100 percent (use the Zoom Tool to zoom in or out) before making any

adjustments.



3. When you are satisfied with your adjustments, click OK. The result should be similar to the image below. Save your work and you're finished with this exercise and this chapter!



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PART XIII

ACC CHAPTER 9:
LAYERING AND COLLAGE

Download Materials for Chapter 9

[Click here to download chapter 9 work files](#)

You will need the chapter 9 work files to complete this chapter's exercises.

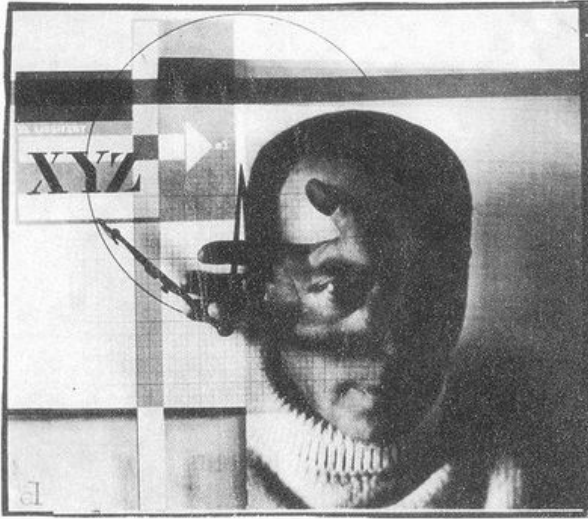
In the middle of the 1800s, Hippolyte Bayard was one of the earliest photographers to create a combination print, where two separate images are juxtaposed in a single photographic print.



SELF
PORTRAIT AS
A DROWNED
MAN, 1840,
Hippolyte
Bayard,
Combination
Print.

Following Bayard's experiments, there are many combination prints and double exposures that were made as photographic prints throughout the Victorian Era.

In the 1920s, Dada and Constructivist artists cut and pasted found photographs, their own imagery, and various printed elements together to form an "anti-aesthetic" collage that challenged the viewer to decipher multiple messages within the final composition. El Lissitzky's *The Constructor* (seen below) is an example of this type of work. Lissitzky's self portrait combines his own head with fragments of machinery along with a hand that is interpreted as "THE HAND OF GOD" passing over his face.



THE
CONSTRUCTOR, 1925, El
Lissitzky,
Self Portrait
Photomontage.

These two images employ different methods of artistic production. The combination print was made during the photographic printing process, while the photomontage combines various printed materials (in this case with adhesive). The photomontage may have been re-photographed, such that the final print appears seamless. Today tools like Photoshop allow for a less complicated process when combining multiple images.

9.1 Exercise 1: Using layers to create a double-exposure

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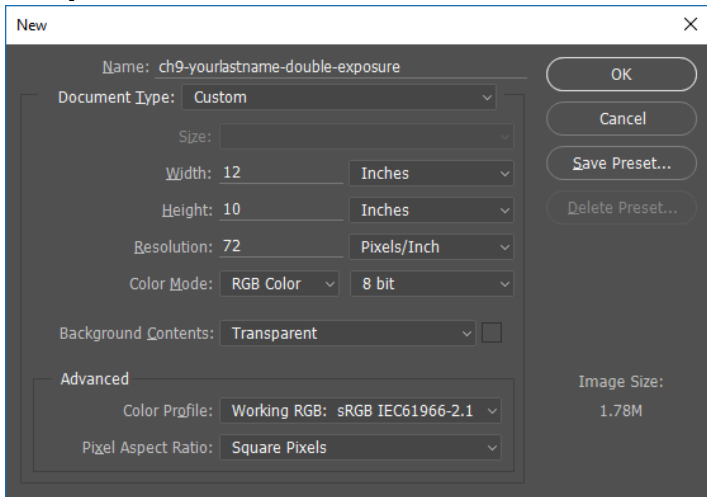
In the camera, a double-exposure requires releasing the shutter to create one photograph, then carefully rewinding the film back to the same frame, and releasing the shutter again to create another photograph on top of the first one. An example of this process can be seen in Henry Van der Weyde's image of Richard Mansfield as Dr. Jeekyll and Mr. Hyde.



In Photoshop®, the double exposure can be made by putting two images on separate layers, then adjust the blending mode of the top layer. We've provided two images on the disk, but you might explore taking two images with a digital camera or scanning two photographs that address the subjects of time, dreams, paranoia,

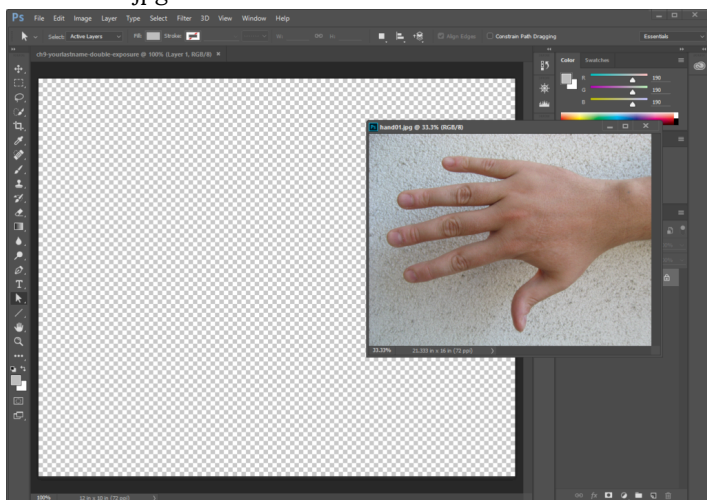
schizophrenia, otherworldliness, duality, etc. The double exposure is often used to express duality or the passing of time (also see Duane Michaels' photographs).

1. Create a New Document using **File > New**. Name it *ch9-yourlastname-double-exposure* (using your own last name in place of *yourlastname*). Set the Width to 12 inches and the Height to 10 inches (make sure that your units of measurement are set to inches and not pixels – otherwise you'll have a much smaller document than intended). Set the resolution to 72 Pixels/Inch and leave the color space in RGB mode. Lastly, make sure the Background Contents setting is set to Transparent.



72 Pixels/Inch (PPI) is also known as “screen resolution.” Working at 72 PPI is appropriate for any content that will appear on a screen and that will not be printed.

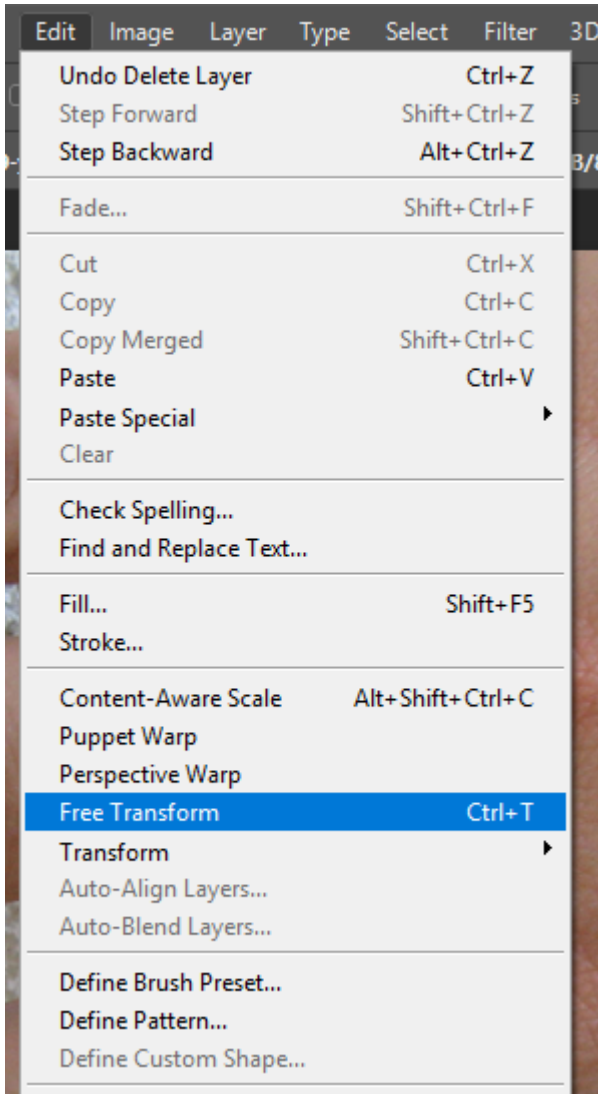
2. Open the **hand01.jpg** file from the Chapter 9 Downloaded Work Files. The file will open as a new tab in the main Photoshop® window. Click on the tab for the hand01.jpg image and pull down and away from the toolbar so the image is opened in its own window. There are many ways to copy the hand into the new document we are using to assemble the double-exposure. One method is to use the Move Tool to drag the hand layer (in this case, the Background layer is the hand layer) into a different document. Click on the Move Tool in the Tool Panel (or press the V key on your keyboard), then click on the hand image and drag it to the center of the double-exposure document we created in step 1. After you have copied the hand into the double-exposure document, you may close the hand01.jpg document.



Alternately, the hand could have been copied and pasted using Select > Select All, then Edit > Copy, and finally clicking on the new document before

choosing Edit > Paste. Layers can also be dragged from the Layers panel into another open document.

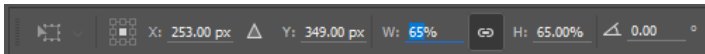
Notice that when the hand is dragged into the double-exposure document it appears very large. The hand file contains more pixels than the double-exposure file does. We did this on purpose for two reasons: 1) To demonstrate that the number of pixels in a document has a noticeable affect on the way that the file is previewed in Photoshop® and 2) To distinguish the hand, originally a digital photo (the camera we used stored a significant amount of information), from the new working file that we generated in step 1. You can always create a new file with a higher resolution value, but for exercises that will not be printed it is faster to work in a file with resolution no greater than the screen. The larger the resolution, the larger the file size; and larger file sizes require greater computer processing power. Larger file sizes, requiring more processing power, tend to slow down the work process. In a learning environment, we try to avoid hindrances.



3. In the Layers Panel, double-click on the name “Layer 2” to rename that layer “hand01.” Notice “Layer 1” beneath the “hand01” layer. Layer 1 is completely transparent. It was the first layer that Photoshop® generated when the new document was created. By moving the hand into the new document, we created a new layer. Click once on Layer 1 and then click on the trash can

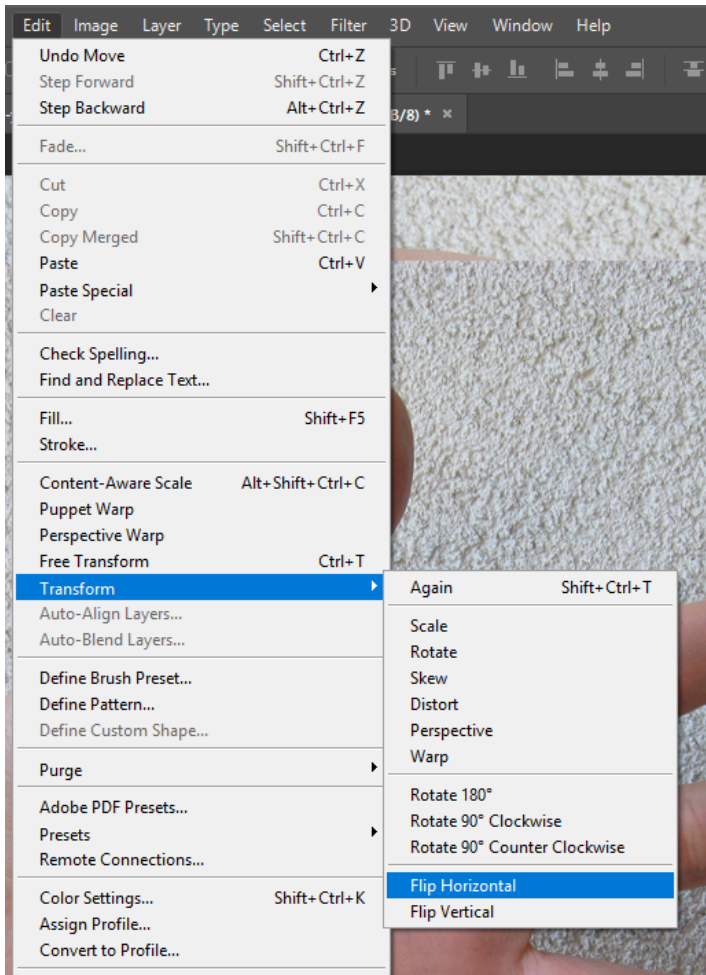
icon in the bottom right corner of the Layers Panel. At the “Delete the layer Layer 1” warning dialog box click “Yes.” Now the layer hand01 is active (indicated by a blue highlight). To scale the hand so that it fits into the document, click Edit > Free Transform.

4. When the image to be transformed does not run off the edges of the file document (as this one does), it is easy to transform it by using the arrows at one of the four corners of the transformation box to click and drag towards the center of the image. This type of transformation is similar to transforming objects in Illustrator®. Remember to always hold down the SHIFT key while scaling in order to maintain the proportions of the image. In a situation like this where we can’t see the edges of the image’s transformation box, it is easier to use the transform tools in the Options Panel at the top of the document. First click on the link icon between the width and height percentage boxes to maintain the image’s aspect ratio (or proportions). Now enter 65% into either the width or height box and notice that the other box also takes on the 65% value. Press “Return” or “Enter” on your keypad to finalize the transformation.



Tool Tip: You can also confirm a transformation or a Type Tool setting in Photoshop® by clicking on the check-mark icon in the top right area of the Options Panel when you are using these tools. To get out of a transformation box, a crop box, or the Type Tool hit the Escape (ESC) key on the keypad, or use the delete icon in the top right area of Options.

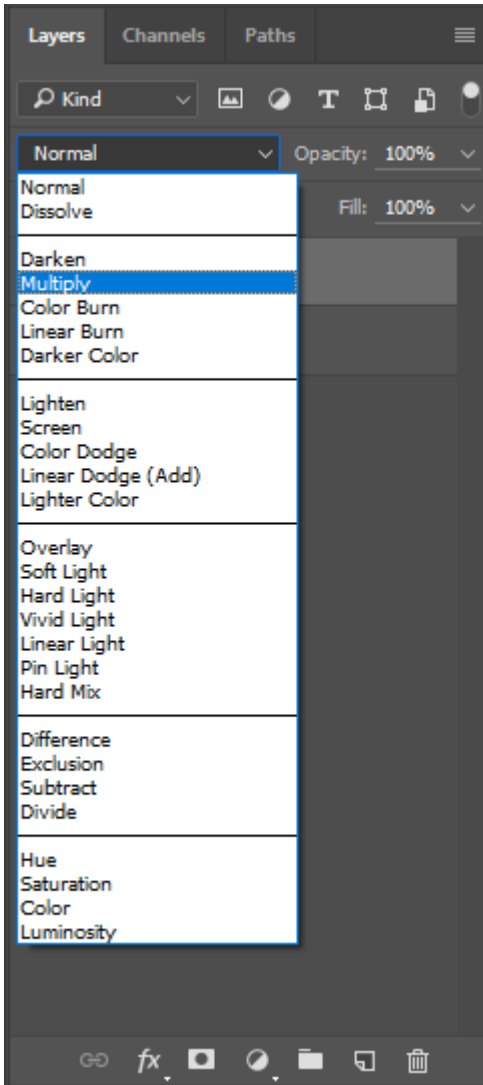
5. Open **hand02.jpg** and use the Move Tool or another method to bring the image of the second hand into the double-exposure document. Notice that it has already been scaled for you. While the second hand (Layer 1 in the double-exposure document) is still active in the Layers Panel, click **Edit > Transform > Flip Horizontal**. The Transform submenu will modify any layer or a selection on any layer. It does not modify the entire document. Notice that this transformation only occurred on the second hand and not on the hand01 layer. Flip the image back to its original orientation by again clicking Edit > Transform > Flip Horizontal. In the Layers Panel, double-click on the name of Layer 1 to rename it, “hand02.”



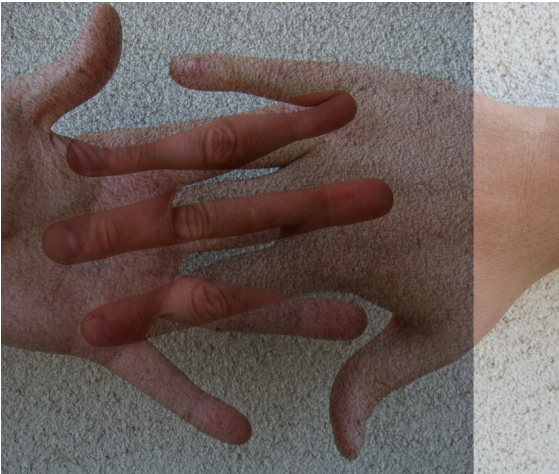
Flip Horizontal selected." width="514" height="708">

- Next we'll use the Move Tool and Layer Blending Modes to move the separate layers into position. Clicking once on a layer in the Layers Panel sets it as the active layer. Whichever layer is active can be moved in the canvas area using the Move Tool. Make sure that the "hand02" layer is set as the active layer. Next, locate the pull-down menu that's set to "Normal" and is located above the Lock buttons in the Layers Panel. This is the Layer Blending Modes pull-down menu and is used to change

the blending mode of the active layer. Click the Layer Blending Modes pull-down and choose “Multiply” to set the “hand02” to the Multiply Blending Mode. Leave the “hand01” layer in Normal mode. Blending modes define how layers interact. We will continue to explore these in the third exercise in this chapter.



Use the Move Tool on each of the layers so that they are positioned similar to what is shown in the image below. The double-exposure happens in the area where the two images overlap. Multiply blending mode allows us to see the two images together, as if they were photographed on the same piece of film. In the next exercise we will crop the image so that only the double-exposure remains. Save your work so far as a Photoshop® (PSD) file if you haven't done so already.

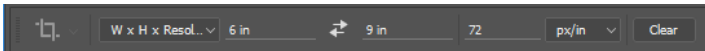


Your double-exposure should look something like this.

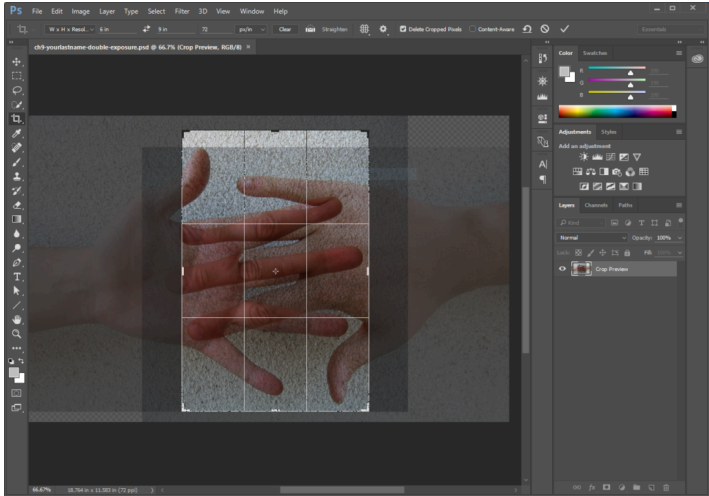
9.2 Exercise 2: Cropping and adjusting the hue

XTINE BURROUGH AND MICHAEL MANDIBERG

1. Click on the **Crop Tool** in the Tool Panel (or press the C key on your keyboard) and notice the options for this tool in the Options Panel beneath the Photoshop® menu items. You'll see a pull-down menu with some crop presets, and boxes for numeric entry to the right of the pull-down menu. Set the pull-down to the **W x H x Resolution** preset, then enter **6 in** into the crop Width box, **9 in** into the Height box, and **72** into the Resolution box.



Upon entering values into the Width, Height, and Resolution boxes you will see a crop box appear over the canvas. Click and drag the crop box control handles to resize it so that you are cropping around the area of the document where the two layers overlap, similar to what is shown in the image below.

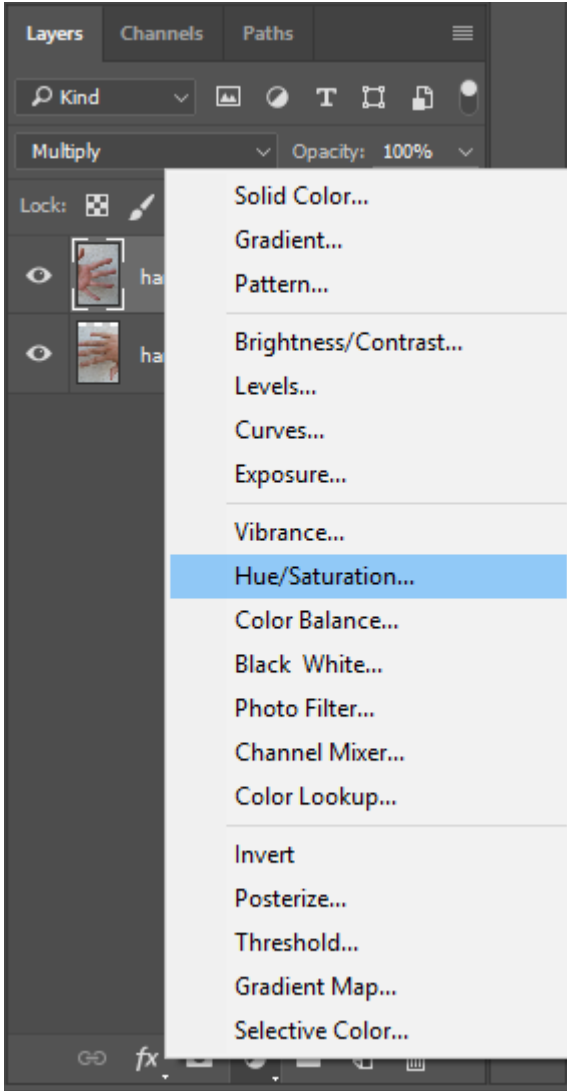


Notice that the crop tool will only create a rectangular shape in the aspect ratio of 6:9 as you are dragging. Finalize the crop by pressing Return or Enter on your keypad or by clicking the checkmark icon in the top right area of the Options Panel.

2. Now we'll make some Hue/Saturation adjustments to the color of our double exposure, but we'll do this using what is known as a "non-destructive" editing technique. Remember when we made adjustments to Levels, Curves, and Hue/Saturation on the flower image in chapter 8? The changes we made with those adjustments permanently changed the pixels in that image. If we wanted to change them back or re-adjust, we'd have to start over with the original image. Non-destructive editing techniques use special features in Photoshop® that preserve the original image's pixel data while allowing changes to be made. **Adjustment Layers** are one such technique and can be added to a Photoshop® document by clicking on the Add Adjustment Layer button at the bottom of the Layers Panel (or by using Layer > New Adjustment Layer in the menu bar).

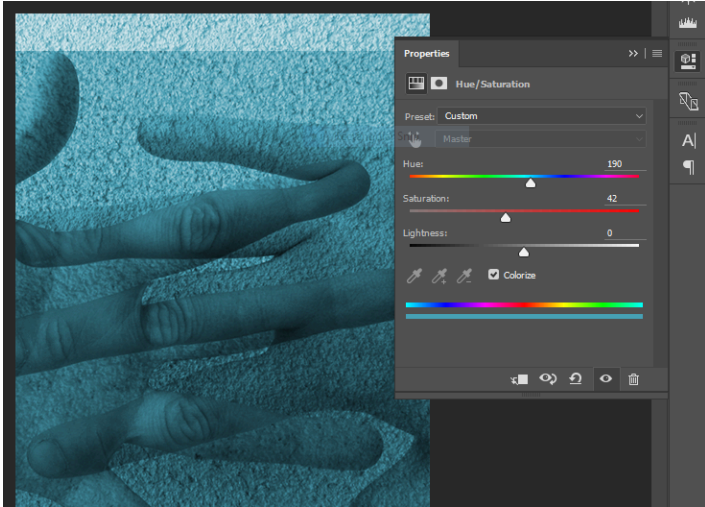
Click the Add Adjustment Layer button at the bottom of the Layers Panel and notice that many of the adjustments available

through the Image > Adjustments menu are available as Adjustment Layers. Choose **Hue/Saturation...** from the New Adjustment Layer menu in the Layers Panel to add a Hue/Saturation Adjustment Layer.



3. When you add this Adjustment Layer you will notice the Properties Panel will open displaying controls like those you

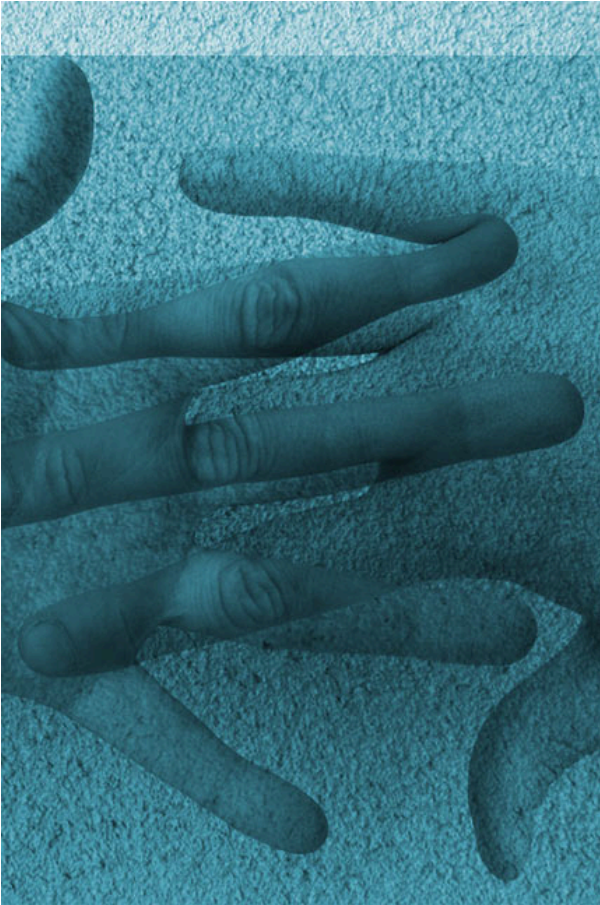
used before when making a Hue/Saturation adjustment. In the Properties Panel, check the “Colorize” button and then use the Hue slider to create a cyan wash over the image. Click OK when you are satisfied with the colorization.



Remember that you can always double-click on the Adjustment Layer’s icon in the Layers Panel to access the Properties Panel and modify the adjustment settings. Be sure the adjustment layer is in position as the topmost layer so that it affects all visible layers beneath. Make sure to save your work when you are finished with this step.

Tool Tip: Adjustment Layers can also be added using the Adjustments Panel. This panel has an icon for each of the different types of Adjustment Layers that can be added to an image. Hover your mouse pointer over each icon and you will see text describing the adjustment it represents. Simply click the icon for the adjustment you want and a

new Adjustment Layer will be added into your document just above the active layer.



This image depicts the results of exercises one and two.

Exercises 3 and 4: Exquisite Corpse (in two parts)

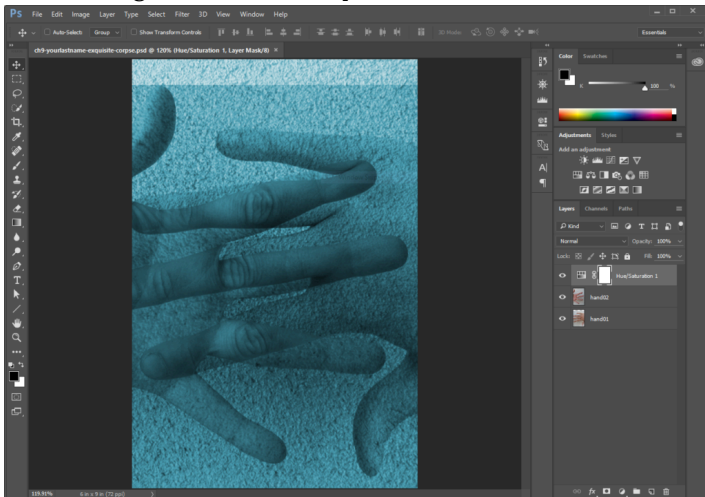
The next two exercises in this chapter will take you through the process of creating an Exquisite Corpse image in two parts.

“Exquisite corpse” (in French, cadaver exquis) is a parlor game that the Surrealists developed in 1925 (Wikipedia). In this game, each player submits images (drawings, paintings, photographs) of heads, torsos and legs which are combined to produce surprising bodily results. I have played this game with students using images of each other that we captured in class on a digital camera as well as by using images from pop culture, found on the web. In the past, we have placed Lindsay Lohan’s head on John Goodman’s body, George W. Bush’s head on Paris Hilton’s body (with the dog), and so on. Images of my students included in this chapter’s downloaded Work Files, but it’s more fun to try this with pictures of your friends or family!

9.3 Creating and manipulating layers

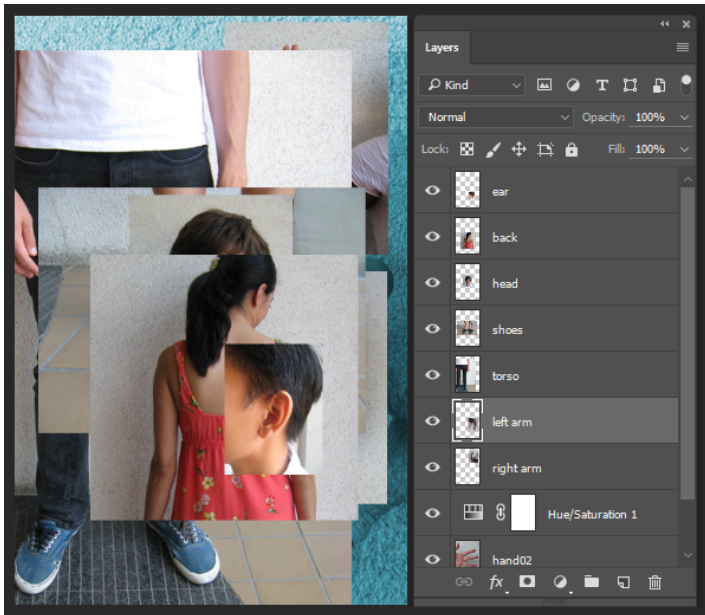
XTINE BURROUGH AND MICHAEL MANDIBERG

1. We'll use the double-exposure file that we just created as a starting point, so use **File > Save As** and save the file as *ch9-yourlastname-exquisite-corpse.psd*. Your file should look like the image in the screen capture below.



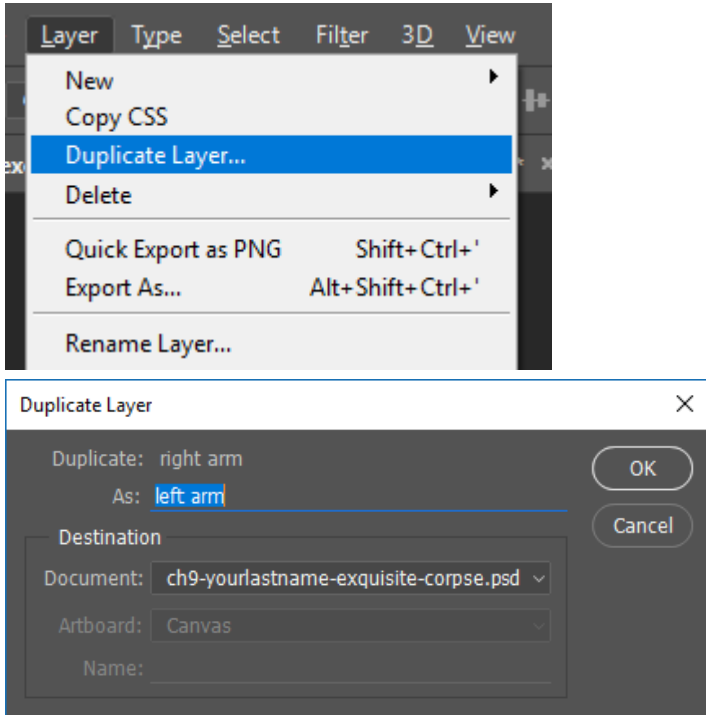
2. Keep *ch9-yourlastname-exquisite-corpse.psd* open and use **File > Open** in Photoshop® to open all of the documents used in this exercise (from the downloaded Work Files, the files are: **arm.psd**, **back.psd**, **ear.psd**, **head.psd**, **shoes.psd**, and **torso.psd**). The files will open as individual tabs in the main Photoshop® window.
3. Move all of the body parts into the *exquisite-corpse* document, just as we moved the hands into the double-exposure document in Exercise 1. Once all of the parts are on separate layers in the *exquisite-corpse* document, rename all of the

layers to indicate which body part is on the layer. You can use the eyeball icon for each layer in the Layers Panel to hide and show the layer and quickly assess which image each layer contains. You can close the files for the various parts after you've added them all as layers, make sure to keep your exquisite-corpse image open (and save your work!)



4. Click on a layer and drag it above or below another layer. The order of the layers in the Layers Panel is referred to as the “stacking order”. This determines which image appears in the foreground (closer to the viewer’s eyes) and which images fall to the background. Organize the layers so that they appear like the stacking order in the screen capture above. Notice that our Layers Panel has a left and right arm! We named our arm layer “right arm” then used the menu item **Layer > Duplicate Layer...** and named the duplicate layer, “left arm.” Do this in your own file then, making sure “left arm” is the active layer, use **Edit > Transform > Flip Vertical** to flip the left arm and then **Edit > Transform > Flip Horizontal** to distinguish it from the right

arm.



5. Click on each layer to activate it, then use the **Move Tool** to reposition the layer and **Edit > Free Transform** to scale it. Some of the layers will need to be scaled and moved in the stacking order if you want your exquisite corpse to look just like ours. When scaling, remember to hold the SHFT key while dragging on one of the four anchor corners in the Free Transform box to maintain proportion – or to link the width and height values if you are using the Options Panel to make the transformation. Also, be aware that it is safe to scale an image down in Photoshop®; however, it is typically not a good idea to scale an image up (or to make an image larger than it is) as this will create new interpolated pixel information in the image and will result in a degradation of image quality.

Once you've finished this step save your file and move on to Exercise 4.



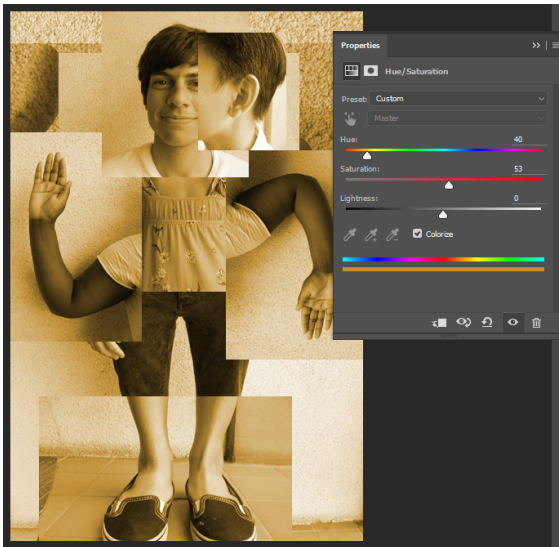
Here is the stacking order for the layers in our exquisite corpse image.

9.4 Exercise 4: Adding an adjustment to specific layers

XTINE BURROUGH AND MICHAEL MANDIBERG

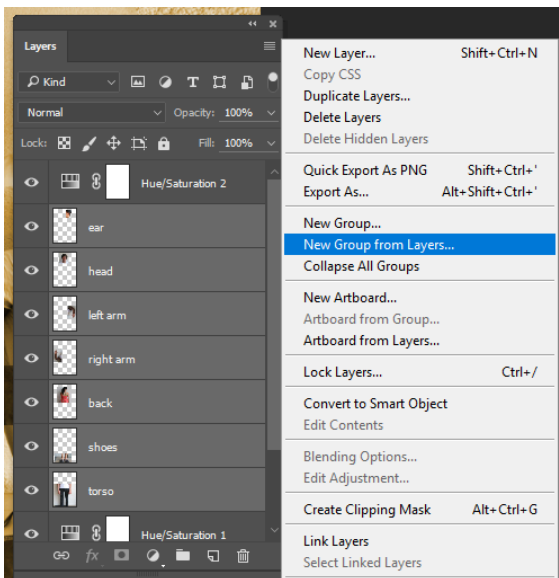
In this exercise we want to add an Adjustment Layer to the top of the Layers Panel, in order to bring some variation in color into the composition.

1. Make sure the top layer in your Layers Panel is your active layer. Add an adjustment layer for Hue/Saturation and use the “Colorize” button again to add a wash of orange. Notice that we’ve encountered a problem here – this adjustment colorizes the entire document and overrides the cyan Hue/Saturation layer we added previously. We want to retain those colors in our composition so we’ll need to solve this problem.

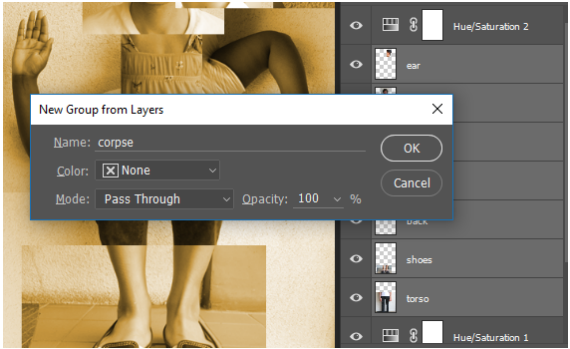


*Oh no,
we've lost
our cyan!
Don't
worry,
there's a
solution...*

2. Fortunately, current versions of Photoshop® give us an easy solution. Our first step will be to group the layers that we want the Hue/Saturation adjustment to colorize. To do this, click on the “ear” layer to activate it, then hold down the SHFT key, and click on the last layer in the stacking order above the adjustment layer from Exercise 2. This will select all of the layers that make up our exquisite corpse.
3. Next, click on the Layers Panel Pull-Down Menu in the top right corner of the panel and choose **“Create Group From Layers...”** In the New Group From Layers dialog box, name the new group, “corpse.” This will make a new folder in the Layers Panel for all of the body parts. Layer Groups are used to help keep the Photoshop® Layers Panel organized and work in a similar fashion as Illustrator® Layers in that they contain the layers that comprise different parts of a Photoshop® document.

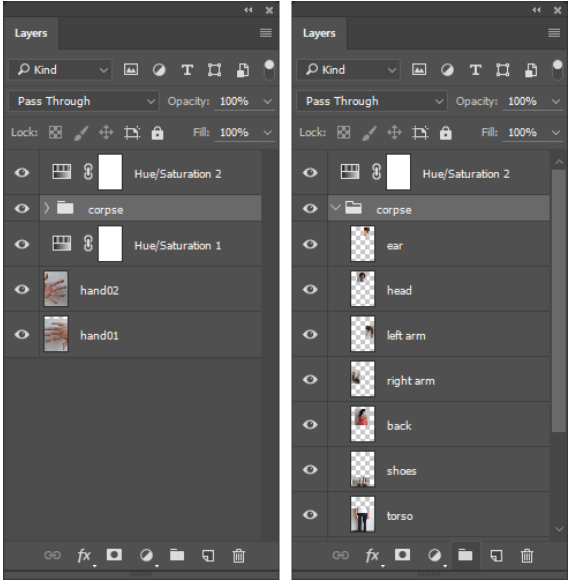


With layers selected for grouping, choose “Create Group from Layers...” in the Layers Panel menu.



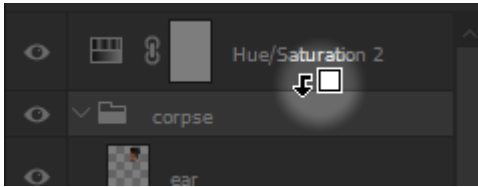
Creating a Group from our selected Layers.

Notice there's a thin arrow to the left of the "corpse" group's folder icon. Clicking that arrow will expand the group so that you can see the layers it contains. Expand your "corpse" group so that your Layers Panel looks like ours in the second image below.



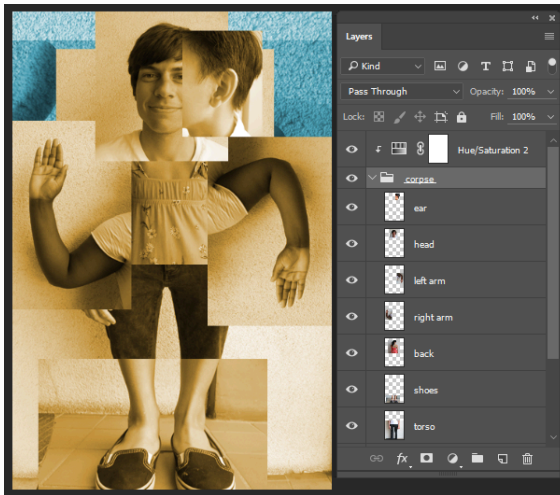
Clicking the arrow next to a Layer Group's folder icon will expand or collapse that Layer Group.

4. Now we come to the solution to our Hue/Saturation conflict. Hold the ALT/OPT key while moving your mouse pointer over the line between the top Hue/Saturation adjustment layer and the “corpse” layer group. You will see the cursor change to an icon that looks like a square next to a downward-pointing arrow.



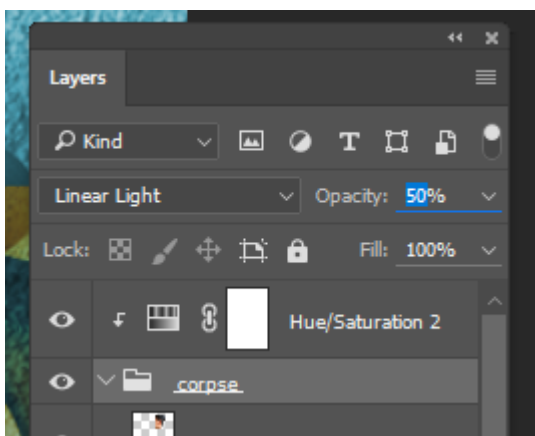
Watch for this cursor as you move your mouse pointer between layers while holding the Alt/Option key.

When you see this cursor change, click the mouse button. This will create a clipping group between the adjustment layer and the merged layer. Now the adjustment layer will only affect the merged layer. The background images should appear cyan again.



Our result after clipping the “Hue/Saturation 2” Adjustment Layer into the “corpse” Layer Group.

5. Make sure that the “corpse” Layer Group is active, then use the Blending Mode Pull-Down Menu in the Layers Panel to set the group’s mode to Linear Light and enter 50% for the Layer Opacity (to the right of the Blending Mode Pull-Down Menu). A decreased opacity enables the viewer to see through the a layer or layer group, and helps to blend it with the layers underneath. Sometimes these methods can create a murky image where the foreground and background are hard to decipher. Remember that every image communicates a message, so you’ll want to be aware if certain blending modes or other techniques result in a loss of clarity in your composition.



Set the “corpse” layer group’s blend mode to Linear Light and set its Opacity to 50%

You’ve finished the exquisite corpse! Your result should resemble the image below. Save your work and take a break, you’ve earned it!



This image shows the result of Exercises 3 and 4.

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PART XIV

ACC CHAPTER 10: REPETITION AND CLONING

Download Materials for Chapter 10

[Click here to download chapter 10 work files](#)

For these exercises you will need two images: the first all-female C-130 crew and a cropped image of Amelia Earhart. They are both included in the Chapter 10 Work Files.

Original Image Sources:

https://commons.wikimedia.org/wiki/File:C-130_-_First_all_female_crew.jpg

[https://commons.wikimedia.org/wiki/File:Amelia_Earhart_\(16571444402\).jpg](https://commons.wikimedia.org/wiki/File:Amelia_Earhart_(16571444402).jpg)

Digital Manipulation

Digital tools empower content producers to parody graphic content both on and off of the screen. Media-makers have the ability to

change the appearance of virtually anything with tools such as copy, paste, mask and clone. So the question is: given the opportunity to change any image, message, or text, where would you begin? Your answer depends upon your interests, but usually emerges from political tension. In other words, the oppressed can reclaim messages of the dominant paradigm by altering the symbolism embedded in words or images in the physical and/or digital world. These messages might appear in museums, on city streets or in cyberspace.

The “subversive” part of the message-making is the way in which the aesthetics of the altered media rely upon the viewer’s visual and intellectual understanding of the dominant culture prior to media confrontation. The Billboard Liberation Front and The Anti-Advertising Agency create work that illustrate this idea. Not too surprisingly, this counter-cultural, playful method of protest has already been co-opted by the advertising industry.

In *No Logo*, Naomi Klein illustrates how advertisers are utilizing methods common to contemporary artists to create brand awareness. She writes, “Pepsi’s on-going threat to project its logo onto the moon’s surface hasn’t yet materialized, but Mattel did paint an entire street in Salford, England, ‘a shriekingly bright bubblegum hue’ of pink – houses, porches, trees, road, sidewalk, dogs, and cars were all accessories in the televised celebrations of Barbie Pink Month. Barbie is but one small part of the ballooning \$30 billion ‘experiential communication’ industry, the phrase now used to encompass the staging of such branded pieces of corporate performance art and other ‘happenings.’” (See *No Logo*, Naomi Klein, New York: Picador 9-12.)

The Billboard Liberation Front is a group of San Franciscan message-makers who aim to repurpose and “improve” billboard messages by painting or pasting on top of preexisting billboards. The



Image: BLF

group began their mission in 1977 and have grown into a worldwide phenomena by collecting images on the web. From The Billboard Liberation Front Manifesto:

“And so we see, the Ad defines our world, creating both the focus on “image” and the culture of consumption that ultimately attract and inspire all individuals desirous of communicating to their fellow man in a profound fashion. It is clear that He who controls the Ad speaks with the voice of our Age.” (Jack Napier and John Thomas).

You can read the entire manifesto at: <http://www.billboardliberation.com/manifesto.html>

The Anti-Advertising Agency creates subversive media in opposition to the role of advertising in contemporary society. Many of their projects are participatory, which means that viewers become “doers” or art-makers. In People Products 123, participants download package designs that feature images and information about the workers responsible for producing the consumable product. The package designs are to be printed by the participant, repackaged around the product, and “shop-dropped” in the store where an unassuming shopper would purchase the product contained in the newly informative packaging.



People Products 123, The Anti-Advertising Agency, project website: <http://peopleproducts123.com/>

10.1 Exercise 1: Replace part of one image using the Clone Stamp Tool

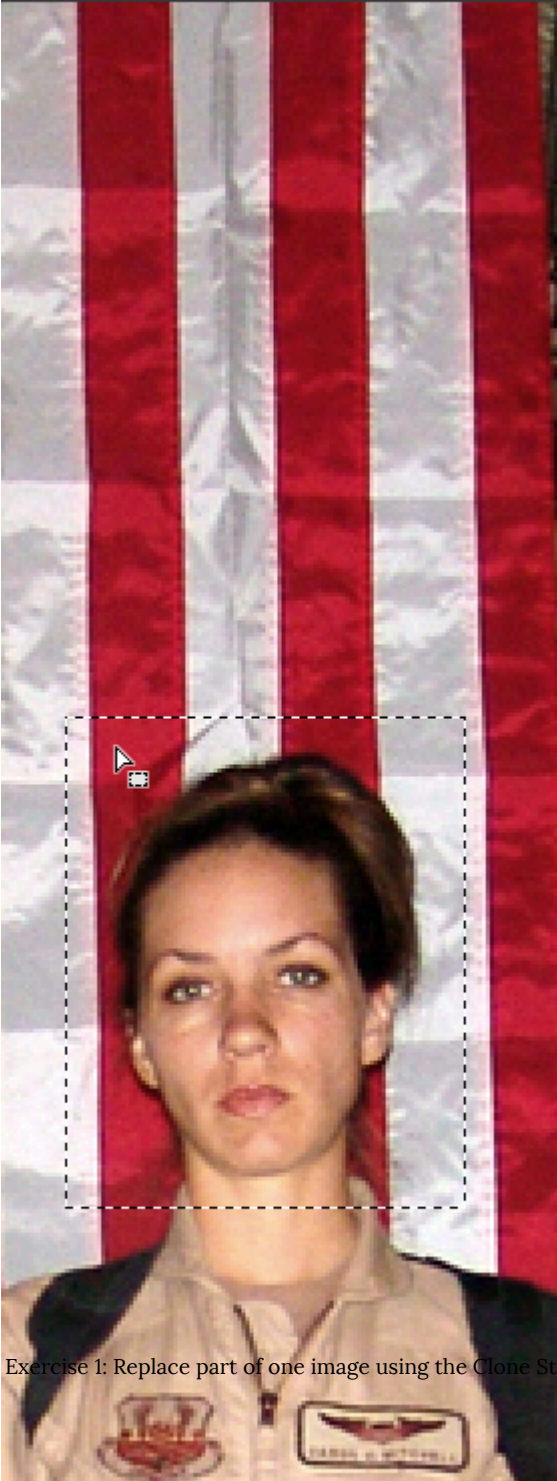
XTINE BURROUGH AND MICHAEL MANDIBERG

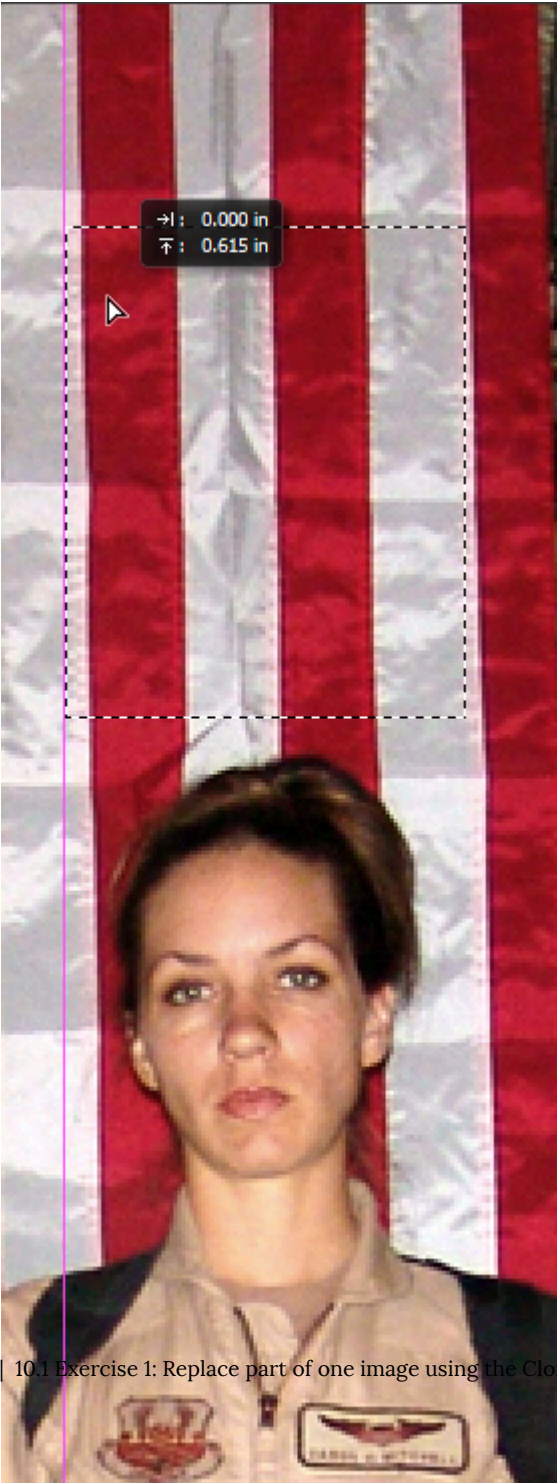
In this exercise, we will use two images in the public domain from the US government. The first all-female C-130 crew, and a historic image of Amelia Earhart.

1. Open the file **first_all_female_crew.jpg** in Photoshop®. Zoom in on the central figure of the crew, Capt. Carol J. Mitchell. We will start by replacing her head with a sample of the flag and will do this using a non-destructive approach. By non-destructive, we mean that the original pixels in the photo will not be permanently changed by our edits. Start by using the **Rectangular Marquee Tool** to create a rectangular selection around Capt. Mitchell's head.



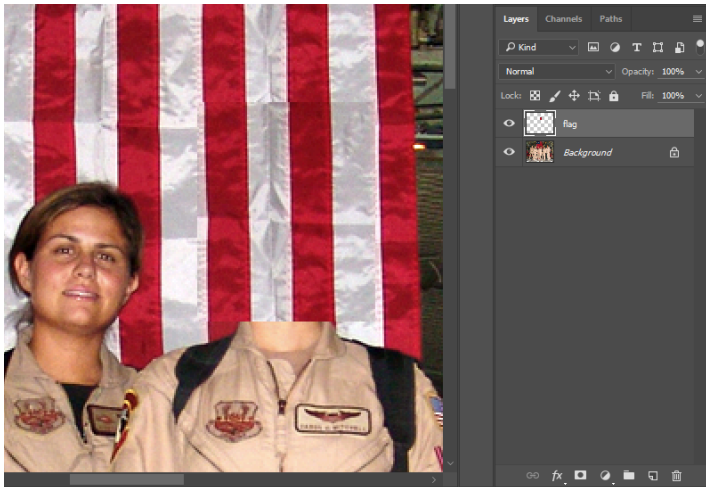
2. Zoom out so you can see more of the flag above her head. Place your cursor inside the selected area and notice that as long as any selection tool is active (and specifically, the Move Tool is not active), the the cursor changes into a white arrow with a small rectangular selection icon. When you see this cursor, click and drag the rectangular selection up straight above the figure's head – you are only moving the selection itself. No pixels in the image are being moved.





- Copy the flag from the background layer and paste it. Edit > Copy followed by Edit > Paste will create a new layer (CMD+C followed by CMD+V will do the same). Name the new layer, “flag.” Then, using the Move Tool (press V on your keyboard), click and drag in the canvas to move the “flag” layer so that it is positioned over Capt. Mitchell’s face as shown below. Once you have the copied section of flag roughly in position, you can use the arrow keys on your keyboard to nudge it pixel-by-pixel into place. See if you can get the stripes of the “flag” layer to match up with the original image behind it.
Save your work as a PSD named **ch10-yourlastname-amelia-crew.psd** before continuing.

Hotkey: CMD+J is the hot key for “float,” which will copy and paste part of a layer onto a new layer directly on top of the selection.

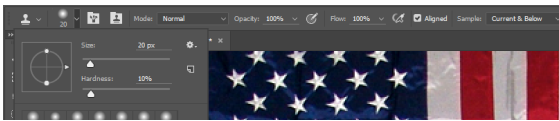


- You'll likely notice that the pixels on your “flag” layer stand out from the rest of the flag. We'll use the Clone Stamp Tool to

clean that up and help everything blend together more seamlessly. The Clone Stamp Tool is a special brush that replaces small areas of a layer with a sample from another area of the canvas or a separate image.

Activate the **Clone Stamp Tool** in the Tool Panel (or press S on your keyboard) and then use the Options Bar to set the brush **Size** to about 20px and the **Hardness** to about 10% (access these controls by pressing the brush settings down-arrow button in the Options Bar as shown in the screen capture below). Using a soft brush will help the cloned sample appear to blend into the original image, even though we will do all of our cloning on a new layer.

Also, make sure that the “**Aligned**” button is checked and that the **Sample** pull-down menu is set to “Current & Below” (this last setting will allow us to clone into an empty layer with samples from the other visible layers).



Compare your Clone Stamp Tool Options to those in this screen capture.

Tip: The open and close bracket keys on the keyboard (usually just to the right of the P key) are the hotkeys used to increase and decrease the brush size without using any menus or dialog boxes. Holding down Shift while pressing the brackets will adjust the brush hardness/softness.

5. Now for the most important part of this exercise – sample parts of the flag in order to blend the areas around the edges where the copy and pasted image is an obvious manipulation.

First, create a new layer and name it “clone”. We’ll be brushing our sampled pixels into this layer in order to maintain a non-destructive approach.

Before you can paint with the Clone Stamp Tool, you must define a sample source point. For best results, you want to choose a source point that is similar to the area that you want to clone into. For example, the upper left corner of our “flag” layer doesn’t quite match the flag image around it. We’ll want to find a portion of the image that is similar to that area and use it as our sample point, such as a bit above that top left corner of our “flag” layer’s pixels.

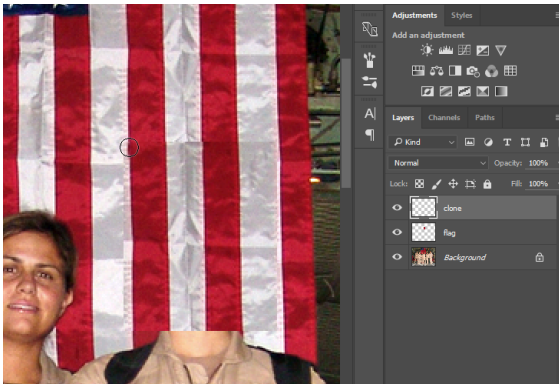
To define the sample point, place your cursor over part of the original flag image, then press and hold the ALT/OPT key. You’ll see the cursor change to a crosshair cursor. Position the crosshair right over the edge of the flag’s red stripe, a bit above the top corner of your “flag” layer’s pixels. Click your mouse once to define that point as the clone source.



With the Clone Stamp Tool active, hold down the ALT/OPT key and click the crosshairs at a point above your pasted flag pixels, right along the edge of the red flag stripe.

Next, position the mouse on top of the corner where the pasted flag needs to be blended and click once to cover it with a soft, brushed sample. Pay close attention to the brush work. Determine if the first click is blended or not by looking at the surrounding values. Decide if your new sample is blending in. If it does, move on to the next area. You'll get best results by ALT/OPT+clicking to create a new sample before brushing into each area. If the first click did not blend perfectly (it probably didn't – this takes some practice), use CMD+Z to undo the last step and try it again.

Tip: Notice that once you have defined a sample source point, the Clone Stamp Tool brush shows a preview of the cloned pixels inside its cursor circle. You can use this to match up your cloned pixels precisely before clicking to paint them in. If you don't have a good match, ALT/OPT+click to re-define your sample source point.



Line up the Clone Stamp Tool's clone preview with the spot on your image you want to clone into. Click once to stamp the clone into place. In some areas you may be able to click and drag to clone a nice blend, other areas will require re-defining the sample point.

Be careful with your application of the Clone Stamp Tool. The soft brush creates a little bit of a blur on the image. A small amount of blur is necessary in order for the sample to blend in, but clicking with the soft brush repeatedly will result in a blurry

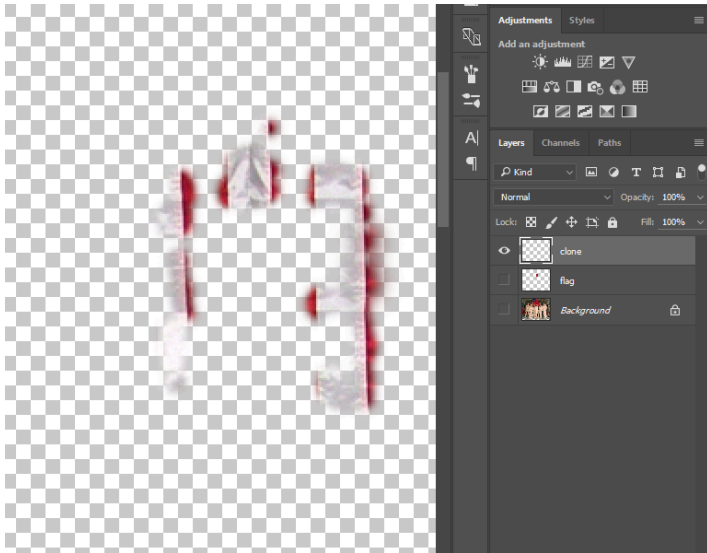
area in your image. Remember, the purpose of our cloning is to create a seamless and unidentifiable image hoax. Creating a blurry area on the image will draw attention to that area. In order to achieve the hoax, the clone must be made in such a way that the viewer is deceived! You may find that some areas require making your brush smaller to get the sample stamp just right.

Work around all of the edges by creating a new ALT/OPT+click to sample the flag and then click with the brush to apply the clone. CMD+Z will be used often in this process! We finished the clone in about 25-30 precise mouse clicks.



Our result after cloning. The pasted patch of flag now blends in much better!

6. View the clone layer by turning the eyeball icons off of all of the other layers. Here is what ours looked like when we were finished:

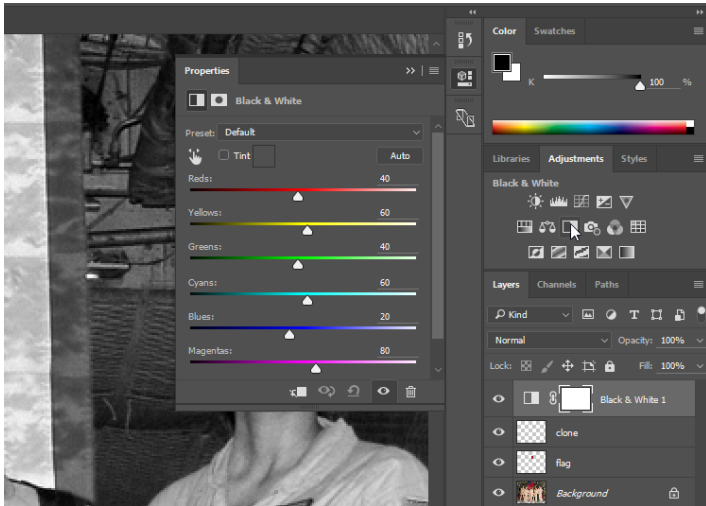


Turn the other layer's eyeball icons back on and Save your work.

10.2 Exercise 2: Add Amelia Earhart to the image of the crew

XTINE BURROUGH AND MICHAEL MANDIBERG

1. Since the image of Amelia Earhart was originally a black and white photograph, we should change the image of the Air Force crew into grayscale. In keeping with our non-destructive approach, we'll do this by adding a Black and White Adjustment Layer on top of the clone layer. Apply the adjustment by clicking the Black & White Adjustment icon in the Adjustments panel (if you don't see the Adjustments panel, use the menu Window > Adjustments to show it). The default settings for the Black & White Adjustment Layer will be sufficient for our needs, so you don't need to change any settings after adding the Adjustment Layer.



2. Open the image of Amelia Earhart, select her head and neck

with the Rectangular Marquee tool and choose **Edit > Copy**. Toggle back to the Photoshop® document and choose **Edit > Paste**. Use **Edit > Free Transform** (Command+T) and hold **Shift** while scaling Amelia Earhart's head down so it is in proportion with the body. Finalize your transformation by pressing the Enter key or clicking the checkmark button in the Options Bar. Name the new layer "Amelia".



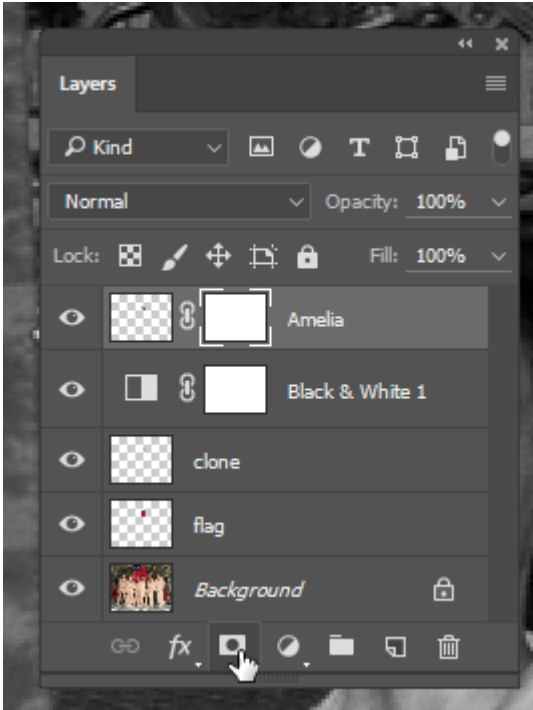
10.3 Exercise 3: Add a layer mask

XTINE BURROUGH AND MICHAEL MANDIBERG

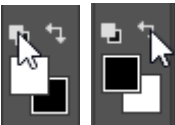
Layer Masks are a special component of Photoshop® layers that can hide portions of a layer's pixels. Layer Masks do not delete or alter image data, they simply hide or show parts of images based on the use of black (hidden), white (revealed), and shades of gray (transparent, partially hidden) in the mask portion of the layer. Layer Masks are a very useful tool in non-destructive editing and are much more forgiving than using the eraser tool. We will use a Layer Mask on the Amelia layer to blend her into the new background.

Note: Other types of masks include clipping masks (see Exercise 4 in Chapter 9) and vector masks, where vector data instead of bitmap data determines what is black and what is white. We will work with layer masks in this chapter and in Chapter 11.

1. Create a layer mask on the Amelia layer with the Add layer mask button at the bottom of the Layers panel. This mask will hide the background around Amelia's head. Notice that the layer now has a thumbnail icon for the layer's image and an icon for its mask. Photoshop® indicates which part of the layer you are working on by framing the corners of its icon in the Layers panel with white brackets. The title bar in the document also reflects the area that is currently active. You can see from these indicators that the Layer Mask in the Amelia layer is active.

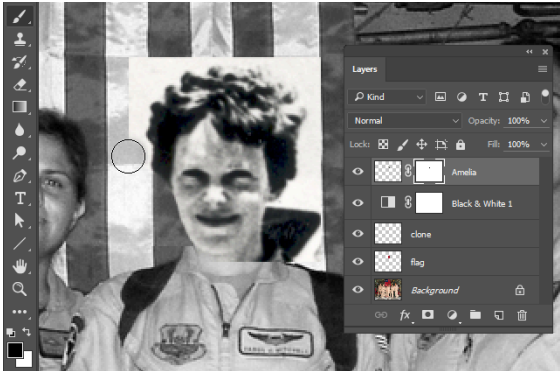


2. Activate the Brush tool (B on the keyboard) and make sure that the default colors are loaded into the foreground/background color chips (black as foreground, white as the background color) by clicking on the small black/white color chip icon to the top left area of the actual color chips in the Tools panel. Then click the angled double arrow icon next to the default colors button. This will swap the foreground and background colors, setting black as the foreground.



Key Command: Press the letter D on the keyboard to set the foreground and background color chips to the default setting of black and white, respectively. Press the X key to swap the foreground and background colors. Swapping foreground and background colors will be very useful when you're working on the Layer Mask.

3. Notice that the icon for the mask is white in the Layers panel. Since the entire mask is white, none of the layer's image pixels are currently hidden. With the Layer Mask active, painting in the canvas with black paint will add black to the mask and will hide those areas of the layer's image pixels. If you make a mistake, switch to white paint to retrieve hidden parts of the image. Practice painting with black and white paint. Paint with different size brushes and notice what happens with a soft or hard brush, or with different brush opacity settings.



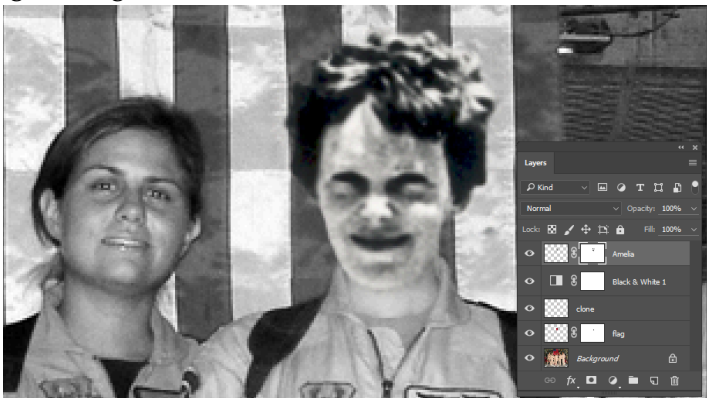
Painting into the Layer Mask with black hides image pixels in the Amelia layer.

We used a soft brush for the background area and kept it far away from Amelia's head. As we brushed closer to her hair, we

reduced the opacity of the brush in the Options bar to about 40%. At a reduced opacity, clicking a few times near her head with black paint removes the background while keeping her hair from being cut to an unnatural shape. We also used a soft brush on her neck so that it blended smoothly with the neck in the crew photo.

Watch Out: Do not delete image data. Do not use the eraser. Using the eraser is destructive editing. Now that you are learning to use Layer Masks, you can practice making non-destructive edits. This technique is so important that it is the dominant topic in Chapter 11.

One more detail: we added a Layer Mask to the flag layer in order to hide part of the flag that was covering the collar in the original image. Our finished result is shown here:



10.4 Exercise 4: Matching levels and image quality

XTINE BURROUGH AND MICHAEL MANDIBERG

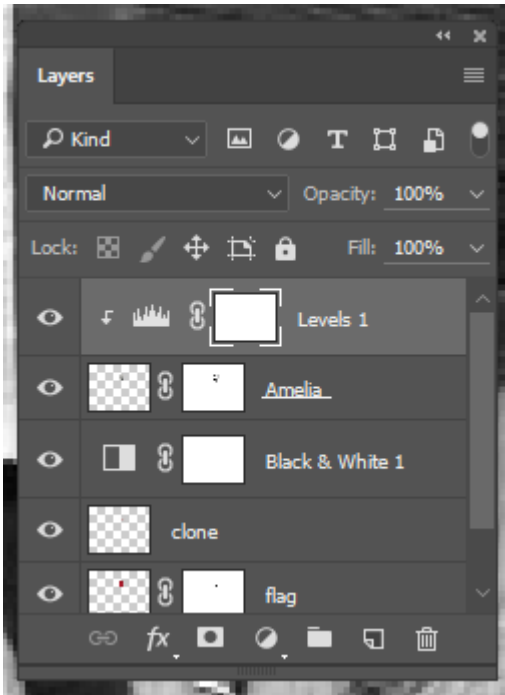
The last steps are to correct Amelia's skin tones and match the quality of the images. Notice that Amelia's photograph was taken outdoors, while the Air Force crew was indoors. The harsh light on Amelia's face is noticeably different from the light on the rest of the crew's faces. We will make a quick adjustment to Amelia's skin tone in order to create a more realistic collage.

One method of making this adjustment would be to use the Burn Tool on the image pixels of the Amelia layer. Burning and dodging are photographic manipulations native to the traditional darkroom. In the darkroom, additional exposure time increases the amount of light hitting the paper. This can be done selectively, resulting in a "burned" area of the image. Burning darkens the value of that portion of the print. Light can also be blocked during the exposure by dodging over image areas where the tonal values are too dark with a small tool, resulting in a lightened area of the print. Photoshop® has Burn and Dodge Tools to provide a digital equivalent to their traditional darkroom counterparts.

However, using the Burn Tool in this case is a destructive method and we want to stick with non-destructive methods so that we can continue to make adjustments without permanently altering the pixels in any of our layers. We'll work with Amelia's skin tones using a Levels Adjustment Layer to achieve the results we want instead of using the destructive Burn Tool.

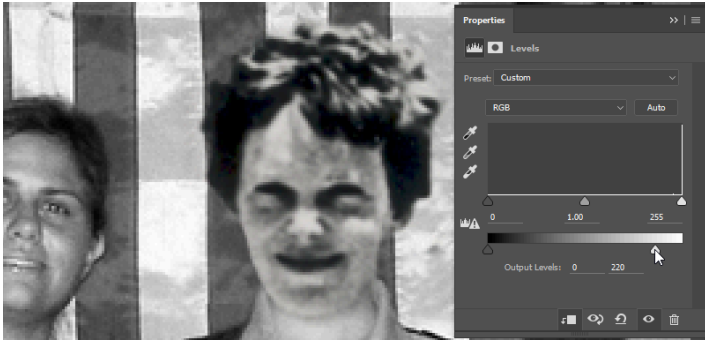
1. With the Amelia layer set as your active layer, add a Levels Adjustment Layer. We only want this to adjust Amelia's head, so make sure to clip the Levels Adjustment Layer into the Amelia layer. (Remember clipping from the Exquisite Corpse exercise

in the last chapter?).

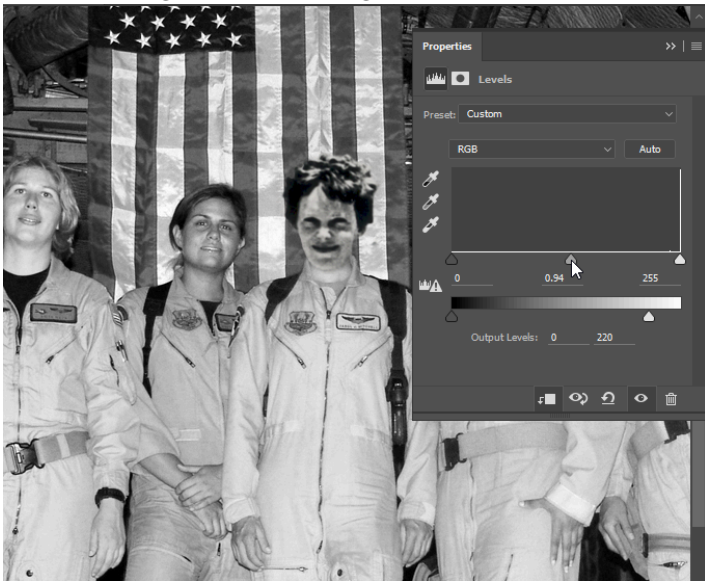


Make sure to clip the Levels 1 layer into the Amelia layer (hold ALT/OPT and click the line between those two layers in the Layers Panel).

2. In the Properties Panel, use the white slider on the black-white spectrum bar to limit the white values. This will bring the tone of the highlights on Amelia's face down to match the other people in the image. We adjusted the slider so that the white Output Levels were at about 220.

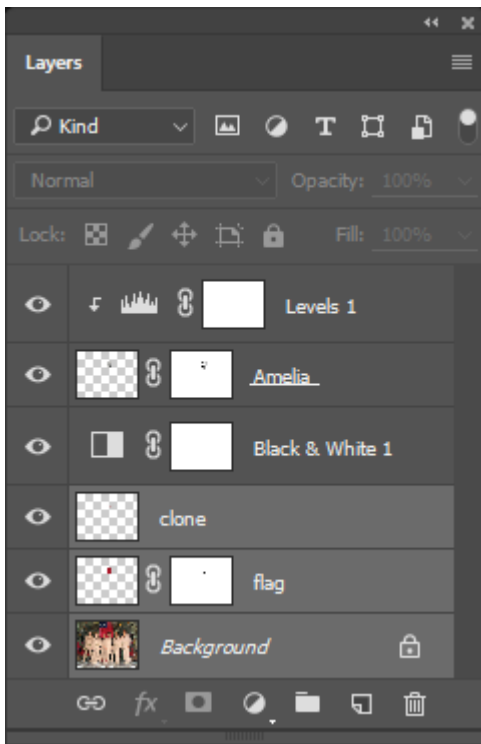


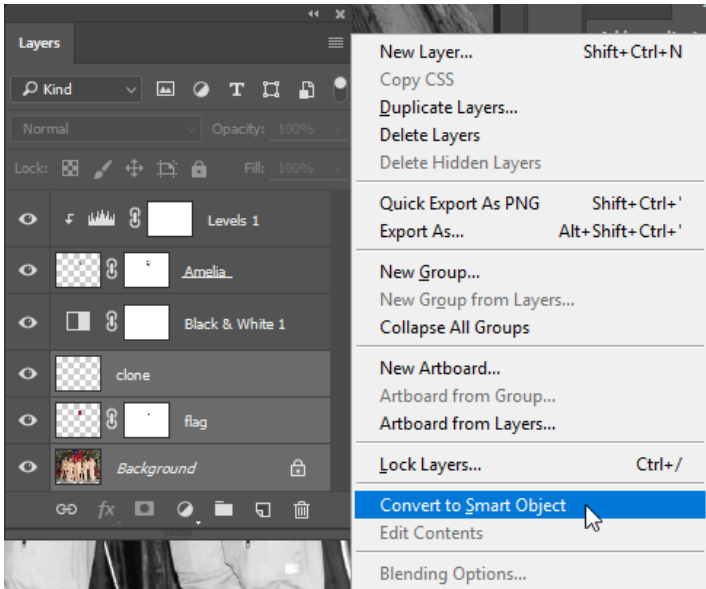
3. Next, adjust the midtone slider in the histogram area of the Properties panel (it's a flat histogram, but it's still a histogram) until the midtones in Amelia's face are closer to those of the other crew members. We went with a midtone value of about 0.94 to start with. The beauty of using an Adjustment layer is that you can adjust the lightness or darkness until you have an accurate match, and re-adjust later if you decide your first round of changes wasn't quite right.



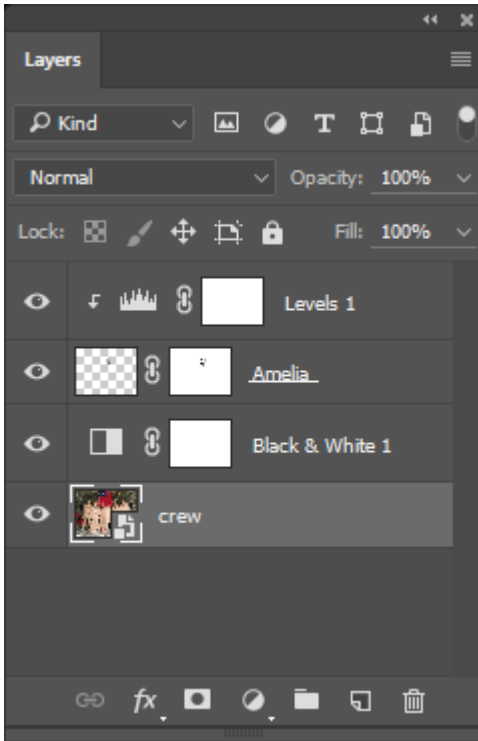
4. Our final manipulation will be to match the quality of the images. We're obviously working with two photographs taken

many years apart from each other, and that shows in the quality of one image compared to the other. The photo of the crew is much clearer than that of Amelia. Since we can't enhance the quality of Amelia's photo, the approach in situations like these is to reduce the quality of the better image so that it matches the lowest quality image in the composition. We'll do this by using a combination of filters. Since filters alter pixels, we'll also want to use Photoshop® Smart Objects to allow this step to be done non-destructively. In your Layers panel, click the Background layer so that it is the active layer. Then hold down the Shift key on your keyboard and click the clone layer, this should select the clone, flag, and Background layers. With those three layers selected, click the menu button in the upper right of the Layers Panel and select "Convert to Smart Object".





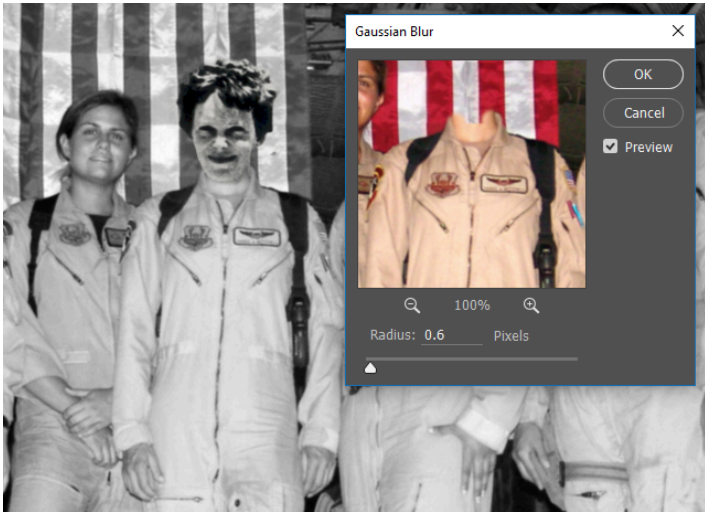
The Smart Object you've created looks like a layer named "clone" but has a thumbnail showing the full crew image and a Smart Object icon. Rename the Smart Object layer "crew".



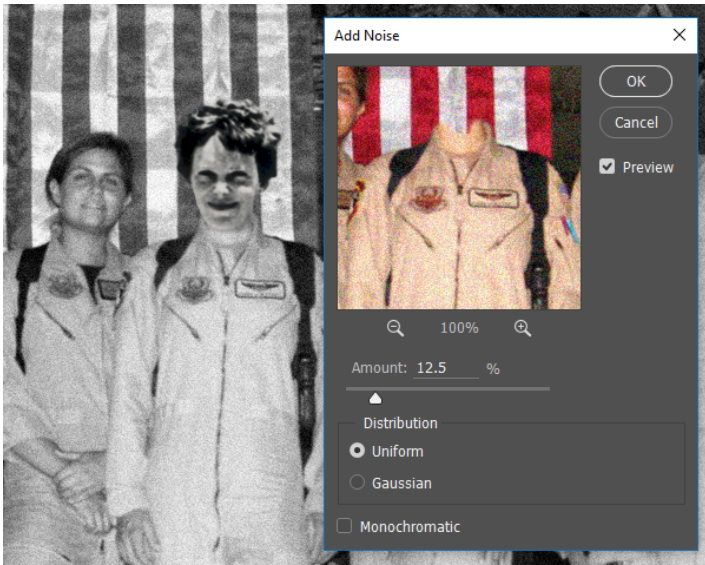
A Smart Object combines the selected layers into one layer, but retains their ability to be edited. If you want to edit layers within a Smart Object, double click the Smart Object's thumbnail icon in the Layers Panel and the embedded layers will be opened as a separate tab. This is kind of like having a PSD within your PSD. The advantage of converting to a Smart Object is that filters can be applied to the Smart Object in a way that allows them to be re-adjusted. You'll see in the next step.

5. When looking at the quality difference between the images, Amelia's image is fuzzier and has more noticeable film grain. Let's start by softening the quality of the crew image (now our Smart Object). With the "crew" layer active, use the Menu Bar and choose **Filter > Blur > Gaussian Blur...** then, in the Gaussian Blur dialog box, adjust the Radius until the quality of the crew image looks like a better match to Amelia's photo.

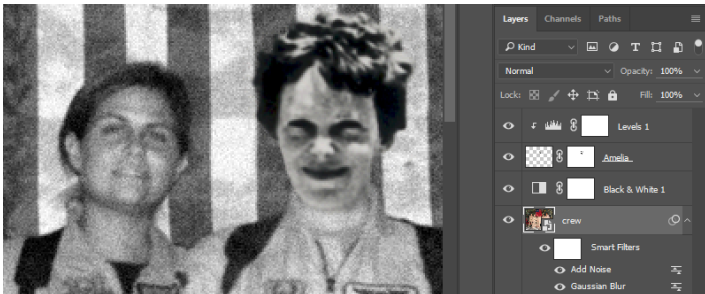
Make sure “Preview” is checked so you can see the effect in your composite image while you make adjustments. It won’t take much blur, maybe around a 0.6 radius. When you’re happy with your amount of blur, click OK.

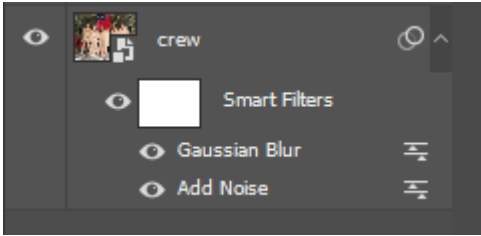
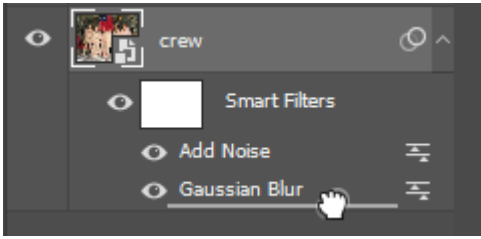
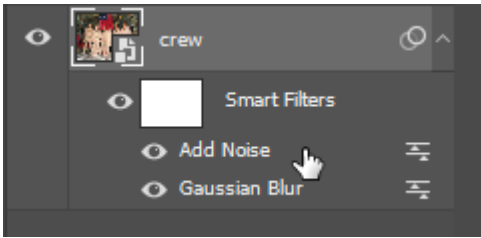


6. Now let’s add some grain to the crew image. **Choose Filter > Noise > Add Noise...** from the Menu Bar. The Add Noise filter adds a graininess to an image. You’ll notice though that the noise isn’t being blurred and has a sharper quality than the grain in Amelia’s photo. For now, accept the default settings for Add Noise and click OK.



7. Here's where the power of Smart Objects and Smart Filters really becomes clear. In your Layers Panel, notice that the “crew” layer now has two Smart Filters. Each Smart Filter has an eyeball icon that can be used to turn the filter off or on. You can also click and drag on each individual Smart Filter to re-order them. Click on the Add Noise filter in the Layers Panel and drag it so that it is below the Gaussian Blur filter – you'll see the noise is now blurred!





8. Now that the Add Noise Smart Filter is underneath the Gaussian Blur Smart Filter, we can go back into Add Noise and re-adjust until the two photos match better in quality. To do this, double-click on name of the Add Noise Smart Filter in the Layers Panel. You'll see a message notifying you that the Smart Filters stacked on top of Add Noise will not preview while you're making adjustments – this means you won't see blur effect when adjusting the amount of noise, so you'll need to

make a best guess. Click OK in that message and you'll then the same Add Noise dialog box you used when adding the filter. Adjust the amount of noise to a level you think will make the images feel like they're equivalent, then click OK. You may need to repeat this process, fine-tuning the amount of noise until you are satisfied with the results. If necessary, you can double-click the Gaussian Blur Smart Filter and adjust it as well, and you may wish to adjust the Levels 1 midtones. Once you are happy with your results, Save your work. You're finished with this chapter!



Our final result.

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PART XV

ACC CHAPTER 11: NON-DESTRUCTIVE EDITING

Download Materials for Chapter 11

[Click here to download chapter 11 work files](#)

You will need the download file to work with in all four exercises.

Original File Source: http://commons.wikimedia.org/wiki/Image:Salvador_Dali_NYWTS.jpg

Screencasts

This screencast combines elements of Chapter 6 (the Pen tool) with elements of Chapter 11 (layer masks). It does not correspond specifically with materials in this chapter, but it is related. Students have provided feedback that it is helpful to see these complex tools in action.

Non-Destructive Editing

In Chapter 9 we referred to Hippolyte Bayard's Self Portrait as a Drowned Man from 1840 as the first combination print. The history of photographic manipulation extends almost as far back as the first photographic images. Digital tools such as Photoshop are used for small and large image manipulations, such as the slightest adjustment to tonal range or the creation of an alternative reality.

Note: See [this link for a group exhibit in 2000 at the Laurence Miller Gallery titled Alternative Realities.](#)

In certain situations, the digital artist must be ethically aware of the manipulation that occurs in such applications. The National Press Photographers Association maintains a code of ethics that journalism students and professionals should abide. Journalists and news photographers strive for accuracy in their image-based reporting. There are historical cases of digital manipulation which are often used to illustrate a violation of the NPPA code of ethics (see the National Geographic 1982 cover image of the pyramids).

Note: [Click here for the NPPA code of ethics.](#)

For the purpose of art-making, editorial or opinionated commentary, manipulation can be used to challenge the viewer's expectations. An image can be reinterpreted as it relates to other images within a composition through the modification of scale or proximity. The visual reference to Philippe Halsmann's Dali Atomicus demonstrates a manipulation of reality, or the laws of

physics, made with a 4 by 5 camera in his studio. This image was captured after “six hours and twenty-eight throws,” wrote Halsman in *Halsman on the Creation of Photographic Ideas* (1963).

The visual reference to Dada artist Kurt Schwitters’ *Dada Soiree* demonstrates that typography can also be manipulated in the construction of a collage. While neither of these visual works were created in a digital environment (both were made before the advent of digital tools), alternate realities and manipulations are often created with computer software. Within the exercises of this chapter, we will focus not only on manipulating an image, but also on working in a non-destructive method. To edit the digital file non-destructively is to work in such a way that the original image is preserved. Any edits or modifications to the original file are placed on separate layers or in alpha channels, which we will explore further in exercise 2. As we have seen in previous chapters, non-destructive editing also involves the use of layer masks and adjustment layers.

Visual References



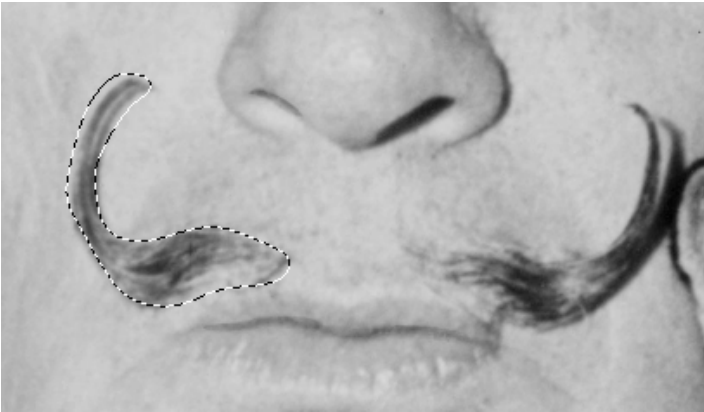
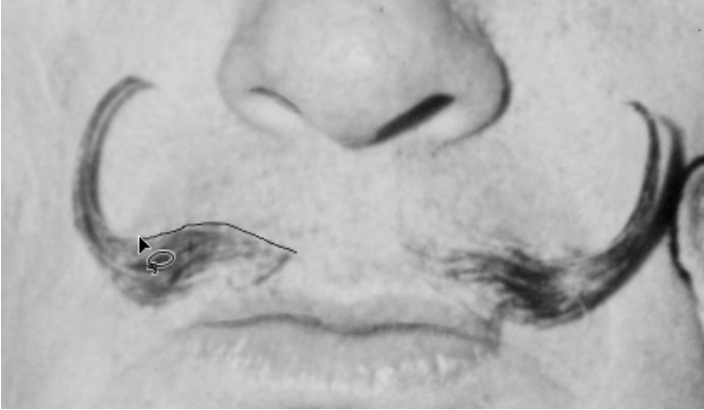
DALI
ATOMICUS,
Philippe
Halsman,
1948. This
version of
the
photograph
shows an
element
missing in
the final
print: the
hands
holding the
chair. Also,
the final
print
contains one
of Dali's
paintings
("Leda
Atomica") in
the frame on
the easel.

11.1 Exercise 1: Using Quick Masks and Alpha Channels

XTINE BURROUGH AND MICHAEL MANDIBERG

Photoshop® Quick Masks and Alpha Channels provide a method of working with selections that is similar to working with the Layer Masks you were introduced to in Chapter 10. They can be very helpful when creating a selection that you'll want to use more than once.

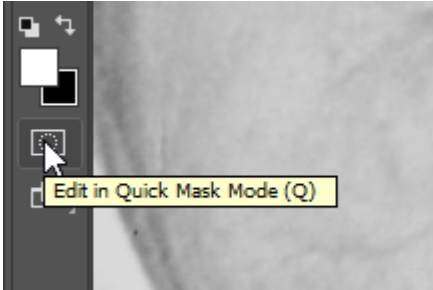
1. In Photoshop®, use **File > Open** to open the file of Salvador Dali holding a cat from this chapter's Download Files.
2. Use the **Lasso Tool** from the Toolbar to make a selection around the left part of Dali's mustache. The Lasso Tool can be used to make freehand selections. Click and hold with the Lasso Tool near the beginning of the mustache and drag all the way around its contour. The selection is made when you bring the mouse pointer back to the point where you started and then release the mouse button. It's okay if your selection is not a perfect tracing of the mustache, we will modify the selection in the next step. The Lasso tool serves the purpose of making a fast draft of a selection which can be used as a starting point for masks.



3. Enter **Quick Mask Mode** by pressing the “Q” key on the keyboard or clicking on the Quick Mask icon at the bottom of the Toolbar, just beneath the foreground/background color chip icons. Quick Mask Mode will put a red tint over all of the image areas that are not selected. This makes selected areas easily visible and provides another way to modify a selection, similar to other masks in the Adobe® Creative Suite® programs (like Photoshop® Layer Masks). Learning to use Quick Mask Mode will help you to understand masking.

Remember, Masks define which areas are visible and which image areas are invisible. Masks do not delete image areas (this is why we have classified this as “non-destructive”), they simply

are used to hide or show parts of images. Since masks are either hiding or showing image areas (or partially showing), they operate in black and white and create transparency with shades of gray.



4. Click on the Brush Tool and make sure that the default colors are loaded into the foreground/background color chips (black on top, white as the background color) by clicking on the small black/white color chip icon to the top left area of the actual color chips in the Toolbox.

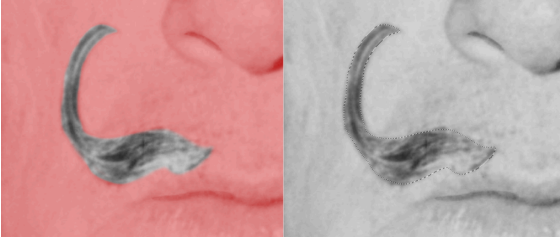
Tip: Pressing the “D” key on the keyboard will load black into the foreground color and white into the background color chip. These are the default

color positions.

As you've learned previously, in a Layer Mask the color black will hide part of the image and the color white will reveal part of the image. Quick Mask Mode works in a similar way, with the red overlay representing where you have painted with black or white to add or remove the to mask. Painting with white paint on the Quick Mask will take away red parts (masked parts). The big difference between Quick Mask and a Layer Mask is that the Quick Mask is actually creating a selection rather than hiding/revealing image pixels. The "masked" areas (painted with black and represented by the red mask) are areas that are not selected, while "unmasked" areas (painted with white, no red overlay) represent selected areas.

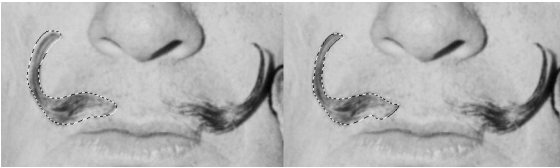
In other words, painting with black in the Quick Mask will add to the mask and subtract from the selection area. Practice painting with black and white paint. Paint with different size brushes and notice what happens with a soft or hard brush, or with the brush set at different opacities. As you are painting, press the letter "Q" to exit Quick Mask Mode. You will see the resulting selection. Press "Q" again to re-enter Quick Mask Mode and continue painting to modify the mask. After a little experimentation like this, you'll begin to see how Quick Mask Mode allows you to use painting tools to create and/or refine a selection, instead of being limited to only using the selection tools (marquee, magic wand, lasso, etc.).

Use Quick Mask Mode to refine and clean up the selection you made around Dali's mustache



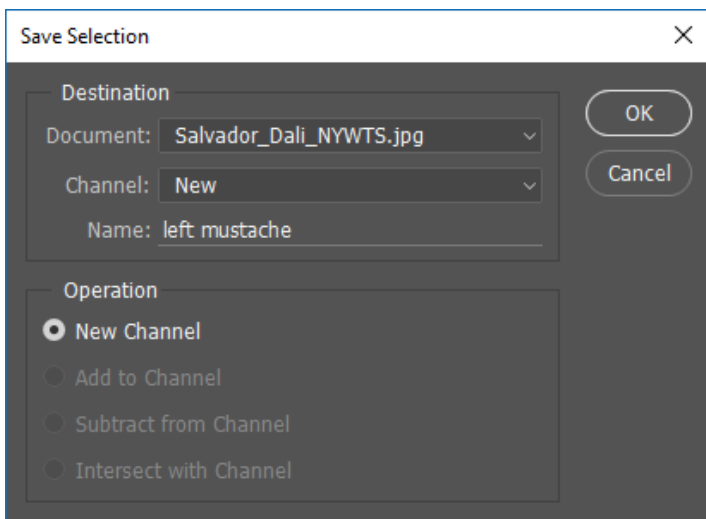
Our final brushwork in Quick Mask Mode and the resulting selection in Standard Editing Mode.

5. Exit Quick Mask and return to Standard Editing Mode when you are finished modifying the selection in Quick Mask Mode. Your selection should now more closely fit the contour of the mustache.



Here is an image of our Lasso tool selection before Quick Mask and the final selection after making modifications with the Paintbrush in Quick Mask.

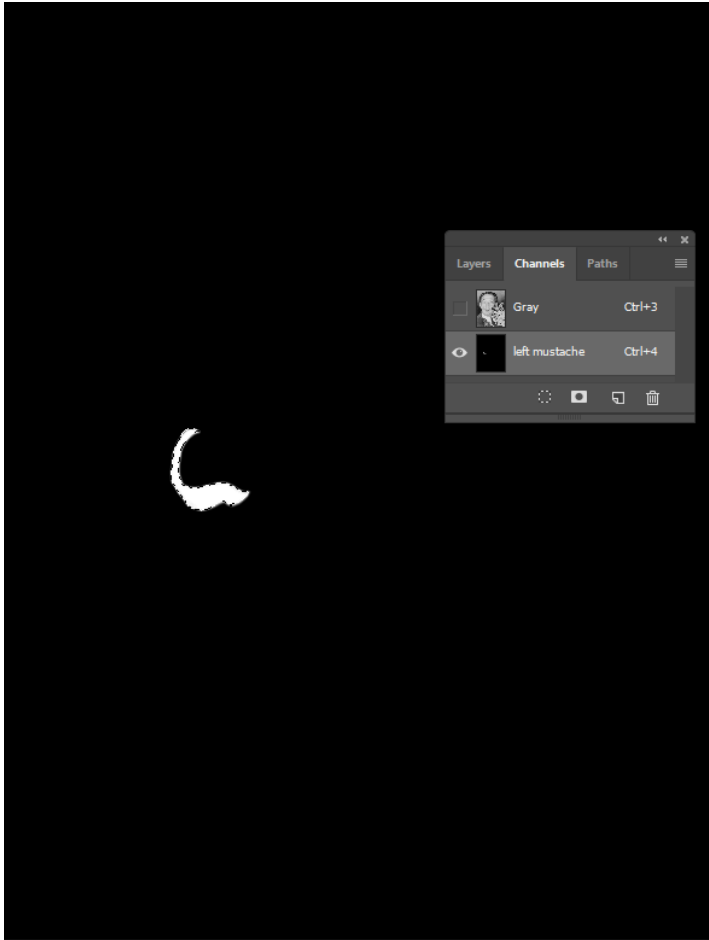
6. Choose **Select > Save Selection** and name the new selection left mustache. Click OK.



7. When a selection is saved it becomes an Alpha Channel. An alpha channel is a grayscale channel that defines which parts of an image are visible. All channels can be viewed individually by clicking on their names in the Channels Panel.

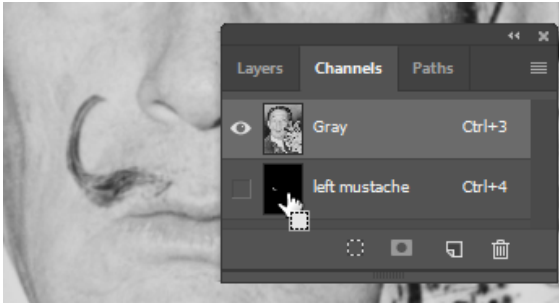
Click on the Channels tab in the Layers Panel, then click on the name, left mustache. The file now shows the left mustache alpha channel. Everything that is not included in the mask is black, and the once selected shape of the left side of the mustache is white.

You can also think of an Alpha Channel as a Layer Mask that's not attached to a specific layer. Saving a selection as an Alpha Channel allows you to re-use that selection when needed without having to re-build it from scratch.



8. Click back on the Gray channel in the Channels Panel to return to Standard Editing Mode. Deselect the left side of the mustache by choosing **Select > Deselect** from the menu bar or use the key command, **Cmd+D**.

Now, we'll reselect the left side of the mustache by loading our saved selection from the Alpha Channel we created. Start by holding down the **Cmd** key on your keyboard. Next, move your mouse pointer over thumbnail image of the left mustache Alpha Channel in the Channels Panel and click the thumbnail once.



When holding **Cmd** and positioning your mouse pointer over an Alpha Channel thumbnail, you will see a “Load As Selection” cursor. Click once to load that Alpha Channel as a selection on your canvas.

You should see the selection appear around the left side of Dali's mustache again. This is referred to as “loading” a selection. Practice deselecting and then loading the Alpha Channel to re-select by using **Cmd+D** (deselect) then **Cmd+click** (reselect) on the alpha channel.

*Windows users: Remember that you will use the **Ctrl** key instead of **Cmd** for any **Cmd+** operations..*

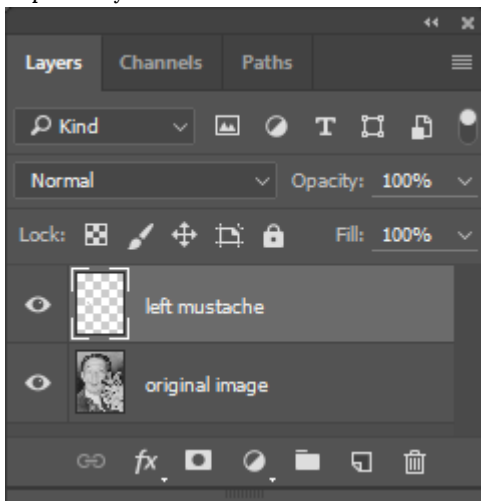
9. Use **File > Save As...** to save your work as a PSD named *ch11-yourlastname-dali-cat.psd*

11.2 Exercise 2: Saving a selection on a layer mask

XTINE BURROUGH AND MICHAEL MANDIBERG

Important Note: *The remaining exercises have many steps, so make sure to save your work often as you step through. You don't want to risk having to start over if Photoshop® crashes while you're working!*

1. To start this exercise, make sure you have loaded the left mustache selection from your Alpha Channel.
2. Duplicate the selected pixels into a new layer by pressing Cmd+J on your keyboard (or you could copy and paste using the Edit menu or Cmd+C and Cmd+V key commands).
3. Rename the Background layer to “original image” and the copied Layer 1 to “left mustache”.

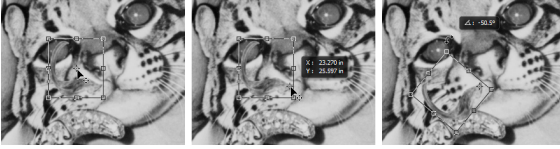


4. Make sure that “left mustache” is your active layer. Use the Move Tool to position the mustache on the left side of the cat's face.



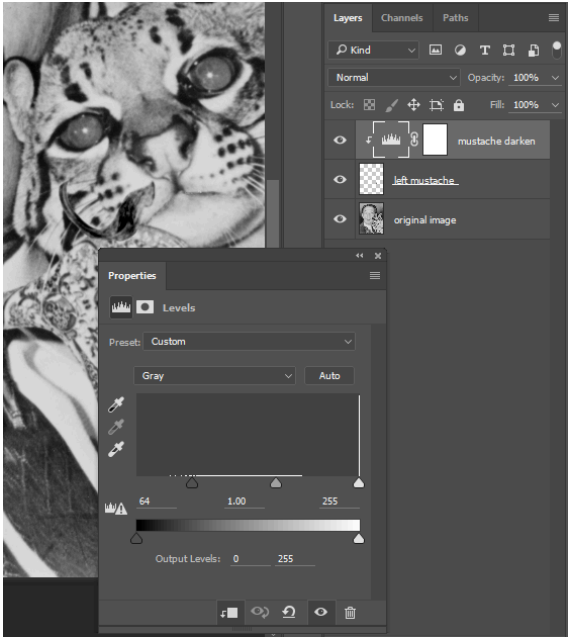
Watch Out: If the left mustache layer was not active (highlighted) you may have moved the layer containing the original image. Make sure the layer that you want to edit is active before editing.

Now we'll rotate the mustache to match the angle of the cat's head. Use **Edit > Free Transform** (or Cmd+T) to activate the transformation bounding box. Before you start rotating, move the Free Transform's reference point from the center of the bounding box to the right end of the mustache by clicking and dragging the center crosshairs as shown below. This will allow you to rotate from that point instead of from the center of the layer's pixels. Rotate the mustache and press the Enter key on your keyboard to finalize the transformation.



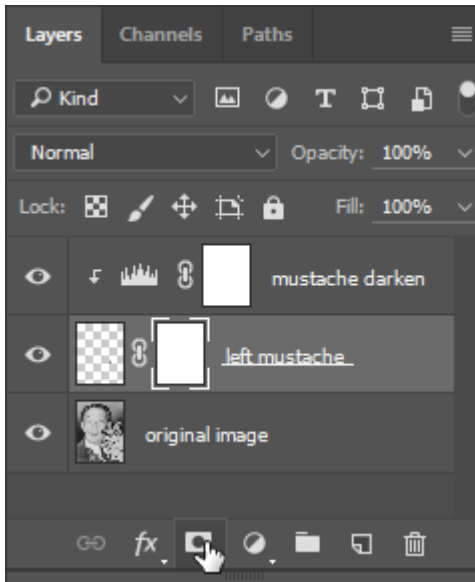
1) Click and drag the Transform bounding box's reference point; 2) position the reference point over the right end of the mustache; 3) rotate the mustache into position. (Your movement coordinates and rotation angle don't have to match the numbers in the images.)

Finally, add a Levels Adjustment Layer and clip it to the left mustache layer. Adjust the levels to make the mustache darker. We will add a final adjustment for contrast at the end of this exercise, but making this adjustment now will make our next steps easier to see.



Darken the cat's mustache with a clipped Levels Adjustment layer so that it's easier to see.

5. Now we will add a mask to the left mustache layer in order to further refine how the layer blends with the original image. Make sure the "left mustache" layer is your active layer, then add a layer mask by clicking on the **Add Layer Mask** button in the bottom of the Layers Panel.

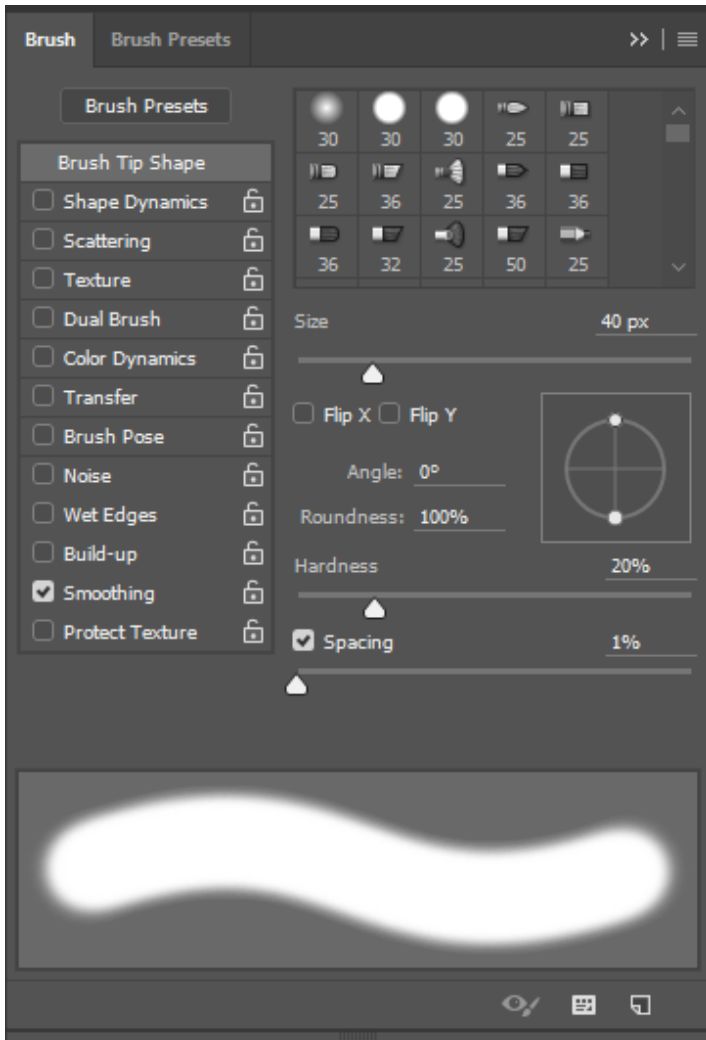


6. Zoom in to at least 100% before editing the mask. Notice that the layer mask's thumbnail icon in the Layers Panel is white (everything on the layer is revealed) by default. The mask is currently active in the Layers Panel. Remember, you can tell which part of the layer is active – the content or the mask – by the white brackets framing around corners of the icon for the active layer component.

Tip: Click on the icon of the layer content or the layer mask to activate either layer component.

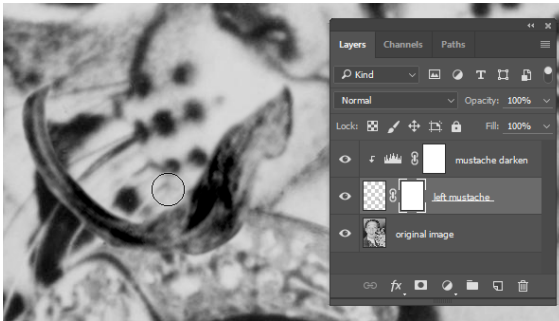
Now we will blend the edges of the mustache using the **Brush Tool** on the layer mask. This will make the mustache appear more realistic on the cat's face. Click on the Brush Tool in the Tool Panel (or press the B key on your keyboard), then get set up with the following steps:

- Make sure black is set as your foreground color. Black will be used on the mask to hide parts of the layer content.
- Use **Window > Brush** to show the Brush Panel. Adjust your Brush settings to a big, soft brush. We set our brush size to 40 pixels with a 20% hardness. We also find that setting the Spacing to 1% results in a much smoother painting experience.



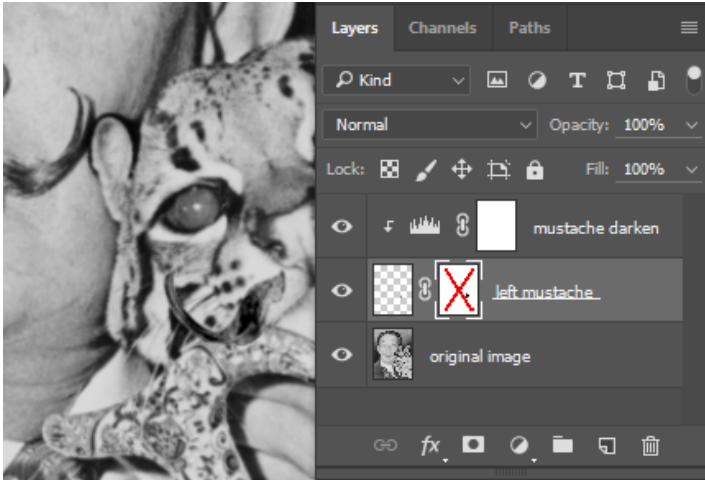
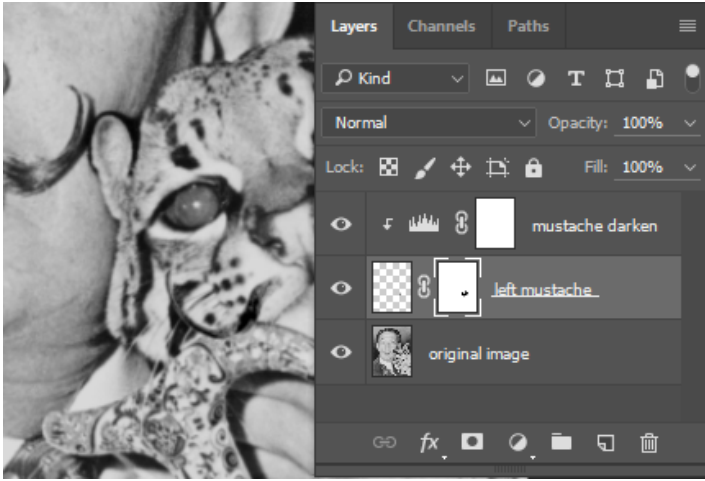
Now, paint just around the edges of the mustache with the edge of the Brush Tool brushing against the edge of the mustache. You may need to increase or decrease your brush size while painting – remember that you can use the] key to increase brush size and the [key to decrease.

Tip: In Photoshop® Preferences (press Cmd+K), go to the Cursors settings and select “Full Size Brush Tip” under “Painting Cursors”. This will show a more accurate brush cursor when using a soft brush and will make it easier to tell where your brush edge is, including the soft fade.

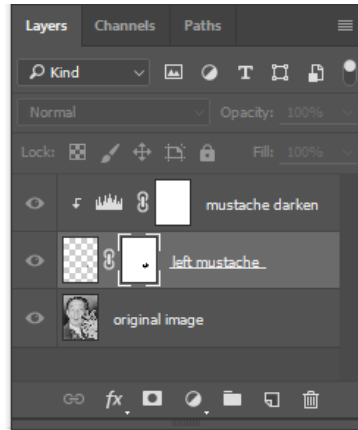


Use a soft brush in your layer mask to clean up the edges of the mustache

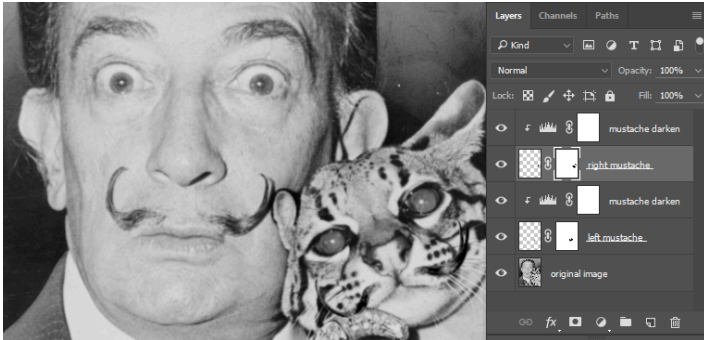
7. When you have finished painting into your layer mask and are satisfied with your blending of the mustache edges, zoom out to “Fit on Screen” viewing mode by using Cmd+0 and then view the image with and without the layer mask. Shft+click on the mask icon to disable the mask. Then Shft+click again on the mask icon to enable it. This is a way that you can check how much of a difference your mask has made compared to the unmasked layer.



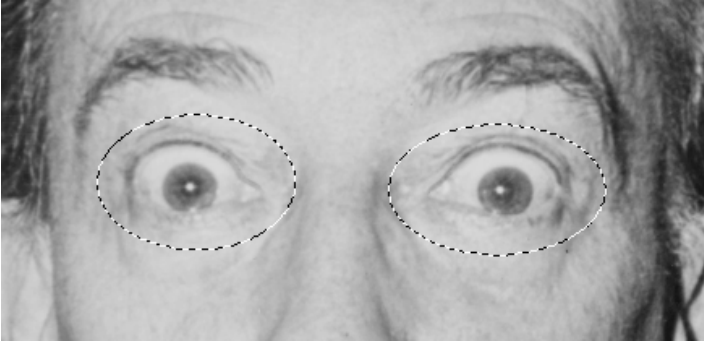
8. View the mask in the document window by Alt/Opt+clicking on the mask icon in the Layers Panel. While it is possible to edit the mask with black or white paint in this mode too, it's not very helpful without being able to see the effects of editing the mask with the image visible. To restore your view to Standard Editing Mode, simply click on the layer's content thumbnail icon.



9. Now for the true test: repeat all of the steps in both exercises with the other half of the mustache! You should end up with something like the image below.



10. Once again, repeat these steps for the eyes. Use the Ellipse Selection tool to select one of Dali's eyes. Then hold Shift while selecting the other eye with the same tool. Make the "original image" layer active by clicking on it. Press Cmd+J to float the selected eyes to a new layer. Rename the layer "eyes" and position it as the topmost layer.



Tip: If you see a warning that says “Could not make a new layer from the selection because the selected area is empty.” then you probably did not make the correct layer active before pasting or floating.

11. With your “eyes” layer active, use the **Move Tool** to position the eyes onto the cat’s face. You will have to select each eye individually to move it into place and use **Edit > Free Transform** to rotate it. Add a layer mask and use black paint to hide the edges of the eyes.

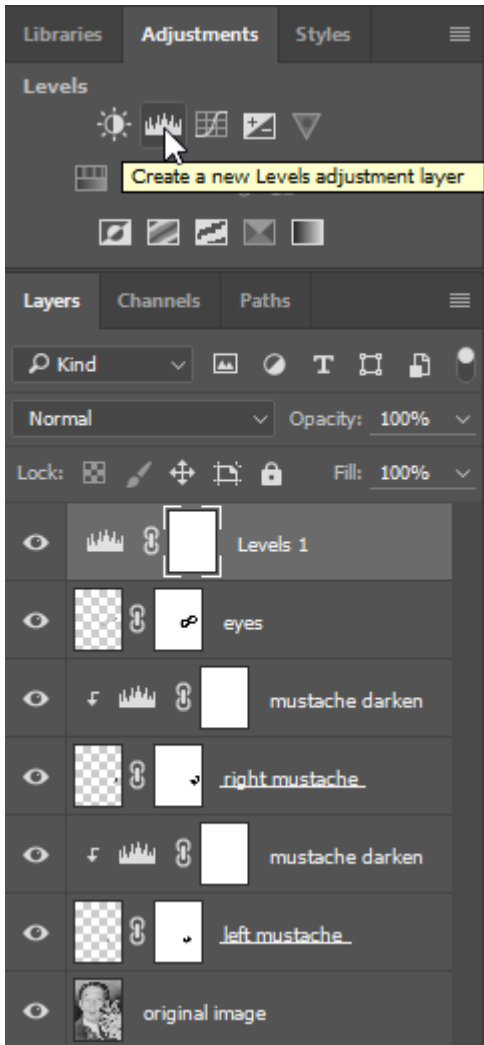


Okay, now things are getting weird.

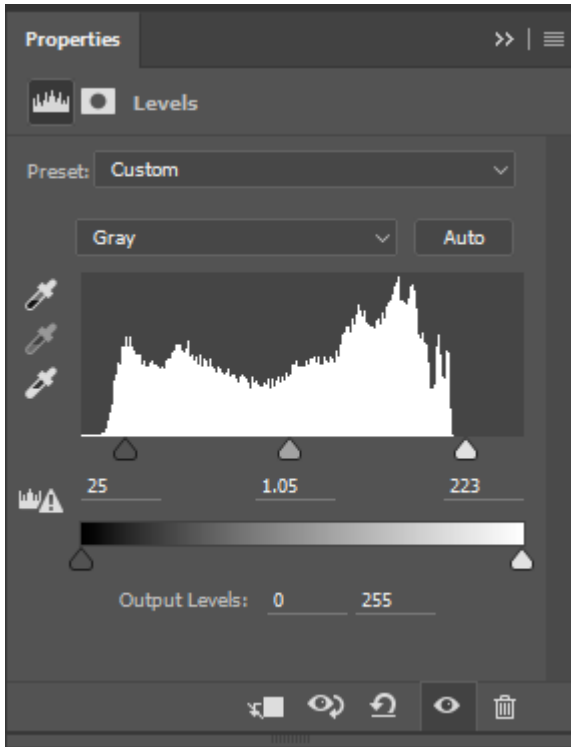
11.3 Exercise 3: Adding an adjustment layer and organizing layers with groups

XTINE BURROUGH AND MICHAEL MANDIBERG

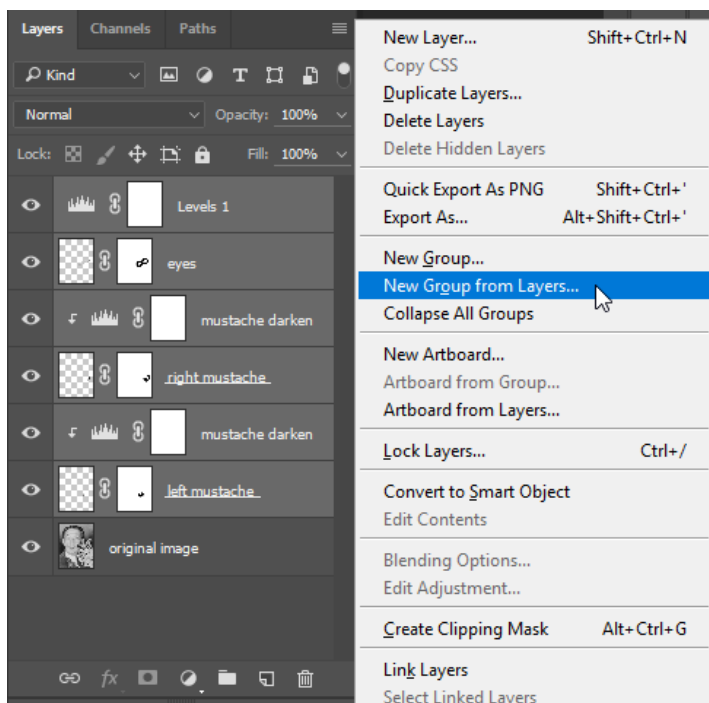
1. Add a Levels Adjustment Layer on top of the eyes layer. We used the button in the Adjustments Panel to add our Levels Adjustment Layer.

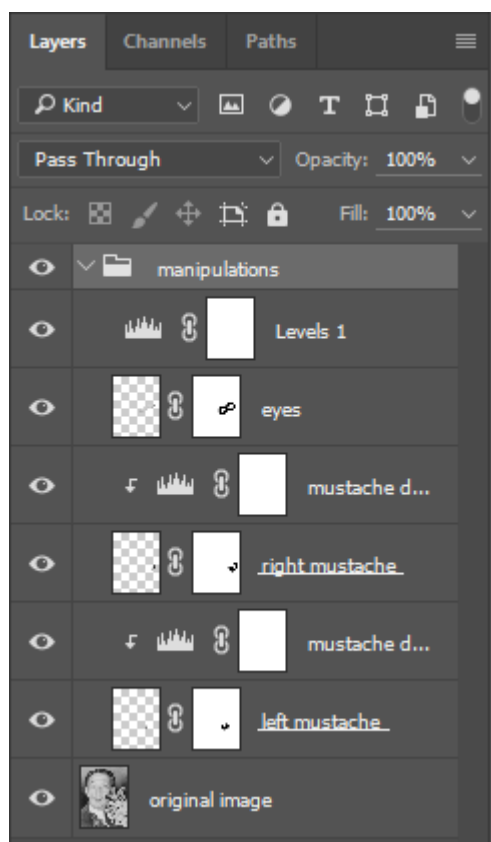


2. Push the sliders beneath the shadow and highlight areas towards each other in the Adjustments panel to create more contrast in the image.



3. Now we will organize all of our manipulations into one folder. Click once on the “left mustache” layer then Shft+click on the “Levels 1” layer to select all layers above original image. Use the Layers Panel pulldown menu to choose **New Group from Layers...** and name the group “manipulations”. Now the non-destructive layers are grouped into one folder. The folder can be collapsed or expanded using the small sideways triangle on the left side of the folder icon in the Layers Panel.

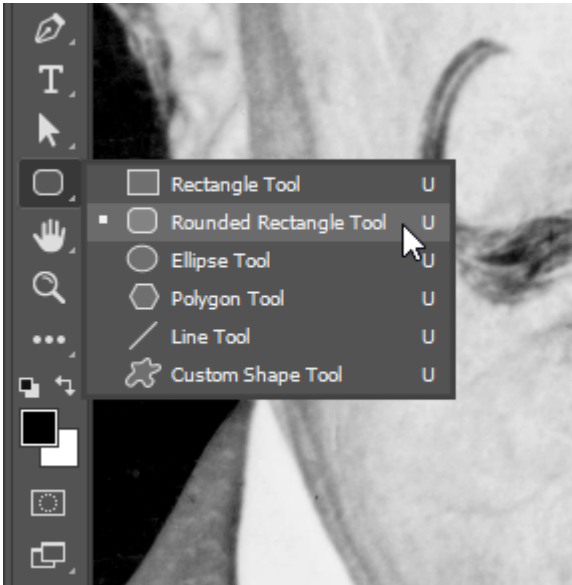




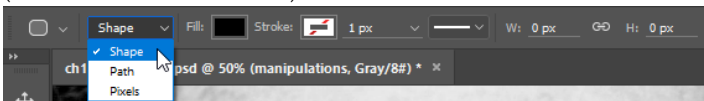
11.4 Exercise 4: Adding a shape layer

XTINE BURROUGH AND MICHAEL MANDIBERG

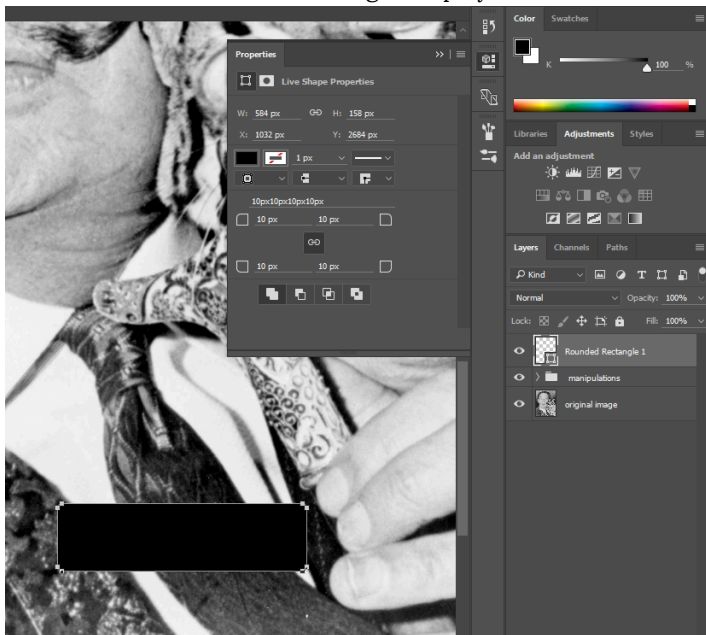
1. Choose the Rounded Rectangle tool from the Toolbar. This tool hides behind the Rectangle tool. All of the tools grouped beneath the Rectangle tool are called Shape tools. In Photoshop®, Shape tools and typography created with the Type tool can be added to the document as vector layers.



2. Look in the Options Bar to verify that you are using the Rounded Rectangle tool to make a Shape layer, instead of a Path (which creates a path like the Pen tool) or a Pixel layer (which creates a selection).



3. Draw a rounded rectangle in the image near Dali's fingers. Notice that you will have a new layer named "Rounded Rectangle 1" in the Layers Panel. Shape layers can be moved with the Move tool and they appear in the Layers panel as an overall path of color with a vector mask defining where the color is applied and where it is hidden, based on the way the shape was drawn. Additionally, after you draw the shape, the Properties Panel will open allowing you to set various attributes of the rounded rectangle shape you created.



4. It's easy to change the color of a Shape layer as long as the document is in a mode that supports color! Try to load a red hue into the foreground color chip. It's gray! Use **Image > Mode > RGB Color** to convert this grayscale image to RGB color mode. At the "Merge layers before mode change?" warning, choose "Don't Merge." We want to preserve all of the non-destructive work that we've done, and merging would eliminate that!
5. Now put a red hue into the foreground color chip using the

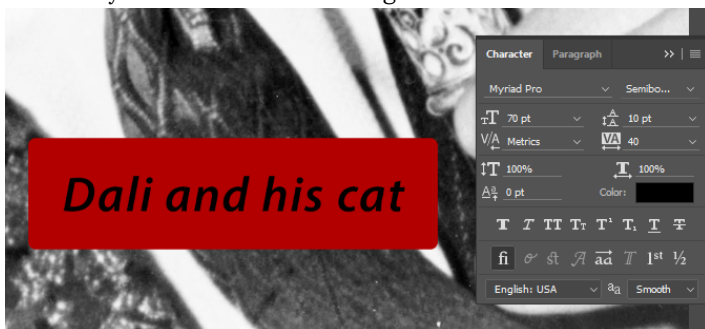
Color Picker or the Color Panel. As long as the Shape Layer is active, use the key command Alt/Opt+Delete to fill the “Rounded Rectangle 1” layer with the color you loaded into the foreground color chip. You can also set the color for a Shape Layer by double-clicking its thumbnail icon in the Layers Panel, or by using the color chips in the Properties panel while the Shape Layer is active.

6. Activate the Type Tool (press T on your keyboard) and click into the red rectangle. Type Dali and his cat on top of the rectangular box and click the checkmark button in the Options Bar to exit type editing mode.

Note: If you still have red set as your foreground color, you’ll need to change the type color to black. You can fill your type with black however you like, but try a fill key command on this layer, too. We loaded black in the background color chip and used Cmd+Delete to fill with the background color.

Now set your font and other type specifications. We used Myriad Pro Semibold Italic as our font, set in 78 points with 40 point tracking. You can set the tracking and other type attributes in the Character Panel (use Window > Character if you don’t have the Character Panel displayed).

Finally, use the Move Tool to position the type layer so that it’s vertically centered on the rectangle.



That’s it, you’ve made it through another chapter! Save your work and take a well-earned break.



Our final
result.

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PART XVI

ACC CHAPTER 12: GETTING IT OUT – DIGITAL OUTPUT FOR WEB

Download Materials for Chapter 12

[Click here to download chapter 12 work files](#)

You will need the download files to complete this chapter's exercises.


Visual Examples

[The Wayback Machine](#) is an archive of web pages dating back to the early 1990s. We used the Wayback Machine to view web sites from the 1990s to compare them with the same sites in 2016.

Notice how the aesthetics of web graphics has changed in the past two decades. These new aesthetics have developed due to increased network speed, changes in programming techniques, and the evolution of information design. Greater connection speeds result in the ability to upload and download larger files in a shorter amount of time. Graphics today are larger, more frequent, and more

colorful on current web sites than the graphics made for the web in the 1990s.

[\[Text version\]](#)



You can search the White House web site for:



- [All White House web features combined:](#) Press releases, Radio Addresses, photographs and Web Pages.
 - [White House documents:](#) Publicly-released documents since the start of the Clinton Administration.
 - [The contents of this web site:](#) Just the pages of this service.
 - [Radio Addresses of the President:](#) Search and listen to the President's Saturday Radio Addresses.
 - [Executive Orders:](#) Official actions, procedural changes, and organizational changes.
 - [White House photographs:](#) Search a public collection of photographs.
- You can also search the GovBot database [all government sites](#)

You can also browse some historic national documents:

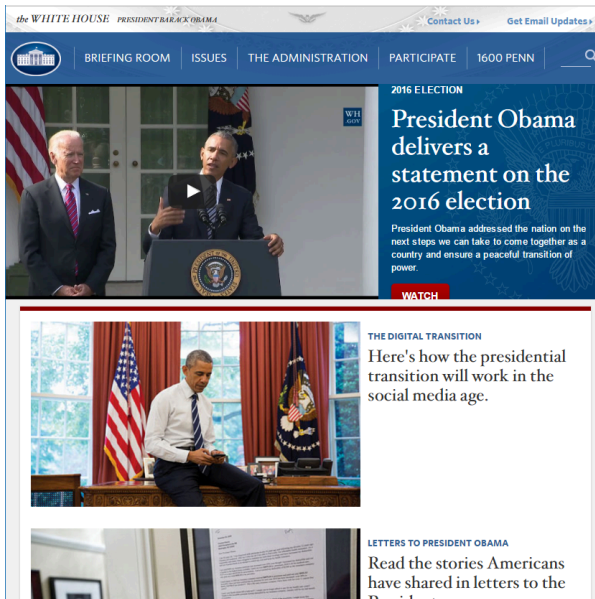
- [The Declaration of Independence](#)
- [The Constitution of the United States of America](#)

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2016 ELECTION

President Obama delivers a statement on the 2016 election

President Obama addressed the nation on the next steps we can take to come together as a country and ensure a peaceful transition of power.

WATCH

THE DIGITAL TRANSITION

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Apple
Mac
iPad
iPhone
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TV
Music
Support
Search
Shopping

APPLE WATCH

SERIES 2

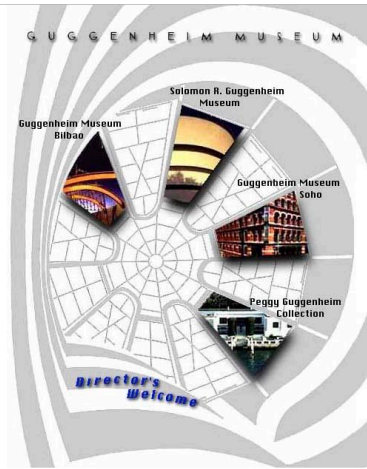
Introducing Series 2.

The Art of Giving

Discover great Apple gifts.

iPad Pro


Super. Computer.



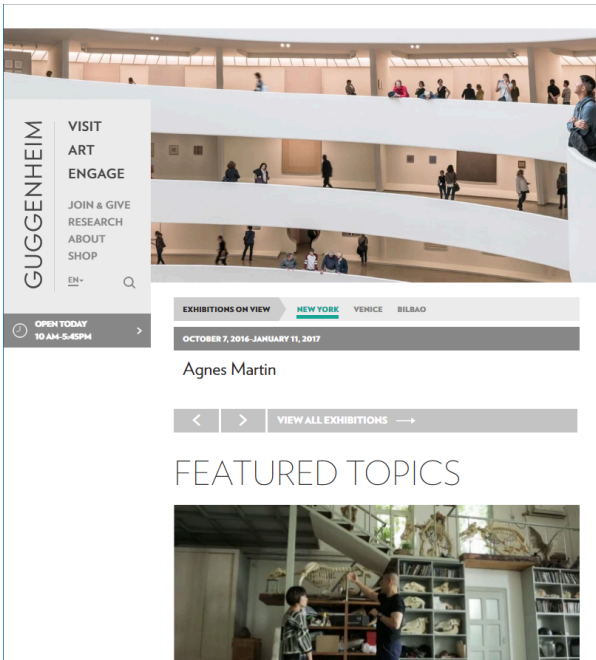
| [What's New?](#) | [Membership](#) | [Museum Store](#) | [Chalkboard](#) | [Links](#) |

The Guggenheim Museum Web site is sponsored by the Guggenheim Young Collectors Council.

This Web site is hosted by Lehman College and [AmetWeb](#). Substantial components have been designed by Anselm Lambert and Florian Penev, students from the Computer Science and Art Departments at [Lehman College](#). Special exhibition sites constructed by [Adrienne Wortzel](#). Produced and edited by [Matthew Druet](#), Assistant Curator for Research, Solomon R. Guggenheim Museum.

The site has been designed for use with  browsers. Learn more about [Netscape Navigator](#) or [download](#) now.

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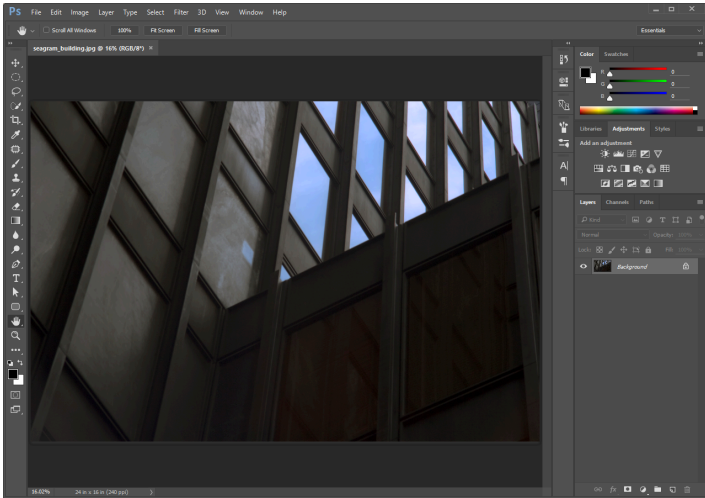
From top left to bottom right: *Whitehouse.gov* on October 23, 1997; *Whitehouse.gov* on November 9, 2016; *Apple.com* on July 15, 1997; *apple.com* on November 9, 2016; *guggenheim.org* on December 27, 1996; *guggenheim.org* on November 9, 2016.

Note: The Wayback Machine contains an archive of over 85 billion web pages. You can use this search engine at <http://web.archive.org>.

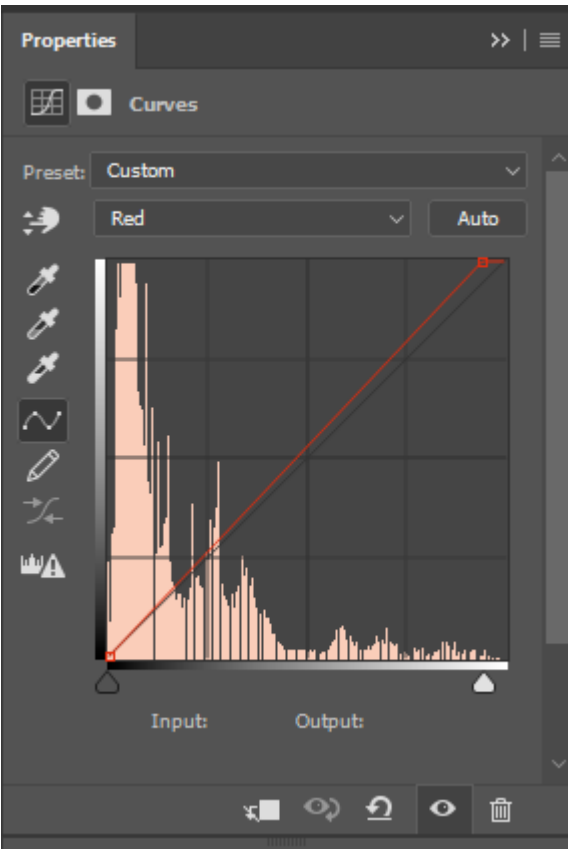
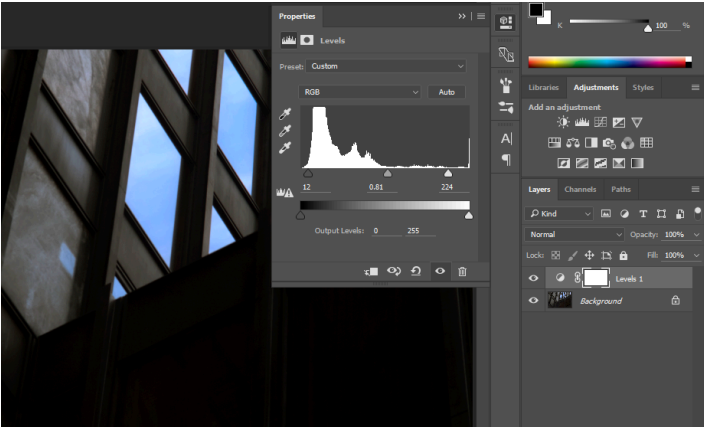
12.1 Exercise 1: From digital input to web ready

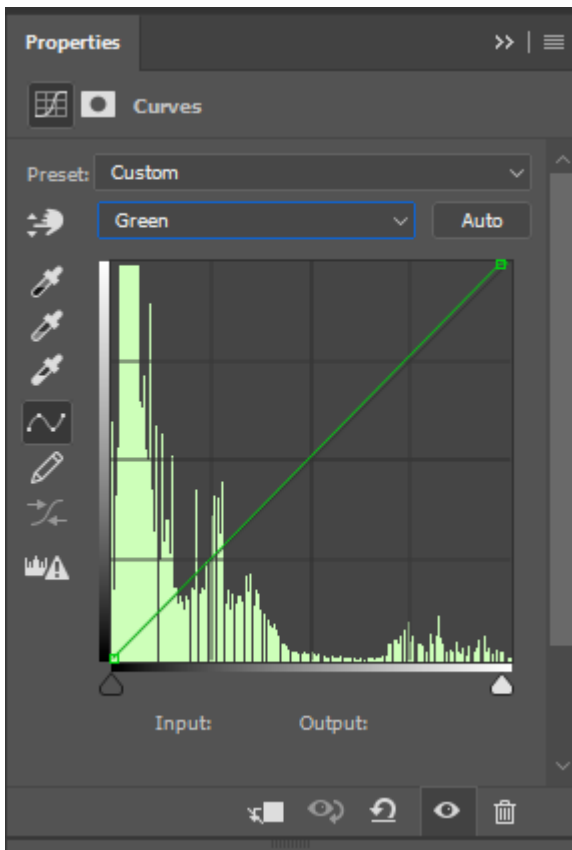
XTINE BURROUGH AND MICHAEL MANDIBERG

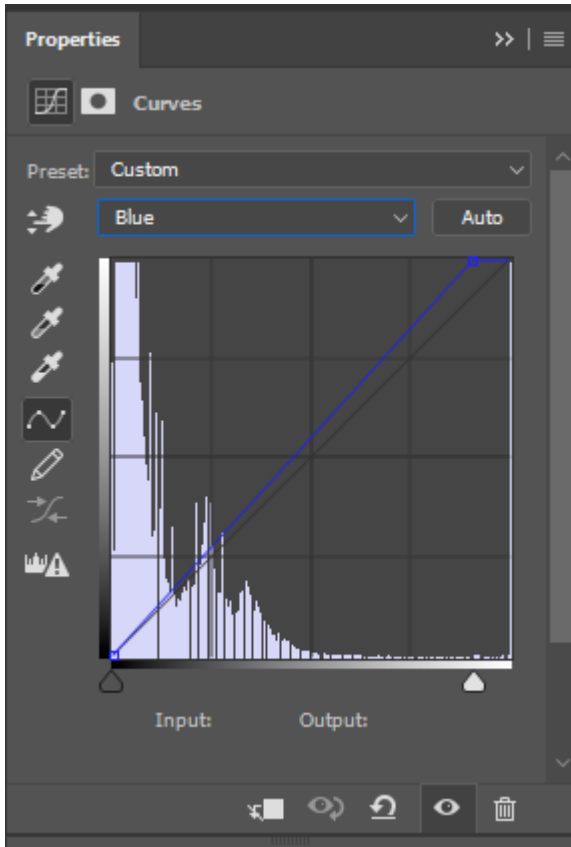
1. Download and open **seagram_building.jpg** from the Chapter 12 Work Files download.



2. If you followed the exercises in Chapters 8 and 9, you should be comfortable changing the tonal range and color of this image. Adjust the tonal range and color to your liking by adding one or more adjustment layers.

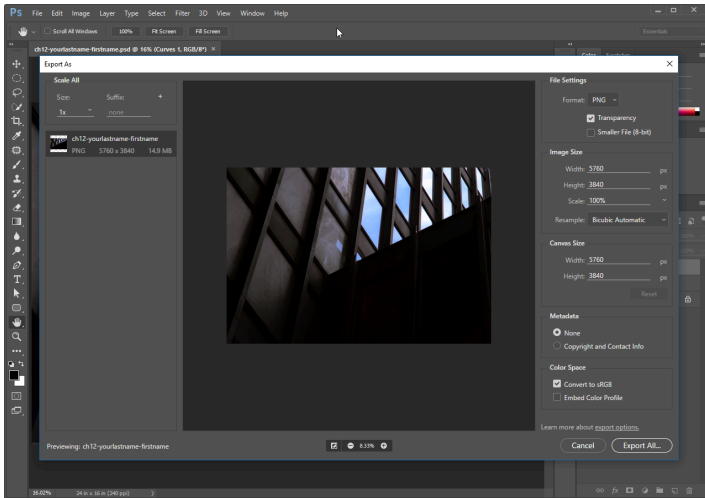




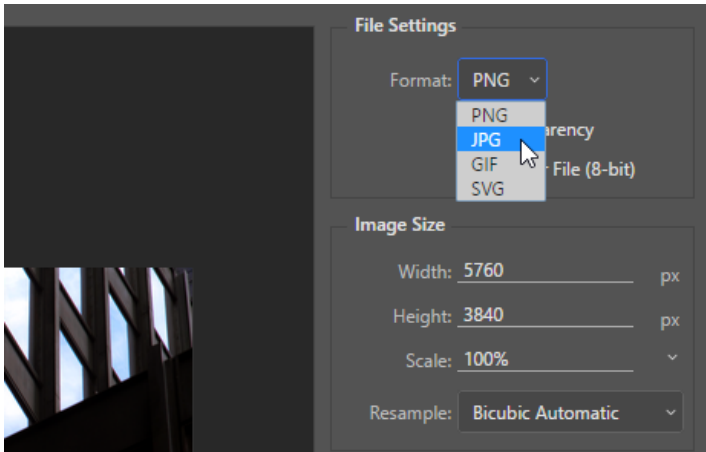


3. Save this file as a master copy by choosing **Save As** from the file menu, choose PSD as the file format, and save your file as **ch12-yourlastname-firstname.psd**.
4. The image from the download files was taken by a 21-megapixel digital camera, and is larger than we need to display on a web site. Additionally, since we've made some adjustments and want to retain our master file as a PSD, we'll need to create an optimized image for use on a website or on social media. To optimize images for online use, we use the Export features in Photoshop®. Choose **File > Export > Export As...** to open the Export As interface. Photoshop® and Illustrator® both have this tool available, allowing you to to

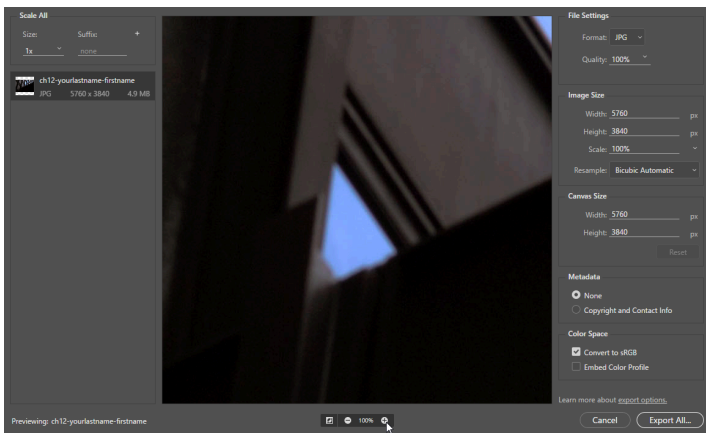
resizes and compress your images, flatten layers, and prepare an image for the web all while retaining your original master file.



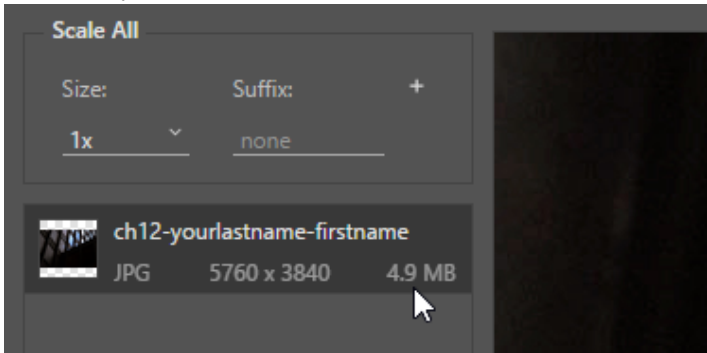
5. The Export As dialog has several important parameters to set. The most important parameter is the **Format** listed under “File Settings” in the top right of the interface. As a general rule, photographic images and other images continuous tone or a large range of colors are saved as JPEGs. Graphic images – images with few colors, such as logos and line art – are saved as PNGs or GIFs. Since this image is a photograph, select JPEG from the Format pull-down menu.



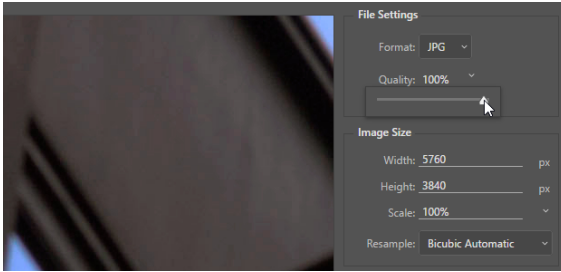
- Some of the Formats available in the Export As dialog are also available through File > Save As, including the JPEG format. However, using the Export As dialog gives a greater amount of control over JPEG compression settings and prepares the image for web use in a few other ways that Save As doesn't. We'll start with the **Quality** setting. First, notice that at the bottom of the Export As dialog are some zoom controls. Click on the + button there to zoom in and view the image at 100%. We'll want to be looking closely at the image to more easily see the effect of JPEG compression.



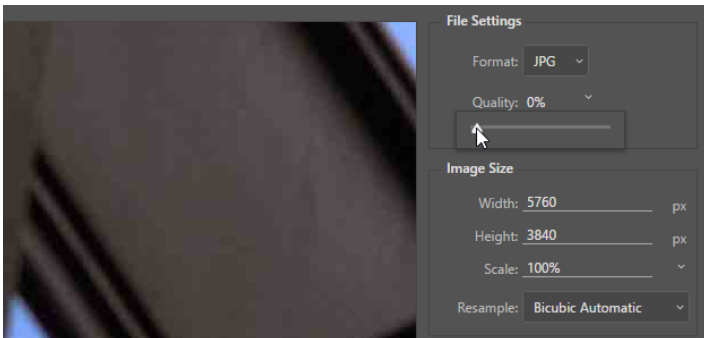
Also note that the left side of the Export As interface shows information related to the optimized image. At this stage, we want to pay particular attention to the estimated file size of the optimized image, which at 100% Quality is about 4.9MB. This is important because the smaller the file size is, the faster the image will download as part of a web page. The 4.9MB file size is a very large or “heavy” file and will increase download time unnecessarily.



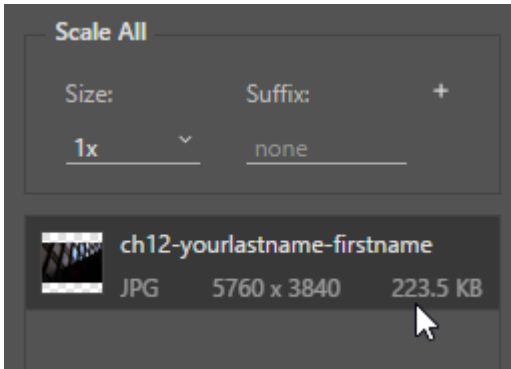
7. In the File Settings section at the right of the Export As dialog, set the Quality setting to 0% by typing into its box or clicking on its down arrow and using the slider. Watch the image closely as you make this change and you will see differences in the image quality appear. Saving an image in JPEG format compresses the saved image into a smaller file size by removing pixel detail from specific areas in the image. This is called lossy compression. The JPEG format lossy leaves what are known as compression artifacts in the image. These show up as blurry or pixelated areas in an image, which you may have noticed in heavily compressed images online. JPEG compression artifacts most often show up in areas of solid or nearly-solid color, or around edges of objects in an image.



Notice the loss of detail and the appearance of JPEG compression artifacts when comparing the image preview at Quality settings of 100% and 0%.



Along with seeing a preview of the compressed image in the center of the Export As dialog, the estimated file size is also updated when you change the Quality setting. Notice that the image information in the area at the left of the dialog now lists the file size at around 223.5KB.



Note: The human eye cannot easily detect image compression artifacts if a small amount of compression is used and the image is viewed on a computer screen. Photoshop® JPEG compression presets run from Low to Maximum, and correspond to a numerical range from 0 to 100. Zero is a very low quality, where you will definitely be able to notice the loss of quality as visible compression artifacts in the image, while the maximum 100 level (although still having had image data thrown away) shows no visible decline in quality. The trade-off is that more compression creates a smaller file. Weigh your needs for file size against your perception of image quality to decide what level of compression to use on a case-by-case basis.

8. While the file size at 0% quality is nice and small, the image doesn't look as good as it could. We want to find a balance between a nice looking image (not covered in artifacts) and a file size under 1MB. Increase the Quality to 60% and watch the

areas of the image where you noticed the artifacts at 0%. On average, a Quality setting between 60% and 80% is where you'll end up when looking at image quality, though this will vary depending on the amount of detail and texture in any particular image that you're compressing. Notice that the compressed file size at 60% quality is 1.1MB, we'll address that in the next step since we do want a smaller file size.

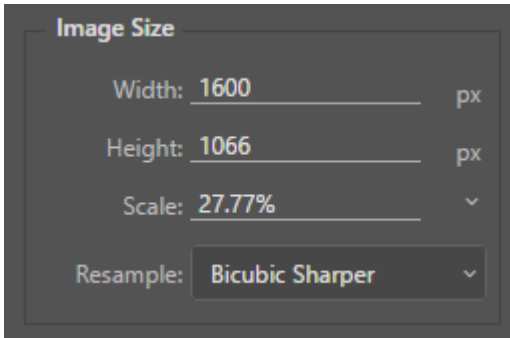


9. In addition to compression, we can also reduce file size in this case by reducing the pixel dimensions of the image. We can do this directly in the Export As dialog, without permanently altering our master image file. Locate the Image Size section of the dialog, underneath the File Settings section on the right side. The original pixel dimensions are 5760×3840 pixels, which is much larger than we need to display online.

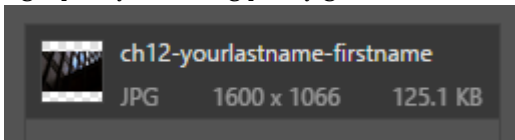
Computer monitors and mobile devices have a wide range of screen sizes these days. In order to deliver images that are sized appropriately for different devices and Internet connections, it is often necessary to prepare multiple sizes of an image for online use. For this exercise, we'll prepare two optimized sizes of this image.

For desktop computers, let's scale the image down to a width of 1600px. Edit the Width value under the Image Size settings and the height will be scaled proportionally to 1066px. To help

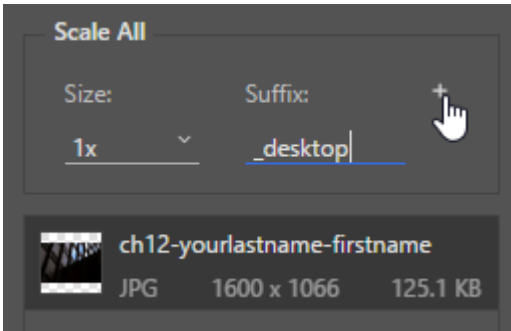
our scaled image's quality, also set the **Resample** drop-down to **Bicubic Sharper**. This will result in sharper detail when Photoshop® re-interpolates the image's pixels while generating the smaller size. Your Image Size settings should match those shown below.



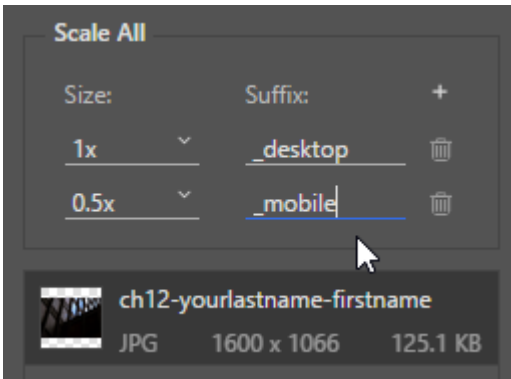
Notice that this has reduced the optimized file size from 1.1MB down to 125.1KB. This is much more acceptable and our image quality is looking pretty good.



10. Now we'll create an additional optimized file for mobile screens using the **Scale All** controls in the upper left corner of the Export As dialog. In the previous steps, we've just defined the settings for our **1x** optimized image. In the **Suffix** field, enter **_desktop** then click the **+** button in the Scale All box to add another size for this image.



Clicking the + button will create an additional optimized copy of the image. For this second optimized copy, set the **Size** drop-down to **0.5x** and enter **_mobile** in the **Suffix** box.



Now click the **Export All...** button in the lower right of the dialog, choose where to save your optimized files, and click the Export button. You should end up with two .jpg files in the folder you saved to: one named *ch12-yourlastname-firstname_desktop.jpg* and the other named *ch12-yourlastname-firstname_mobile.jpg* with file sizes around 122KB and 45KB, respectively. Notice that the *_mobile* image has pixel dimensions of 800×533.

Note: File naming standards for the web use only

lowercase letters, alphanumeric characters,
underscores, and dashes (no spaces).

If you open each of the JPEGs in Photoshop®, you'll also notice that their resolution is set to 72ppi. The Export All process also reduces the ppi since images for display on the web or exclusively on screens typically use a standard 72ppi setting.

We're finished with the `ch12-yourlastname-firstname.psd` file, so you may save and close it.

12.2 Exercise 2: PNG & GIF vs JPEG

XTINE BURROUGH AND MICHAEL MANDIBERG

As stated in Exercise 1, photographic images with many colors are saved as JPEG files, and graphic images with few colors are saved as PNGs or GIFs. Following these rules will produce better quality images and smaller file sizes for graphic images.

The GIF and 8-bit PNG formats reduce an image's sizes by limiting the number of colors in the image to no more than 256 total. This is called an *indexed color* palette. The fewer colors used, the lower the file size. In combination with some compression algorithms this can create some pretty small files. As you can imagine, however, significantly reducing the number of colors in photographic images would result in a very altered appearance.

PNG also has a 24-bit format that uses a much larger range of color and a compression algorithm to produce true-color compressed images. These have excellent quality but are typically larger in file size than JPEG compressed images.

Both PNG and GIF can include transparent portions of an image. The GIF format only allows one of the colors in its indexed color palette to act as transparency, while PNG can contain a true alpha channel to define transparent or semi-transparent areas in an image. Use of an alpha channel to create transparency allows transparent fades and smooth edges along transparent areas in an image.

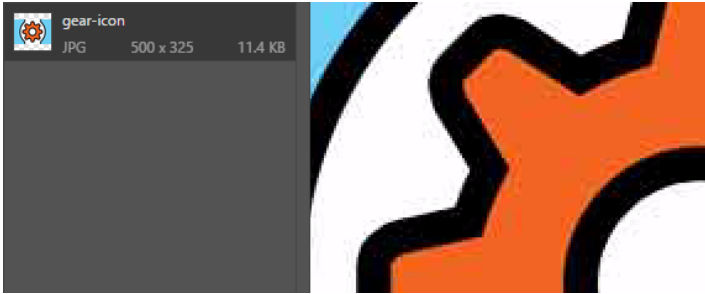
1. Use the **gear-icon.psd** image included in this chapter's work files and the Photoshop® **Export As** interface to save an optimized version of this image as an 8-bit PNG, scaled down to a width of 500px. Zoom in and notice how clean the image is (no compression artifacts).



Click the **Export All...** button and you should end up with a file named *gear-icon.png*, make note of the optimized image's file size (it should be around 12KB). *Note: you do not need to export multiple sizes of the image in this exercise, just the 1x size in the Scale All area will be sufficient, and it doesn't need a Suffix.*

2. Now use Export All again to see how much compression it would take to get the same file size from this image using the JPEG format. Make sure the Image Size is still 500px and adjust the Quality slider down to your guess of a percentage that it will take to reach the same file size as the PNG you saved. Zoom in and you'll notice JPEG artifacts around the black edges in the image. Click **Export All...** to save your JPEG version of this image.





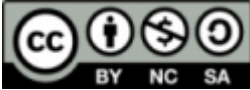
From this exercise, it should be apparent why JPEG is not the best format for graphic images that have solid colors. As you can see, a much cleaner image results from using the PNG format. You can use the Photoshop® Export As interface to experiment with the GIF format on your own, and you may want to try turning off the background layer to play with transparency in your optimized image. You may also want to experiment with a photograph to see how the different formats create different results in quality and file size.

Note: GIF (Graphics Interchange Format) was developed in 1987 and makes use of a patented compression method. The PNG (Portable Network Graphic) format was developed around 1996 as a non-patented GIF replacement. The relevant patents expired in 2004, though by that time PNG had become fully supported on the web and a more popular format than GIF. One GIF feature that PNG does not have is animation, which has become the primary use of GIF in modern times.

That's all for Chapter 12!

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PART XVII

ACC CHAPTER 13: MULTIPLE PAGES: UNITY

Download Materials for Chapter 13

There are no files needed to complete this chapter.

The results of the exercises are shown below.

Results of Chapter 13 Exercises

When you complete all of the Chapter 13 Exercises, you will have an INDD (InDesign) document and a PDF document. The two pages in the documents are illustrated here.



Two single-page layouts, the result of this chapter's exercises.

Multiples: Creating Unity

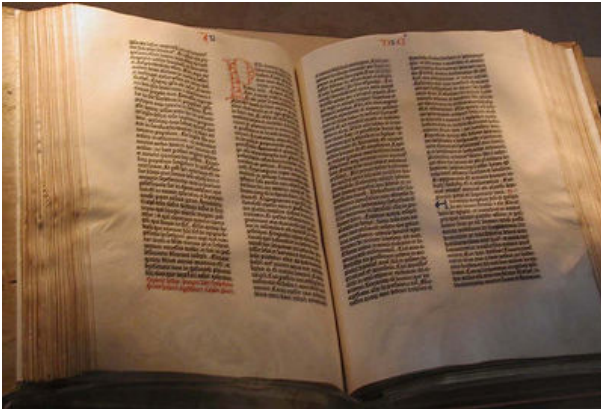
When creating multi-page documents, the grid is the principle way of organizing page elements. A grid divides a page into columns. An artist can follow the columns strictly, or use them as a rough guide to work within. The Gutenberg Bible visual example follows a very rigid grid structure: the two columns of text have the same line length, which is a measurement of how long a line of text is before it breaks to a new line (Fig 13.#) The two columns of text also have the same vertical length. When two pages are viewed together in an open book such as this, the pages are read together as a spread. The pages in this spread follow the grid in exactly the same manner.

However, the grid can also be used with much flexibility. In the visual reference example of the New York Times layout from 1918, the grid is more complex and versatile. This grid divides the page into eight columns.

Counting the columns on the page is easy: find the smallest column and measure its width. Then divide the width of the page with the width of the smallest column. An eight-column grid creates a very flexible layout. Instead of eight even columns of text flowing down the front page of the newspaper, some larger graphic

elements like the headline at the top of the page expand across all eight columns. Other text blocks are given visual emphasis, or create visual hierarchy on the page by spanning multiple columns. Also notice the distribution of negative space on the page. Since there is a lot of text on this front page, contrast is created by increasing the leading in some areas of the page and by allowing some of the text blocks to expand beyond one column.

Visual References



A copy of the Gutenberg Bible by Johannes Gutenberg, owned by the U.S. Library of Congress. 180 copies of the Bible were printed in Mainz, Germany in the fifteenth century. <https://www.flickr.com/photos/digitalfoundations/2955941152/>

"All the News That's Fit to Print"

The New York Times.

THE WEATHER
NEW YORK, N. Y., MONDAY, NOV. 11, 1918.
Clear, 40 to 50.

ARMISTICE SIGNED, END OF THE WAR! BERLIN SEIZED BY REVOLUTIONARIES; NEW CHANCELLOR BEGS FOR ORDER; OUSTED KAISER FLEES TO HOLLAND

NEW YORK, Nov. 11.—The German revolution and the seizure of power by the Socialists, caused the British Government to announce that it would not recognize the new German Government until it had taken steps to restore the Kaiser's authority.

ARMISTICE SIGNED.—The armistice was signed at 11 o'clock this morning. The German Government announced that it had accepted the terms of the armistice.

BERLIN SEIZED.—The city of Berlin was seized by revolutionaries. The Kaiser fled to Holland.

NEW CHANCELLOR.—The new Chancellor, Friedrich Ebert, begged for order. He announced that he would take steps to restore the Kaiser's authority.

AMERICAN REACTION.—The American Government announced that it would not recognize the new German Government until it had taken steps to restore the Kaiser's authority.

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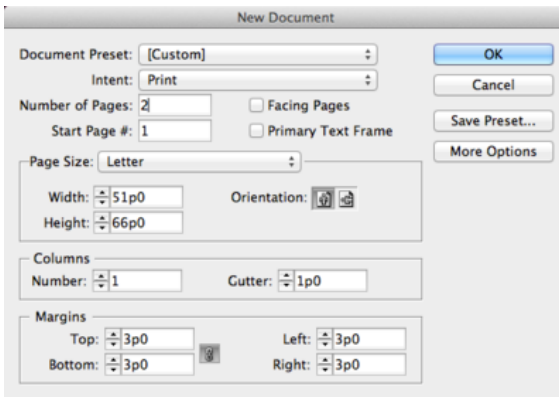
AMERICAN REACTION.—The American Government announced that it would not recognize the new German Government until it had taken steps to restore the Kaiser's authority.

The front page of the NY Times, 1918.
<https://www.flickr.com/photos/digitalfoundations/295509742/>

13.1 Exercise 1: Unity through repetition – master pages

XTINE BURROUGH AND MICHAEL MANDIBERG

1. Create a new document by choosing **File > New > Document**. Notice that a document can have many pages. We will work on just two pages. For this lesson, specify the letter page size, no facing pages, two pages, one column, and leave the margins at their default settings. A new document may also be created by clicking “New Document” on the welcome screen. Click OK. Save your document as *ch13-yourlastname-unity.indd*.



Setting up a new InDesign® document

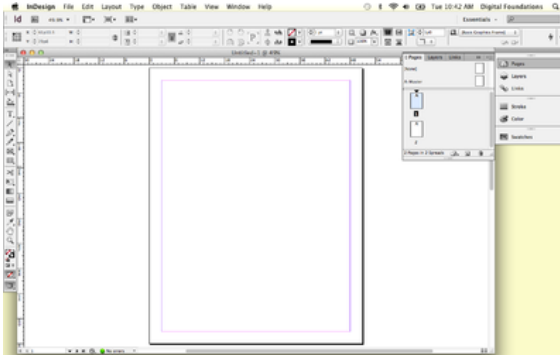
The Welcome screen appears at the launch of most Adobe® applications such as InDesign® and Dreamweaver®, but not all. It can be turned off by checking the box in the lower left corner, “Don’t

show again.”

2. Load the Advanced workspace by choosing **Advanced** from the **Application bar** then click on the **Pages panel** to open it. In this panel, each rectangular icon represents a page in the document. Double-click the page 2 icon to jump to that page and then double-click the page 1 icon to go back. Another way to navigate through the pages in a document is to click the **Next Page** or **Previous Page** arrows at the bottom of the document window. You can also use the **Hand tool** to drag the pages around within the document window.

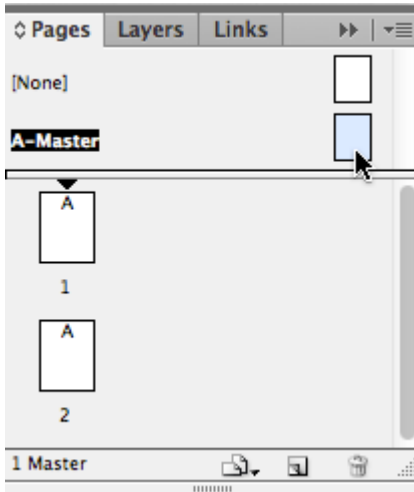
Tip: A workspace can also be selected from
Window > Workspace

Notice that pages 1 and 2 are labeled with the letter “A”. The letter “A” signifies that these pages are based on the master page called “A-Master”. You can create multiple master pages, which can be applied to any page within the document. Master pages commonly contain a grid and any recurring design elements. They allow you to create a consistent layout throughout the pages in a publication and they make it possible to automate layout changes, because any modification you make to a master page is automatically reflected on all the pages to which it is applied. By default, a new document’s pages are all based on A-Master, even though A-Master is empty. We will work on the A-Master page next.



The InDesign® workspace and working with Master pages

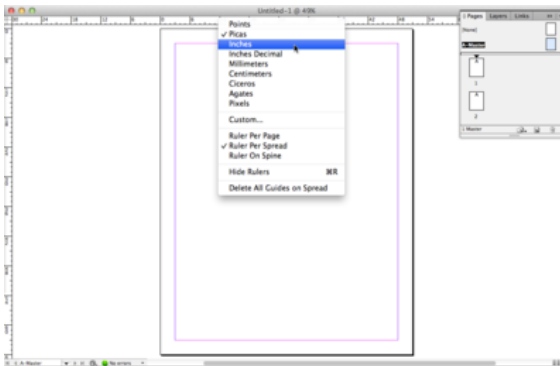
3. Double-click the A-Master page icon in the Pages panel. You are now on the master page. Anything you place on this page will be stored on A-Master and will automatically appear on all the pages based on it. Also notice that A-Master is the page you are currently working on by looking at the page box at the bottom of the document window.



A-Master selected as the current working page in the Pages panel.

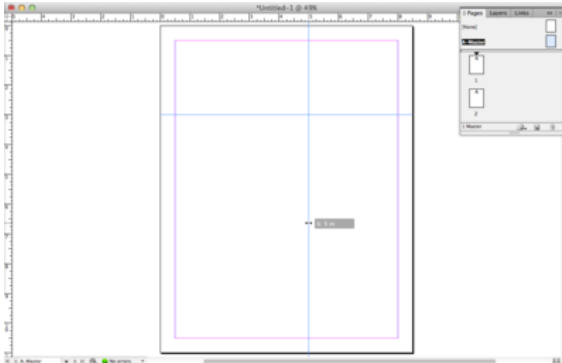
4. We will now set up guides on the master page similar to the Illustrator® exercises in Chapter 4. Guides are created by dragging them from the horizontal and vertical rulers in all Adobe® programs. If your rulers were not displaying in inches, you can Control-click (or right-click) each ruler and selected Inches before adding guides to the page.

Key Command: Show or hide rulers from the View menu in any Adobe® program or press Command+R.



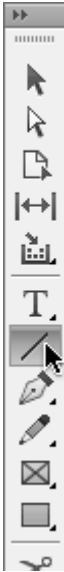
Control-click or right click on the InDesign® rulers to change their unit of measure.

5. Click and drag to create guides. Starting with the horizontal ruler at the top of the document window, click into the ruler and drag a guide to 3 inches, using the vertical ruler at the left of the document window as a reference. Then drag a guide from the vertical ruler to 5 inches, using the horizontal ruler as a reference.



Your guides should have a similar placement to the ones shown here.

6. Now we will use the Line tool to draw a heavy line along the horizontal guide. Click on the Line tool in the Toolbox to select it. Starting at the right edge of the page, Shift-click and drag toward the left edge of the page to draw a straight line along the horizontal guide. Notice that we didn't draw the line all of the way to the left edge, so the negative space remains active as it did in Chapter 4. When you release the mouse button, you'll notice that the line almost disappears into the guide. We will hide the non-printing guides to make it easier to see the line.



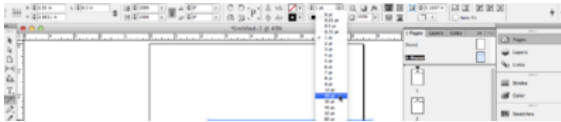
The top image shows the location of the Line Tool on the InDesign® Toolbar. The second image shows where to draw a line along the horizontal guide.

To hide the guides, press the keys Command+Semicolon. This will enable you to see the thin line you just made. Next we will make the line thicker.



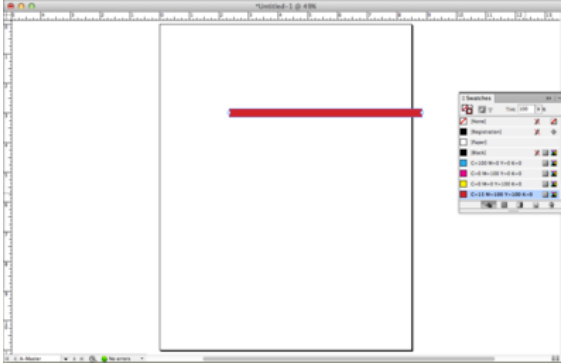
Guides can be hidden by pressing Command+Semicolon on the keyboard.

7. Use the Selection tool to select the line if it isn't already selected, and then choose a line weight from the Stroke pull-down menu in the Control panel at the top of the work area (we used a weight of 20 points).



Control-click (or right click) each ruler to change measurement standard to Inches

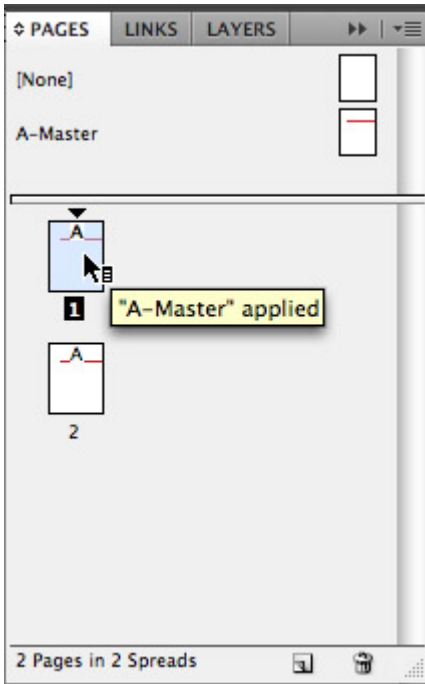
8. Open the Swatches panel. Click the Stroke icon to bring it to the front and then click on the red color swatch (C=15, M=100, Y=100, K=0). Notice that all the swatches are defined with CMYK values. Since InDesign® is mainly used for creating documents that are output to a commercial printer, the default colors in the Swatches panel are using the CMYK color space.



Use the swatches panel to choose CMYK color for the line

Watch Out: Make sure the Stroke icon is on top of the Fill icon so that the color red is applied to the line

9. Turn on the guides again with Command+; or View Menu > Guides & Grids > Show Guides.
10. Double-click the page 1 icon in the Pages panel to view the first page of the document. Notice that the guides and thick, red line are in place on page
11. Double-click the page 2 icon in the Pages panel and notice that the guides and red line are also in place on the second page of the document. Objects on a master page automatically show up on any pages based on that master. It's important to understand that the items on a master page can only be modified or deleted from the master page they belong to (unless they are overridden first, which we will do in Exercise 2). Try to select the red line or move the guides on pages 1 or 2 and you will see that they are not selectable. Reminder–Save your work often!



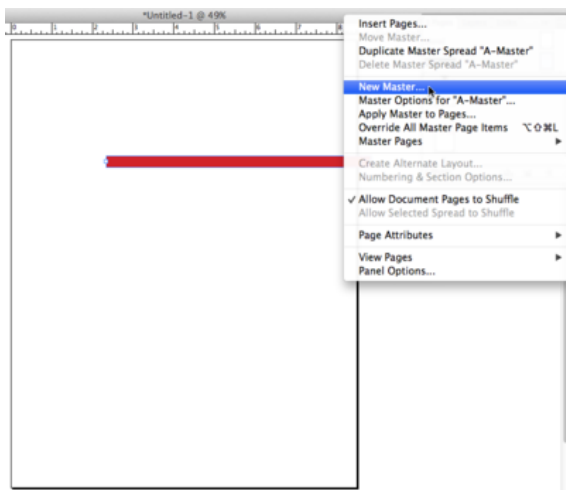
The "A-Master" page has been applied to both pages in the document.

13.2 Exercise 2: Creating B-Master

XTINE BURROUGH AND MICHAEL MANDIBERG

The document we are creating contains only two pages, so only one master page is needed. However, in larger documents that have several layout variations, it is often necessary to use multiple master pages. We will make a second master page in this document in order to demonstrate the process.

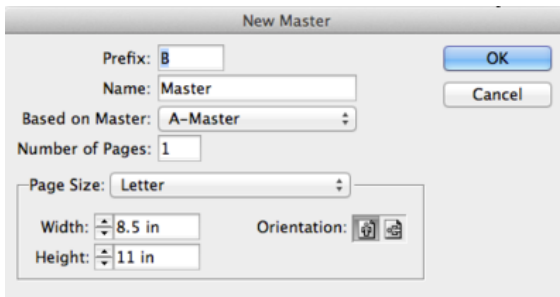
1. Click on the pull-down menu at the top right corner of the Pages panel, and choose New Master.



*Create a
New Master
Page*

2. In the New Master dialog box, set B-Master to be based on A-Master using the pull-down menu. (Fig 13.#) Click OK to create the new master page. Tip: To view all the master pages without having to scroll to find them, drag the horizontal divider line in

the Pages panel downward.

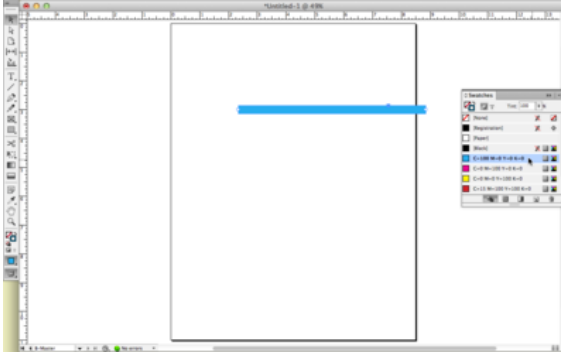


The New Master dialog box allows you to create a new master page or a master page based on an existing master page.

3. In this document, B-Master will be similar to A-Master, but we will modify the color of the line so that it is cyan instead of red. Since B-Master contains all of the A-Master elements, those elements cannot be changed unless they are modified on the A-Master page or they are overridden. Try selecting the red line with the Selection tool and you will notice that it cannot be edited. Override the red line (and not the guides) by Shift+Command-clicking on the line with the Selection tool.

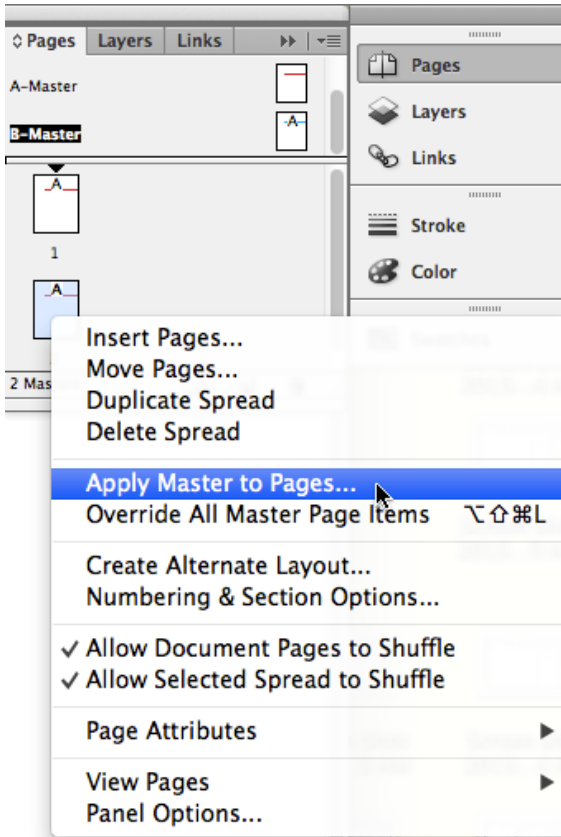
Note: You can right-click or Control+click on any page icon in the Pages panel and choose “Override All Master Page Items.” This would make master page items editable on the entire page.

4. Use the Swatches panel to change the color of the line to cyan (C=100, M=0, Y=0, K=0).



Use the Swatches panel to change the color of the line. Make sure your line is selected.

5. Apply the B-Master page to page 2 by right-clicking or Control-clicking on the page 2 icon in the Pages panel and choosing Apply Master to Pages from the context menu. In the Apply Master dialog box, choose B-Master from the pull-down menu.



Apply the B-Master page to page 2

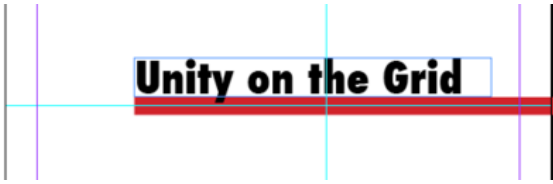
6. Double-click the page 2 icon in the Pages panel to view the second page. We will now create a typographic headline that will be copied to page 1. In theory, this is something that would normally be done on the A-Master page, but we want to demonstrate a useful paste function that is not available in every Adobe® program. Click and drag with the Type tool to draw a text frame, which is like a text box in Illustrator®. Type the words “Unity on the Grid” into the frame.

Watch Out: Unlike Photoshop® and Illustrator®, type cannot be made by simply clicking on the page with the Type tool and typing text. In InDesign®, type can only be created within a text frame.

Now format the headline by selecting all the text with the Type tool and then specifying a font and type size. In the following example, we are using Futura Condensed Extra Bold at 48 points. Pay attention to the kerning, making sure that the spaces between the characters in the headline are visually equal. If necessary, use the same manual kerning techniques we learned in Chapter 4 to improve the kerning. To kern quickly and visually, place your cursor between any two letters; then press Option (Mac) or Alt (Windows) and click the left or right arrow keys on the keyboard. Next, use the Selection tool to select the text frame and then reposition it so that the left edge of the frame aligns with the left edge of the cyan line and the baseline of the text aligns with the top of the line.



7. Now we will copy the headline to page 1. With the text frame still selected, choose Edit > Copy. Double-click the page 1 icon in the Pages panel, and then choose Edit > Paste in Place. The headline appears in the same position on this page as it is on page #2. The Copy command in InDesign® copies both the type and its location on the page. Be sure to Save!



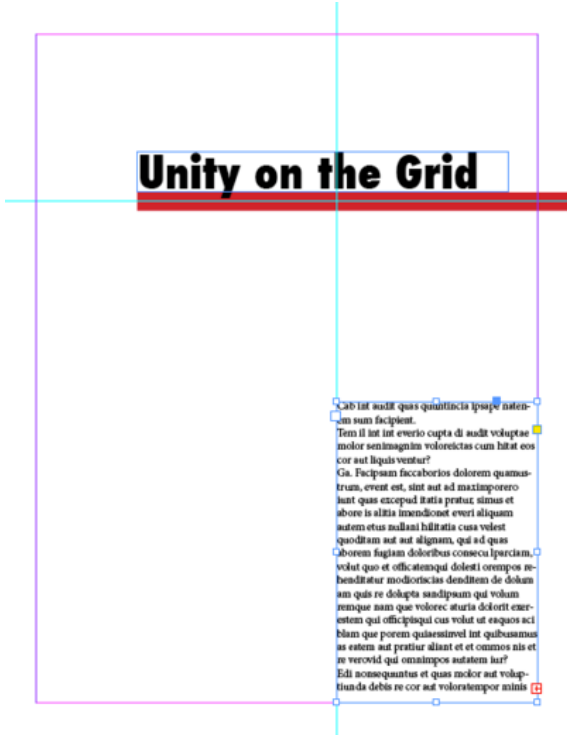
Copy the headline and use the Edit> Paste in Place command to assure the second headline is in the exact positioning as the other headline.

13.3 Exercise 3: Linking text frames

XTINE BURROUGH AND MICHAEL MANDIBERG

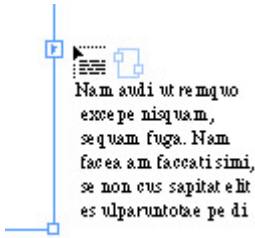
InDesign® is often used to create multi-page documents for commercial printing or for viewing as a PDF file on a screen. In either case, long documents can contain a lot of text. InDesign® allows you to place as much text as you want into one single text frame and then use the threading function to link multiple text frames together so that the text can flow from one frame to another. In this exercise, we will link two text frames on pages one and two with about five paragraphs of Lorem Ipsum dummy text. In Chapter 4 we used Lipsum.com to generate five paragraphs of dummy text. InDesign® has Lorem Ipsum dummy text saved into the application so you can easily fill a text frame with dummy text without pasting it from someplace else.

1. On page 1, use the Type tool to click and drag a large text frame on the Artboard area. We need to load more dummy text into the frame than we intend to use in order to illustrate the threading feature.
2. Choose Type > Fill with Placeholder Text to fill the frame with dummy text.



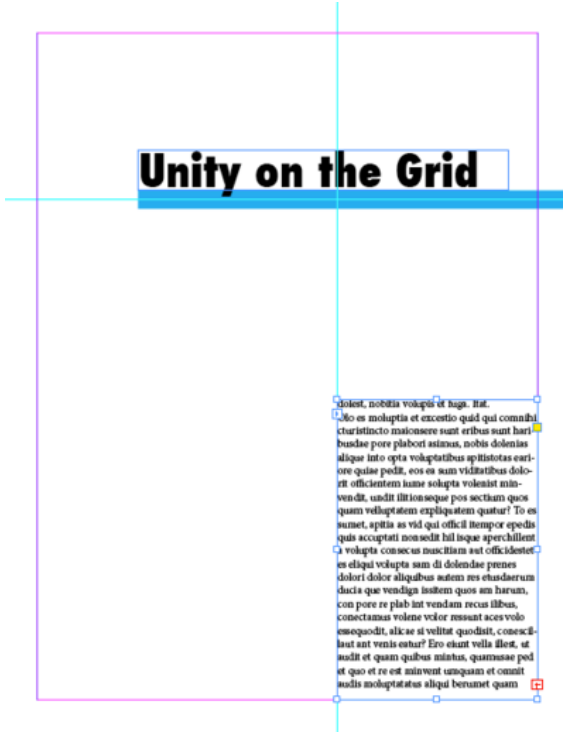
You can move and resize the frame. The text will autoflow to fit the frame.

4. Look at the bottom right corner of the text frame and notice the red square that surrounds a plus sign. This icon means that there is more text stored (but not visible) in the text frame. Using the Selection tool, click on the plus sign. Notice that your cursor has changed to a “loaded cursor.” InDesign® “knows” that you are ready to link this first text frame to another text frame in the document.



The red plus sign in the square means there is more text than what will fit in the frame. The cursor is now "loaded" with the additional text and can be loaded and linked to another text frame.

5. Now navigate to page 2. With the loaded cursor, click and drag a text frame in the same location as the frame you created on page 1. The overflow of text in the first frame will flow into the second text frame, since the frame on page 1 is now linked to the frame on page 2.

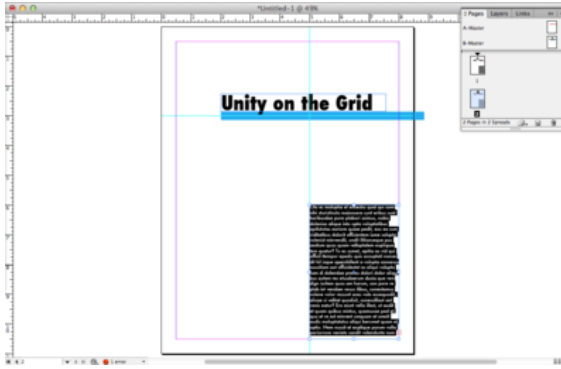


With the “loaded cursor” click and drag a new text frame on page two. The text will automatically flow from page 1 to page 2.

Tip: View > Extras > Show Text Threads to see a visible line that indicates which frames are linked together.

- Using the Type tool, click inside either of the two text frames and press Command+A to select all of the text. Make a change to the typeface using the Font Family menu in the Control panel or the Character panel (Window > Type & Tables > Character). Our type is set with Futura Medium in 11 points with the leading, or the space between the lines, set at 13.2

points. Notice that the typeface changes in both text frames because Command+A (or Edit > Select All) selects the text in all of the linked frames. Time to Save your work!



Make font changes to all of the text. Select all then use the Character panel to change your font. When you select all it will change all fonts that are linked together on page 1 and page 2

13.4 Exercise 4: Creating shapes

XTINE BURROUGH AND MICHAEL MANDIBERG

In Chapter 4 we created unity on the page through the repetition of shape and color. We will create unity in this chapter with the same technique, but this time we will place the colored square in the same location on sequential pages.

1. Use the Rectangle tool and hold the Shift key to draw a square on page 1 and then go to the Swatches panel to assign the red color to it.

Note: Use the curved arrow icon above the Fill and Stroke icons at the bottom of the Toolbox or at the top of the Swatches panel to swap the fill and stroke colors. The white square with the diagonal red stripe is used to assign no color.

With the Selection tool, drag the red square to align its left side with the vertical guide, and position the bottom of the square against the top of the body copy. If necessary, use the arrow keys on your keypad to nudge the square into place. Once the square is just touching the text, press Shift+Up Arrow one time to move the square ten points higher than the text.



Cab int audit quas quuntincia ipsape naten-
em sum facipient.
Tem il int int everio cupta di audit voluptae
molor senimagnim voloreictas cum hitat
eos cor aut liquis ventur?
Ga. Faciolsam faccaborios dolorem aua-

Create visual interest and draw the viewer to the text by creating a colored square at the top of the paragraph.

2. While the square is still selected, choose Edit > Copy then navigate to page 2 and choose Edit > Paste In Place to create a second square in the same location as the one on page
3. Use the Swatches panel to change the color of this square to cyan.



Olo es moluptia et excestio quid qui com-
nihi cturistincto maionsere sunt eribus sunt
haribusdae pore plabori asimus, nobis
dolenias alique into opta voluptatibus
apitistotas eariore quiae pedit, eos ea sum
viditatibus dolorit officientem iume solupta

Use the Swatches panel to change the color of the square to cyan.

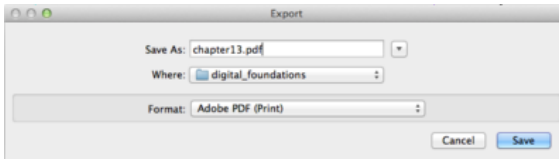
Save!

13.5 Exercise 5: Exporting a PDF

XTINE BURROUGH AND MICHAEL MANDIBERG

It is important to always save a file as you are working on it. The InDesign® file, designated by the file extension .indd, is the native file. A .pdf file is most commonly used for sharing a document to view or proof and it can also be used for printing. When an .indd file is exported as a .pdf file, the graphics and fonts are embedded in the document, making it a portable package that is easy to share with others. While printers can print .indd files, we often suggest sending a .pdf file to your printer to avoid common problems such as: the printer does not have InDesign® (or maybe not the version of the application you used), or the the fonts you used in your layout. Sending an INDD file to print requires sending the native file, fonts, and images (referred to as linked objects). Sending a PDF file is more efficient – you only have to send one file containing the whole package.

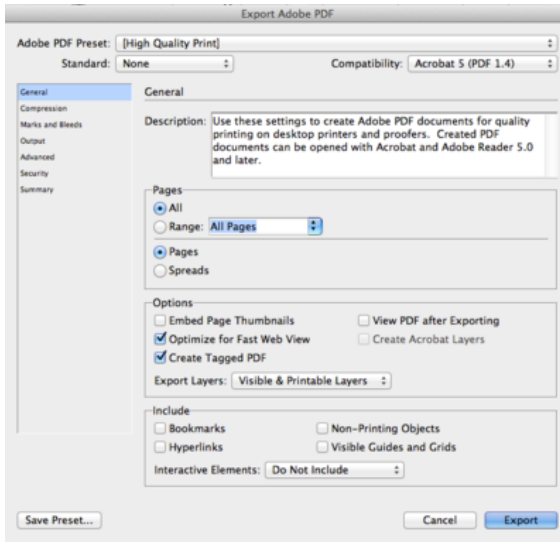
1. Save the InDesign® file by choosing File > Save.
2. Now we'll export a copy of the file as a .pdf file for sharing, viewing, or printing purposes. Choose File > Export. In the Export dialog box, choose Adobe PDF (Print) from the Format pull-down menu. Use the same name and location as your original indd file, and click the Save button.



Export and then chose Adobe PDF (Print) width="400

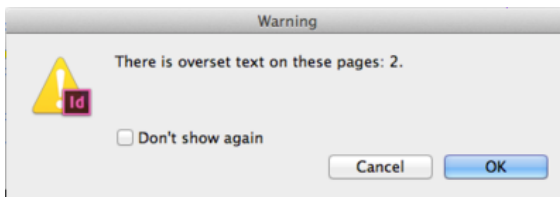
height="109"> Export your saved file as a PDF for sharing, viewing or printing.

3. In the Export Adobe PDF dialog box, there are many options, which change depending on which category at the left side is active. In the General category, notice the Pages area, which contains three choices: All, Range, and Spreads. For this exercise, leave the All option selected so that all the pages are exported. Since we did not design the layout as spreads (or facing pages) we will choose the Pages option. Notice the Compatibility pull-down menu at the top right corner. If you know that the person you are sharing this PDF with has an older version of Acrobat®, or if you need to comply with specifications from a commercial printer, choose an option from this pull-down menu to format the PDF document for a particular Acrobat® version. For now, choose Acrobat 8/9 (PDF 1.7).



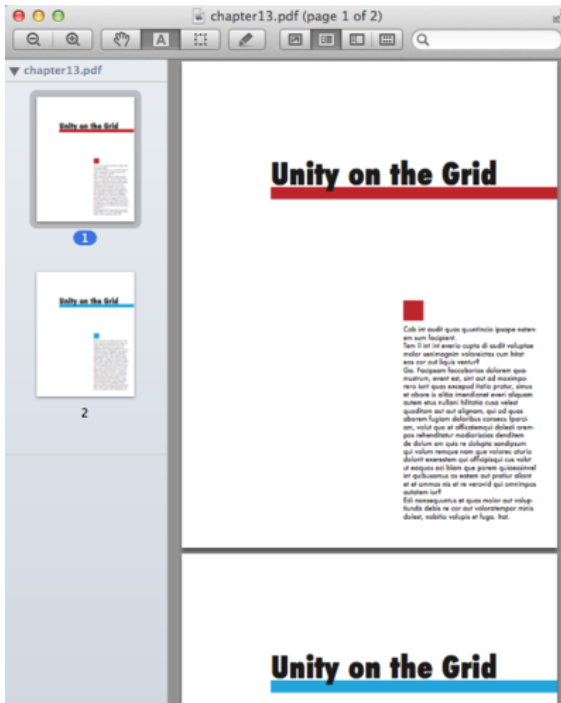
There are many export options. For this exercise follow the settings shown above.

4. Click the Export button. You may see a warning about overset text. If there is more dummy text in the second text frame than what is visible on the page, the Export to PDF function prompts you with a warning message. (Fig13.#) We are aware of the abundance of text in this exercise, so you can click OK through the dialog box. During another project, you could modify the text frame so that all of the text that should be visible is set within the frame.



InDesign® will give you a warning if there is more text than what is showing in the text frames (overset text).

5. Open the PDF file in Adobe® Acrobat® Professional, Adobe® Reader®, or Preview. Notice that the file can be viewed but not easily edited. To edit the file, open the native .indd file in InDesign. Save your work.



Final results of chapter 13 (PDF)

Attribution

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PART XVIII

ACC CHAPTER 14: TWO-PAGE SPREADS

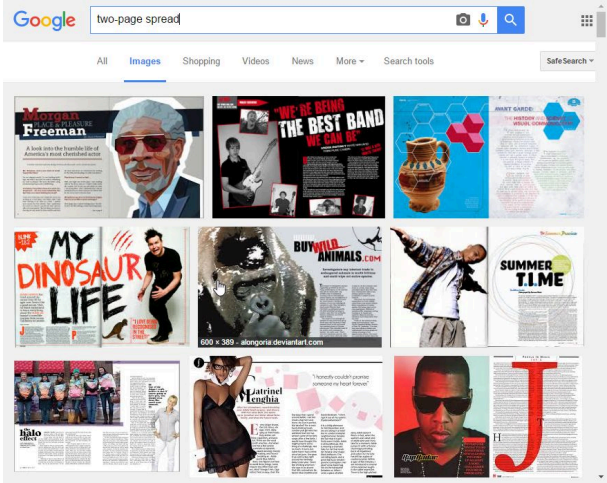
Download Materials for Chapter 14

[Click here to download chapter 14 work files](#)

You will need the download files to complete this chapter's exercises.

Two-Page Spreads

A common aspect of publication layout design is the two-page spread, or a set of pages viewed together. Spreads are often used as a visually interesting introduction to an article in magazines, with the layout designed to have the two pages working as a unified whole. It is this specific type of spread which we'll explore in this chapter.

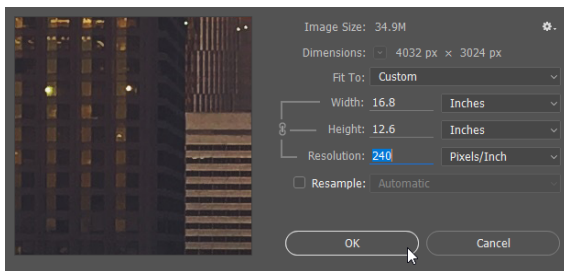


A Google image search for “two-page spread” brings up a variety of examples.

14.1 Exercise 1: Image Preparation

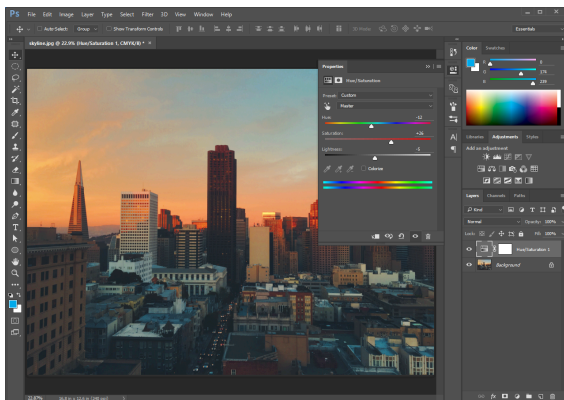
XTINE BURROUGH AND MICHAEL MANDIBERG

1. Use Photoshop® to open the skyline.jpg image and use **Image > Size** to check the its size and resolution. Make sure **Resample** is **unchecked** and set the image to have an a resolution of 240ppi (this should give the image a height of 12.6 inches).



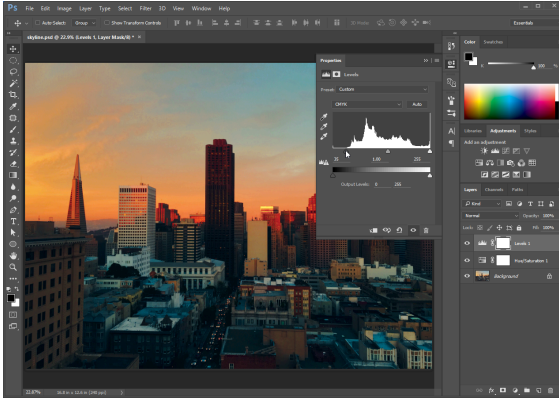
Use these settings to adjust the image size of skyline.jpg

2. Change the image's **Mode** to **CMYK Color**. Then, Using a **Hue/Saturation adjustment layer**, adjust the image so that it is similar in appearance to the example here.



Set your Hue/Saturation adjustment layer similar to what's shown here.

After adjusting the Hue/Saturation, add a **Levels adjustment layer** and adjust the **dark values** to something like the example below.



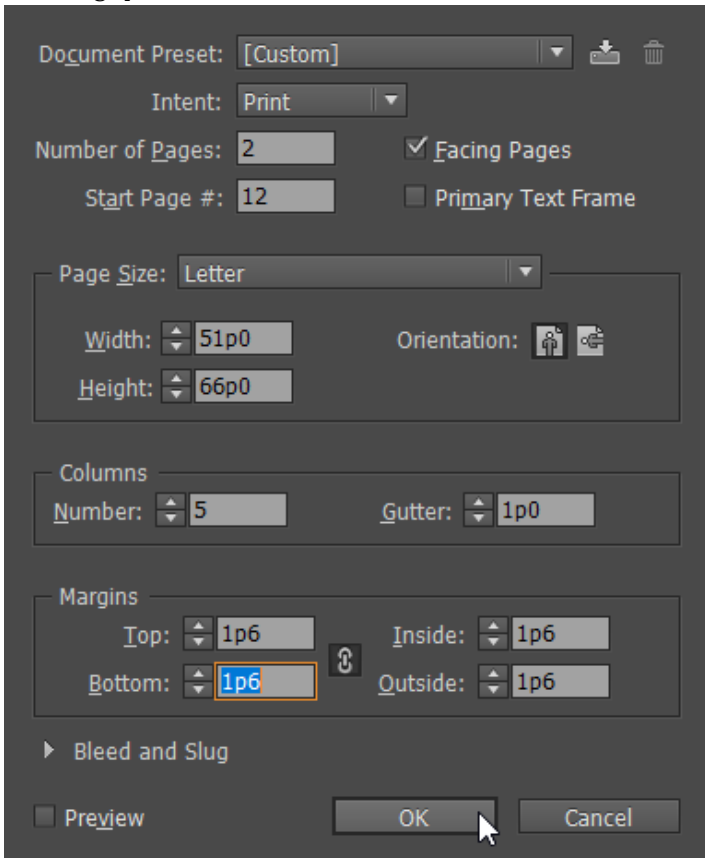
Your Levels adjustment layer should be set similar to what's depicted here.

3. Save the revised image as a native Photoshop® document named **skyline.psd** and close Photoshop®.

14.2 Exercise 2: Fundamentals for the Layout

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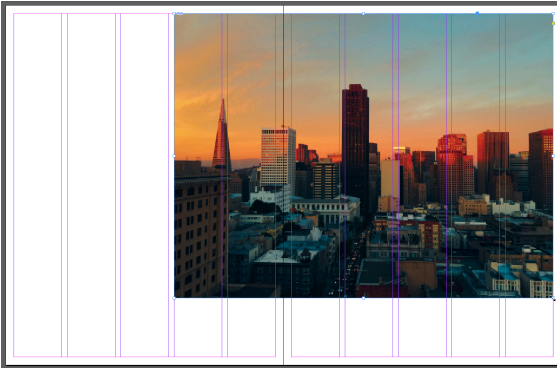
1. Open **InDesign** and create a **new document** using the following specifications shown here:



After you've created your document, save it as **ch14-yourlastname-firstname.indd**

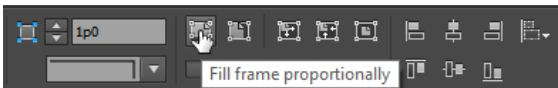
2. Use **File > Place** and place the **skyline.psd** image you created

in the previous exercise into your InDesign® document. Using the column guides as a reference, drag the image out to span 7 columns wide (leave the first three columns on the left side of the spread empty).



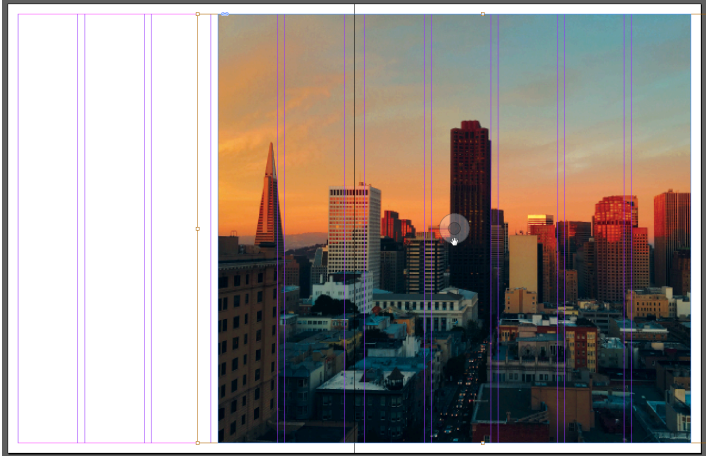
Scale the placed image so that it is 7 columns wide and positioned on the right side of the spread.

Once the image is placed, **adjust its frame height** so that it reaches the top and bottom margins. Use the **Fill Frame Proportionally** button in the Control Bar to scale the image up so that it fills the frame.

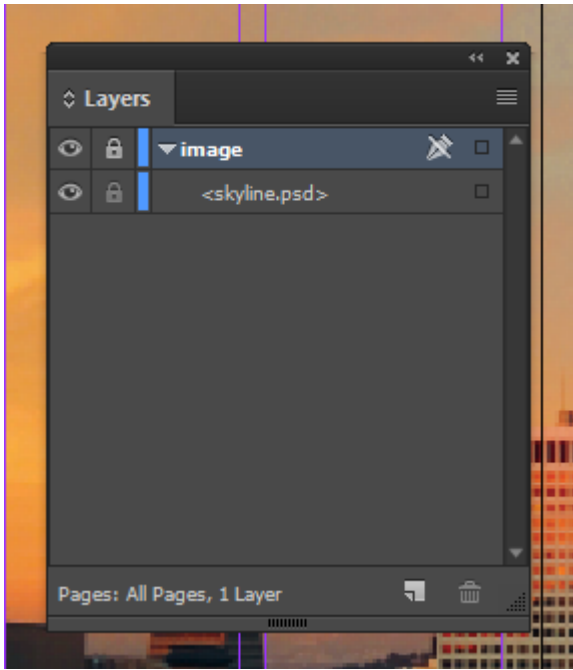


The “Fill frame proportionally” button can be used to quickly re-scale an image frame’s content to fit its frame while retaining the image’s original proportions.

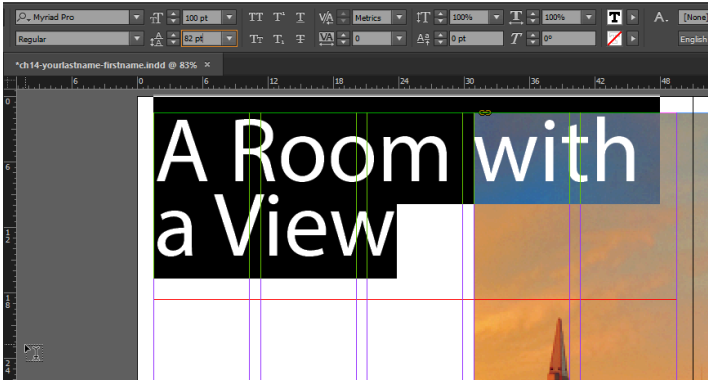
Then use the Selection Tool and the circle in the middle of the image frame to position the image within the frame so that it's similar to the example here.



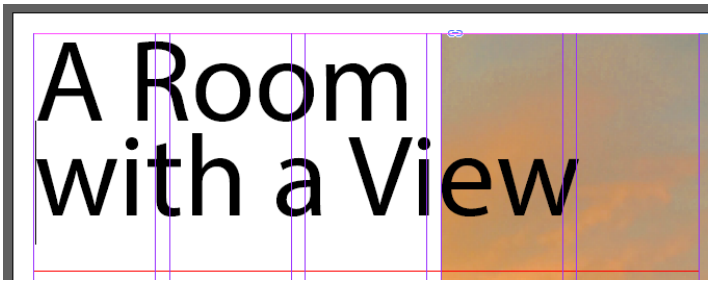
Make sure your Layers Panel is showing (if it's not, use Window > Layers to show it) and name the active layer **image**, lock it, then save your file.



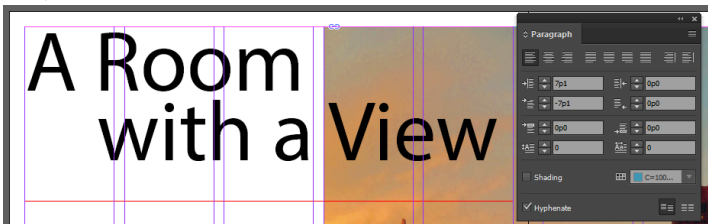
3. Create a new layer named **text** and make sure it's the active layer. Activate the **Type Tool** and use the Control Bar or the Character Panel to choose “Myriad Pro Regular” for your font. Now draw a text frame starting at the upper left of the column grid and dragging to the right so that it spans all 5 columns of the left page. Type “A Room with a View” (without the quotation marks) into the text frame. Select all of the text you typed and set the following type specs: Font size: 100pt, Leading (line spacing): 82pt.

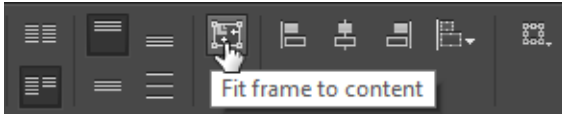


Next, put your type cursor in between the words “Room” and “with” and delete the space. Then use Shift+Enter to add a soft return to set the headline in two lines.



In the **paragraph settings** (in the Control Bar or the Paragraph Panel), set the **Left Indent** to **7pt** and the **First Line Left Indent** to **-7pt** (make sure you include the minus sign there, this should set the second line so that it’s indented and the words “Room” and “with” are in vertical alignment as shown below).

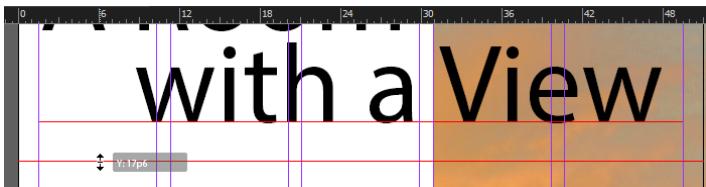




The “Fit frame to content” button re-sizes a frame’s width and height to match the boundaries established by the content of the frame. This is a quick way of cleaning up frames that are larger than necessary after formatting text.

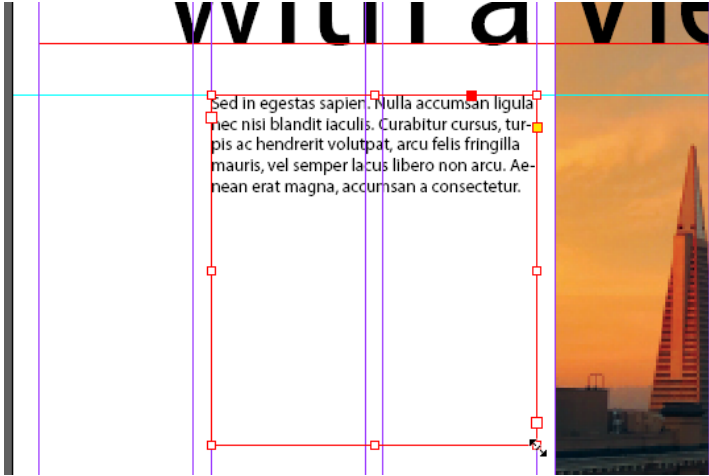
Once you have the headline set, activate the **Selection Tool** and click the **Fit frame to content button** in the **Control Bar**. Then click a blank area on the page to make sure that the headline text frame is not selected.

4. Now we’ll add the intro paragraph for this spread. Drag a horizontal guide from the top Ruler down to the 17p6 mark. This will give us a reference for where to place the top of the intro paragraph text frame we’re about to create.



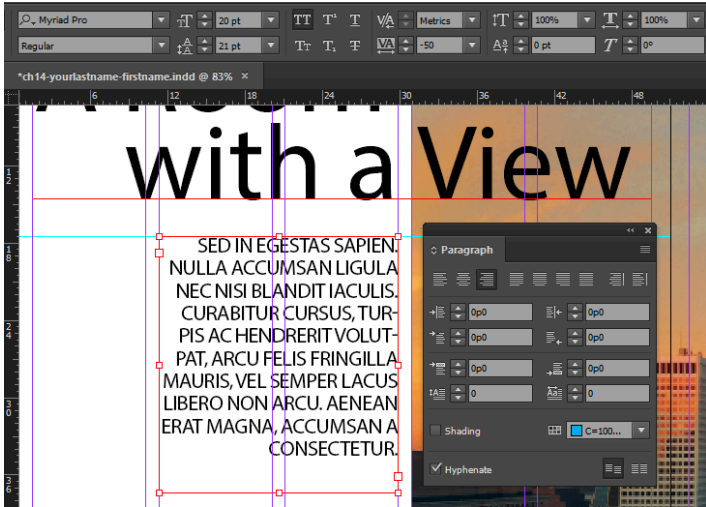
Now use **File > Place** to bring the text file **top_paragraph.txt** into your document and drag out its text frame so that it spans

the second and third columns of the left page and is positioned at the horizontal guide we created.



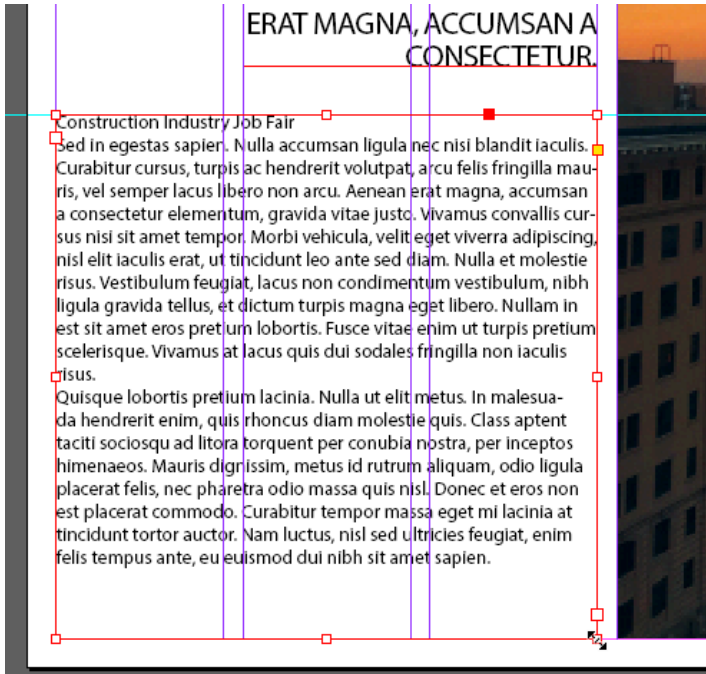
Then, with that new text frame selected, activate the **Type tool** and set the following type specs in the Control Bar and Paragraph panel:

- Font: Myriad Pro Regular
- Size: 20pt
- Leading: 21pt
- Tracking: -50
- Use the All Caps button [TT] to set the text to all caps *without* retyping it
- Align right



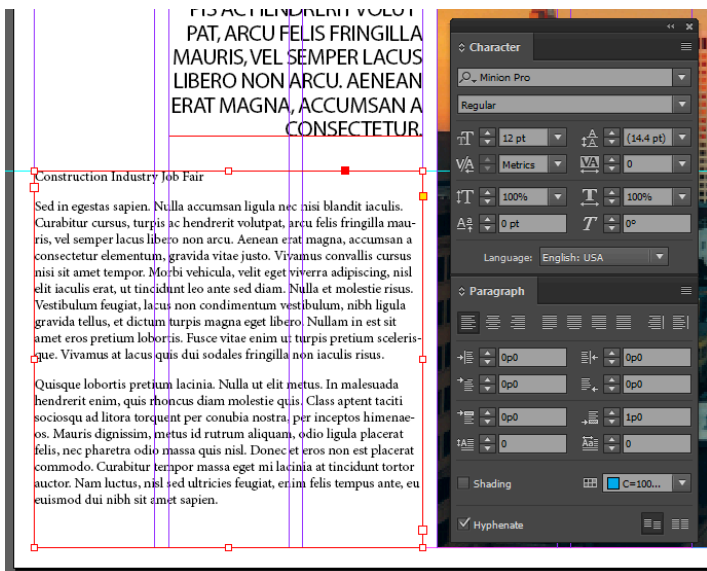
IMG

5. Pull out another horizontal guide from the top ruler, this time positioned at 37p0. Place the next paragraph of text using the **bottom_paragraph.txt** file. It should span 3 the first columns of the left page and have its top aligned with the new horizontal guide.



Set the type specs for this text frame as follows:

- Font: Minion Pro Regular
- Size: 12pt
- Tracking: 0
- Align left
- Space After paragraph: 1p0



Now that you have all of the basics in place, make sure that you save your file!

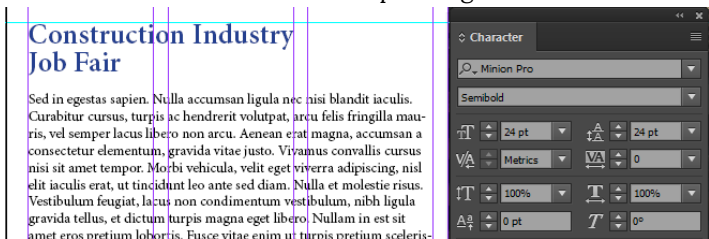
14.3 Exercise 3: Adding Variety and Visual Interest

XTINE BURROUGH AND MICHAEL MANDIBERG

Now we'll work with refining some of our type styles, adding visual contrast to help the reader more easily distinguish the various parts of text in our spread, and giving a little flair to the design.

1. With the Type tool, select the words “Construction Industry Job Fair” in the bottom text frame, then change the following settings to visually set it apart as a subheading:
 - Set the font to Minion Pro Semibold, 24pt type with 24pt leading
 - Change color to Navy Blue (C=100 M=90 Y=10 K=0)

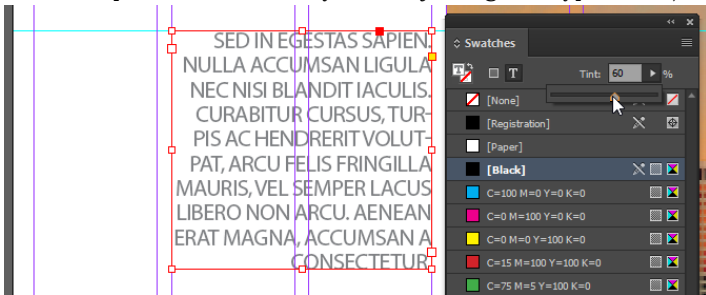
Lastly, break the subheading into two lines using a soft return. Your work should resemble the sample image below.



2. Unlock your image layer and make sure it's your active layer. Using the Line Tool, draw a horizontal rule between the left edge of the picture to the right edge of the word “Fair”, aligning the line vertically with the top of the letter “r”. Using the Stroke and Swatches panels, turn the rule into a 4pt dotted line with a red color. Lock the image layer again when you're finished.



3. Change the text color of the intro paragraph to 60% gray (hint: select that text frame and change the tint of the black in your swatches panel – make sure you’re adjusting the Type color!)



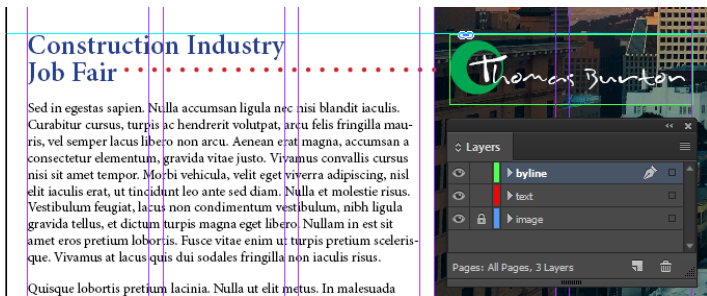
4. In the headline of your spread, select the text “A Room with a” and set its color to Navy Blue (C=100 M=90 Y=10 K=0). Select the word “View” in your headline and set its color to [Paper], then save your work.



14.4 Exercise 4: Add Your Byline

XTINE BURROUGH AND MICHAEL MANDIBERG

1. Use Illustrator® to create a decorative, signature/icon-style byline using your name. Include the following: Font: your choice, Include a simple shape. (Example: the circle shape behind my name shown in the image below).
2. Once you have completed your byline graphic, save it as byline.ai and place it in into your InDesign® document. Be sure to place the graphic on its own layer named **byline**.



Your finished layout should resemble the image below.

A Room with a View

SED IN EGESTAS SAPIEN,
NULLA ACCUMSAN LIGULA
NEC NISI BLANDITI ACULUS.
CURABITUR CURSUS, TUR-
PIS AC HENDRETI VOLUT-
PAT, ARCU FELIS FRINGILLA
MAIRIS, VEL SEMPER LACUS
LIBERO NON ARCU, AENEAN
ERAT MAGNA, ACCUMSAN A
CONSECTETUR.

Construction Industry Job Fair

Sed in egestas sapien. Nulla accumsan ligula nec nisi blanditi aculis. Curabitur curcus, turpis ac hendretti volutpat, arcu felis fringilla ma-
ris, vel semper lacus libero non nisi. Lorem et ut tempus, accumsan a
consectetur democritum, gravida vitae justo. Vivamus concullo curcus
nisi ut amet tempus, idcirco volutpat, nulli eget venenae adipiscing, null
idcirco orci, ut faucibus leo ante sed diam nulla et molestie risus.
Vestibulum ligula, lacus non condimentum vestibulum, nulli ligula
gravida tibus, et dictum turpis magna eget libero. Nullam in et ut
amet eros periam libero. Fusce vitae orci ut turpis periam volut-
pat. Vivamus at lacus quis dui sodales fringilla non laculis risus.

Quisque lobortis portiam lacina. Nulla ut sit metus. In molestiam
hendretti enim, qui ducimus diam mollis qui. Class aptent taciti
sociosqu ad laoreet insequat per condis accumsan, per inceptos diam ac-
ris. Mollis dignissim, nulla id nunc aliquam, odio ligula phoscat
fela, nec phasera odio massa quis nisi. Donec et eros non et phoscat
conduco. Quis tunc tempus amet eget sit lacus et nunc diam ante
ante. Nunc lacus, nisi ad idcirco ligula, enim felis tempus ante, eu
enim sed dui nisi ut amet sapien.



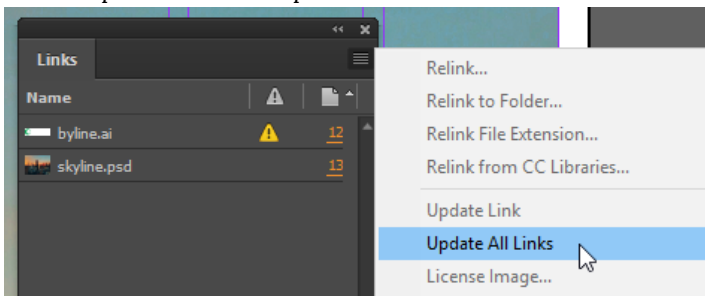
14.5 Exercise 5: Export and Package

XTINE BURROUGH AND MICHAEL MANDIBERG

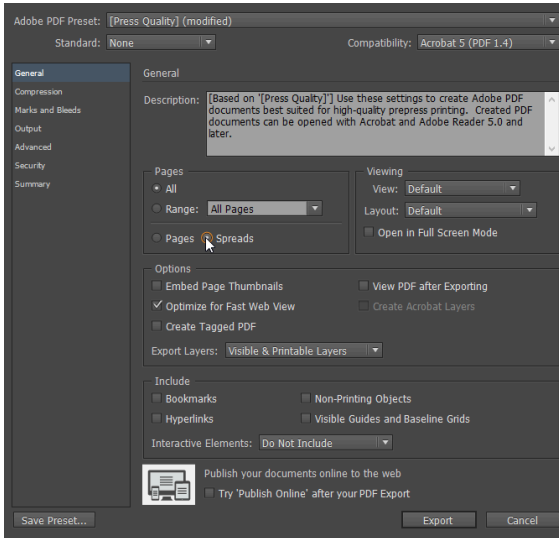
When it's time to send an InDesign® document to print, a common practice is to send a Packaged copy of the file to the print service provider. A Packaged copy bundles all placed images, font files, and other necessary assets into an organized folder ready to send to the person who will prepare the InDesign® file for print.

Along with the Package, it is a good idea to send a PDF as a sample of how the InDesign® file should appear. Remember, a PDF includes embedded images and fonts and is usually a stable method of providing a digital “proof” that a print shop can compare with when producing your printed output. Some print shops will only need a PDF, but it's good to know how to package your InDesign® files in case you need to provide a full set of files for your document to someone else.

1. First, make sure you Save your InDesign® document when you have finished all the steps above. Next, check your Links panel to make sure all linked files are updated. If you see any links with a yellow triangle warning sign, it means they need to be updated. You can easily update all links using the Links panel menu “Update All Links” option.

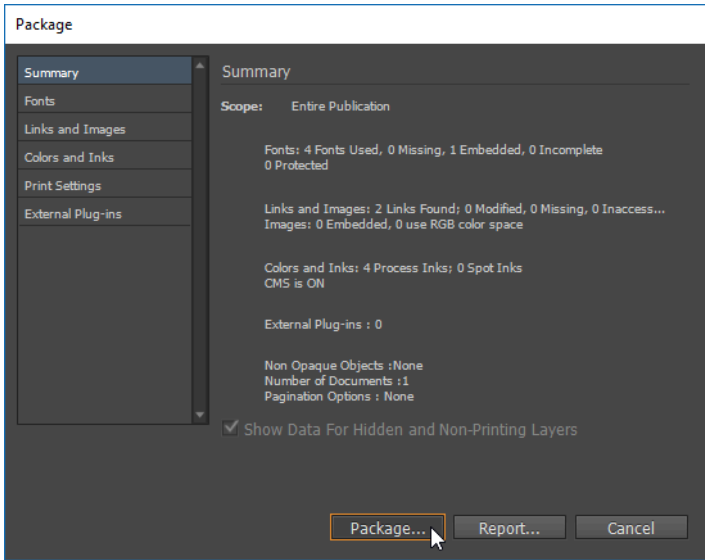


- Next, export as a PDF by using **File > Adobe PDF Presets > [Press Quality]** to save a PDF copy of your document. Name your PDF **ch14-yourlastname-firstname_proof.pdf**. Note: In the PDF dialog box make sure “spreads” is checked, then click the “Export” button.

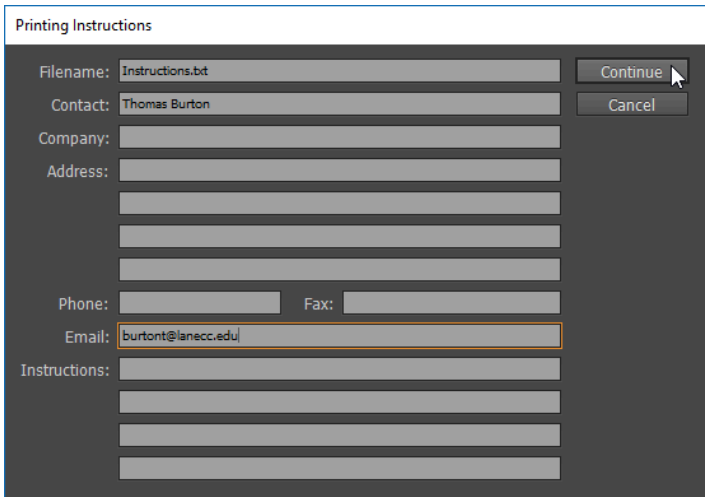


Make sure “Spreads” is checked in the Pages options to ensure the PDF’s layout is set up correctly for a two-page spread. Otherwise, each page in the spread will appear separately from the other in the PDF.

- Finally, export a Package by choosing **File > Package...** to open the Package dialog box. Review the information in the Package dialog box and then click the Package... button. **Note:** You may see a prompt to save your document before InDesign® can package it, go ahead and save.

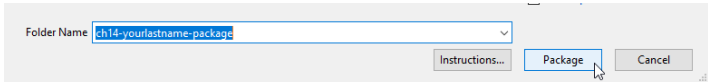


After clicking the “Package...” button, you’ll see the Printing Instructions dialog. Enter your name in the Contact field and enter your email address in the Email field. For this exercise, you can skip entering the other information and just click the Continue button.



After clicking “Continue” you will be prompted to choose a

location to save the Package. Save your Package to the same location on your hard drive where you saved the other files you created in this chapter. Name your Package Folder **ch14-yourlastname-package** and use the default settings for the package options, then click the Package button.



Note: You may see a warning about restrictions applying to copying font software for use by a service provider. This is regarding proper procedure when supplying font files to someone else, who should delete them from their computer after they are finished processing your files. Read the message and click OK.

Once InDesign® has finished packaging your file, you should see a **ch14-yourlastname-package** folder among the other files you generated while working on this chapter. Look inside that folder and you should see all of the files that are part of your two-page spread.

Notice that the package contains a PDF that it generated itself, though it didn't have the spreads option turned on, so the pages in that PDF will appear as two separate pages rather than as one spread in the PDF you generated yourself in step 2 of this exercise.

After you've looked through the packaged files, you are finished with this chapter.

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PART XIX

PHOTOGRAPHY

25. Introduction

RICHARD ADAMS AND REEM EL ASALEH, MARTIN HABEKOST,
JASON LISI, AND ART SETO

Improvements in resolution, size, battery life, and memory capacity have turned digital cameras (and indeed, our cell phones!) from toys into tools of the trade. Scanning has become a process of the past, and digital cameras are becoming the primary vehicles of image capture.



Figure 1-1. Example of a photo studio showing soft box light diffusers, umbrella reflectors, and backdrops. (Photo courtesy of Pixabay.)

Current Camera Technologies

Digital cameras have been classified by PIA/GATF into three categories: consumer, prosumer, and professional, though advances in technology are blurring these lines ([Table 1-1](#)). Megapixels and costs are stated for comparative purposes only, as every year new cameras are introduced at a lower cost and with high resolution.

Table 1-1. Digital Camera Types

Camera Type	Format	Megapixels	Cost
Consumer	point-and-shoot	10–20	<\$500
Prosumer	professional point-and-shoot, DSLR or mirrorless	12–36	\$500–\$3,000+
Professional	full-frame DSLR, medium format, or view camera with digital back	24–40+	\$3,000–40,000+

Camera Requirements

The main requirement for a digital camera used for public relations is sufficient resolution, measured in megapixels. The camera must be able to capture enough pixels for the required image resolution of various communication channels, whether social media or print. Resolution and image quality should also align with the brand feel and reputation of a client (e.g. more polished vs. DIY).

For example, an 8.5×11-in. magazine page printed at 150 lpi requires 300 ppi image resolution, necessitating a digital camera of at least 8.5 megapixels. Users should be aware of the difference between real pixels and interpolated pixels. Often manufacturers may quote higher pixel numbers than really exist in the sensor, in this instance the vendor is computing new pixel information using software interpolation techniques. Better quality is rarely achieved using interpolated pixel information.

How Public Relations Professionals Use Digital Cameras

The following types of digital photography are useful in public relations.

Still life. Refers to collections of subjects, whether set up on a table top or on the floor. Examples include artistic groupings of objects or groups of complementary accessories for catalog photography (**Figure 1-3 H**).

Portrait. Portraits refer to posed (vs. candid) photos of people, individually or in groups (**Figure 1-3 E**). Examples include yearbooks, biographical head-and-shoulders “mug shots,” and group photos of people. Generally faces reproduce best when photographed with a short-range telephoto lens, as in the 70–120-mm focal length. A telephoto lens compresses distance from front to back, which often flatters the face.

Architectural. This refers to photographs of buildings and rooms (**Figure 1-3 F**), including photography for real estate brochures and catalogs as well as furniture, decorative accessories, and interior design. Architectural photography can benefit from a wide-angle lens, which captures a wider view of the scene than a normal lens.

Landscape & scenery. This category includes outdoor and scenic photography, as might be used in travel or recreational magazines, catalogs, and brochures (**Figure 1-3 G**).



Figure 1-3 E–H. E. Portrait. F. Architectural. G. Landscape. H. Still life. (Photos E, F, and H courtesy of Pixabay.)

26. Camera Equipment

RICHARD ADAMS AND REEM EL ASALEH, MARTIN HABEKOST,
JASON LISI, AND ART SETO

This chapter discusses what you'll need to get started in digital photography. In addition to a digital camera, you may need additional lenses, filters, studio lighting, lighting diffusers and reflectors, light stands and quality control devices to help make your photos accurate and consistent (but with the technology built into today's cameras, including our phones, you can get pretty far without needing extra equipment).

Camera

A digital camera is the first thing you'll need for digital photography. Traditionally, digital cameras have been commonly discussed as belonging to one of three categories: consumer, prosumer, and professional, however increasingly powerful camera phones have blurred the lines between these categories. For many PR professionals, a high-quality camera phone can meet many needs with the right technique, however a DSLR can enable more sophisticated visual compositions.

Camera Phones & Point-and-Shoot Cameras. Camera phones and point-and-shoot cameras are generally compact cameras with 12 or more megapixels, built-in zoom lenses, autofocus features, and priced from \$200– \$500 (although they can easily cost more). A modern camera phone or point-and-shoot camera, puts prosumer level photography capabilities in the hands of the average consumer. However, it won't have interchangeable lenses or attachable filters (though it may have impressive digital filters).

35-mm DSLR. Digital single-lens reflex (DSLR) cameras are

adapted from cameras designed to shoot 35-mm slides and negatives. These cameras have interchangeable lenses that provide a variety of focal lengths and applications, including zoom, wide-angle, macro, portrait, telephoto, and low-light shooting. These cameras generally record 12 or more megapixels and cost from \$500 to several thousand dollars. SLRs use a single lens that both records the image and previews the shot through the viewfinder, using a mirror to deflect light from the sensor plane to the viewfinder.

Choosing a Camera

[According to Pagemaster Publishing](#), “ALL cameras made today have more than enough *megapixels* for common printing [and by default digital production] situations (and yes, that includes large canvas prints). You’ll have a hard time today buying a new camera with too few megapixels for a decent size print. Really. 10 *megapixels* is a common rating, with 18 *megapixels* and up becoming standard. Those are plenty big images folks.”

When selecting a camera, Pagemaster recommends focusing on factors that affect visual quality, like the quality of lens, low-light performance, colour quality, image stabilization and handling. Bottom line: choose a camera that is comfortable and will meet your production needs. If you need to take pictures that look good on the fly, but that don’t require more sophisticated composition techniques, then choose a camera phone or point-and-shoot. If you want control over every aspect of composition, and want to employ more sophisticated lenses etc. choose a DSLR. At the end of the day, you want a camera with good reviews that you can handle comfortably in the field.

Lenses

High-quality camera phones and point-and-shoot cameras have built-in and largely automatic lens features. However, if you have a 35-mm or DSLR camera, you'll need a variety of lenses for the widest variety of photos.

Lenses are classified by their focal length, which is the distance from the lens center to the camera's imaging sensor. The longer the focal length, the more telescopic the lens; the shorter, the wider its angle of view.

Lenses are loosely categorized as:

- Normal—lenses in the range of 40–70 mm (for a 35-mm equivalent camera), used for photographing groups of people, products, and scenery
- Telephoto—lenses of 70–1,000 mm, used for bringing distant objects closer and (in the low range) for portraits. Telephoto lenses flatten perspective (**Figure 2-5**, right), making subjects appear to have less depth.
- Wide-angle—lenses of 15–40 mm, used for capturing a wider view of the scenery, architecture, and rooms. Wide-angle lenses extend perspective, making objects appear further apart in depth (**Figure 2-5**, left). The widest-angle lens is the fish-eye.
- Zoom lenses—lenses that can change focal length over an extended range, e.g., 40–70 mm, 70–200 mm. These provide more flexibility than fixed focal-length lenses but are longer, weigh more, and usually have a smaller aperture compared to comparable fixed focal-length lenses.
- Macro lenses—lenses usually in the range of 50–100 mm that can focus very close to subjects. The distance of closest focus can be quoted in millimeters or as the reproduction ratio, the size of the image relative to the original subject. A 1:1 macro lens can focus close enough to capture small subjects at the

same size on the image sensor.



Figure 2-5. Comparison of wide-angle and telephoto lens shots encompassing the same area. Note that the telephoto lens produces an effect of compressing the depth.

Filters

Camera phones and point-and-shoot cameras often have sophisticated digital filters built into them. For 35mm and DSLR cameras, filters can attach to the front of the lens and provide different image-enhancement effects. Filter size is quoted in diameter (mm) and usually indicated on a lens with the symbol “ø.”

- UV/Haze filter—blocks ultraviolet radiation and helps to produce sharper images of scenery during hazy weather. Since the filter does not introduce any colored effects in photographs, it is often used to protect the front of the lens

from scratches, fingerprints, dust, and damage (**Figure 2-7**).

- Polarizing filter—blocks glare (white light) reflected from nonmetallic surfaces and enhances color saturation on subjects. Often used for photographing scenery and product photography (**Figure 2-7**).
- Light-balancing filters—help neutralize various lighting conditions such as incandescent room lights, fluorescent office lights, and outdoor shadows. These filters have been largely supplanted by the automatic white-balance feature of digital cameras, which neutralizes the image to the light source.
- Special-effects filters—filters like cross-stars produce starburst and other effects.
- Colored filters—filters such as red, green, and blue can be used to enhance certain image colors in black-and-white photos (**Figure 2-8**). For example, Ansel Adams often used a red filter to make the sky look darker in many of his famous Yosemite photos.



Figure 2-6. UV-haze filter protects the camera's lens and reduces some of the blurring and low contrast caused by hazy weather.



Figure 2-7. Comparison of shots taken with a UV haze filter (left) and polarizing filter (right). The polarizing filter eliminates reflected glare from surfaces, increasing color saturation.



Figure 2-8. Comparison of grayscale photos taken with a polarizing filter (left) and red filter (right). The red filter darkens greens and blues in the scene, increasing contrast.

Lighting

For studio photography, you will need some type of lighting, in addition to the available daylight or office lighting. Studio lighting increases the available light intensity for your photographs, enabling you to use smaller apertures and faster shutter speeds. These, in turn, provide greater [depth of field](#) and sharper photos by minimizing the effects of camera motion. Studio lighting also provides a controlled “color” (color temperature) of white light, keeping your photos in consistent color balance.

Studio lights can be classified as to lighting duration and temperature. Continuous lights, such as incandescent or mini-fluorescent lamps, provide a constant light source. Strobe lights provide a bright flash in a fraction of a second. By shining all the time, continuous lights enable you to visualize your scene better and focus the camera, but may not be as intense as strobes. Strobe lights, on the other hand, make it difficult to see the scene as it will be illuminated, but provide brighter light. They also reduce motion of the subjects by providing a short burst of light.

Among continuous lights, quartz-halogen, incandescent and mini fluorescent lights are classified as “hot” and “cool” lights, respectively. Hot lights are more difficult to handle due to the heat generated but are cheaper to buy and provide more intense lighting. Cool lights remain cool to the touch so are safer to work with than hot lamps, but do not produce as intense a light.

Reflectors and Diffusers

Studio lights act as point light sources, which can produce harsh illumination and sharp shadows. To diffuse their light you can use a reflector or a diffuser. Reflectors, such as aluminized umbrellas (**Figure 2-9, left**), diffuse light by bouncing it off of an uneven,

metallized, semi-spherical surface that scatters the light. Diffusers, such as soft-boxes (**Figure 2-9, right**), transmit light through a translucent cloth that scatters it. Reflectors can also be [handy in the field](#), to light a subject, or to help with fill.



Figure 2-9. Studio lights with umbrella reflectors (left) or soft box diffusers (right) help illuminate still-life, product, and portrait shots with soft, even lighting.

Stands

Tripod. To mount your camera and avoid image shake, you will need a tripod. Tripods come in two types: quick-release and screw-on. Quick-release tripods (**Figure 2-10**) have a removable base plate that you can attach to the camera, then snap into the tripod. Conventional tripods have an attached screw mount that you screw into the base of the camera.

Light stands. Light stands are used for mounting hot and cool continuous lamps and strobe. They are not as sturdy as a tripod but do enable the lamps to be positioned at anywhere from ground height to several feet above the floor.

Copy stands. A copy stand (**Figure 2-11**) is useful for photographing flat work. A copy stand has mounts to hold lights at a 45° angle from the artwork to evenly illuminate it and avoid glare. A copy stand can also be used to hold the camera for closeup macro work.

Photography equipment, tripods in particular, can be purchased cheaply through online marketplaces like Craigslist and Facebook.



Figure 2-10. Camera attachments. A quick-release tripod mount has a detachable bracket that is screwed into the camera's tripod mount and then clamped to the tripod.

27. File Formats and Applications

RICHARD ADAMS AND REEM EL ASALEH, MARTIN HABEKOST,
JASON LISI, AND ART SETO

A digital photo or artwork could end up in a variety of digital file formats, depending upon the image itself and whether it's placed in a page. There are literally dozens of different image file formats that can be created, manipulated, and reproduced. Some file formats are appropriate for print production, while others are best suited for the web and digital media. The more you know about file formats, [colour spaces](#), resolution and compression, the greater the opportunity you will have to achieve desirable outcomes with your digital images. In this chapter, we will explore various digital file formats and the attributes associated with them.

File Formats

There are many different file types that a digital image could be; however, when it comes to the content of the image, there are really only two options: vector and bitmap.

Table 3-1. Comparison of Vector and Bitmapped Files

	<i>Vector</i>	<i>Bitmapped</i>
Stationary	diagrams, charts, synthetic artwork: type, Adobe Illustrator and CAD files, Photoshop paths, scalable vector graphics (SVG)	photographs, Photoshop images, pixel-based drawings (synthetic artwork), 1-bit tiff files
Moving	vector animation: HTML5 tags, CSS3 styles, JavaScript	animated GIF, digital video: Apple iMovie, Adobe Premiere files

Vector Image Data

Vector images ([Table 3-1](#)) are defined mathematically as a series of points, lines, curves, and shapes, with colour fills and strokes. Their advantage is a small file size combined with resolution independence, or the ability to be scaled up without loss of resolution. They are used mostly for charts, diagrams, type, and synthetic artwork, or pictures drawn on the computer. Vector graphics can be created in different color spaces, can combine process and spot colors, contain multicolor vignettes, and even support transparency in some instances. A disadvantage is the lack of realism that comes with photos. Examples are Adobe Illustrator files, Photoshop paths, and type faces.

Animations can also be vector graphics in the form of HTML tags and accompanying CSS styles and JavaScript interactivity.

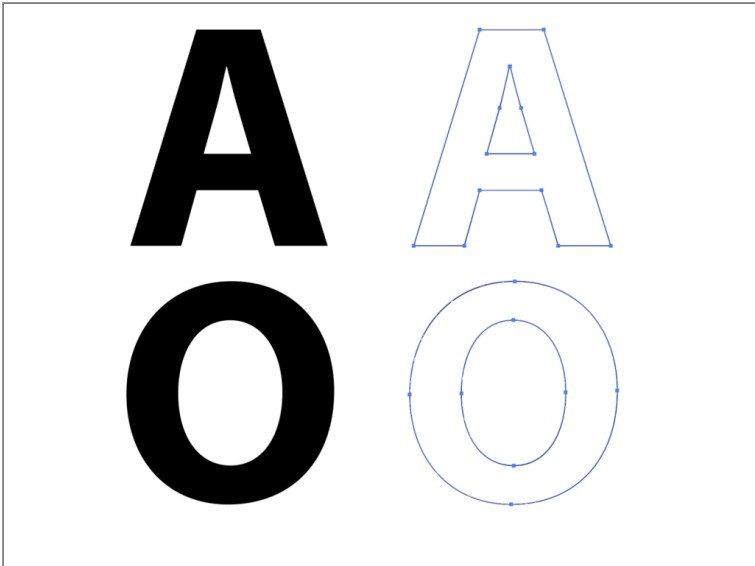


Figure 3-1. Fonts are just one example of vector-based design. This figure shows the relationship of points and Bezier curves that make up the mathematical representation of the object. Note that the path between points can be straight or curved.

Bitmapped Image Data

A bitmap is often compared with a mosaic because it consists of a matrix of microscopic squares that contain tone and colour information to reproduce a photo. Bitmapped images are end-use dependent, meaning the resolution must be set for the desired output, including type and resolution of output, as well as reproduction size.

Resolution for Screen Viewing. The proper resolution for a bitmap image is dependent on the end-use of the image, as well as the scale at which it is to be used. For digital applications, such as websites, the image resolution usually does not have to exceed 72 ppi (pixels per inch) at the size it is being viewed at. The reason

for this is that most conventional computer monitors display information at 72 pixels per inch. It should be noted, however, with advances in technology, including high definition (HD) monitors and 4K screens, the resolution requirements for images viewed on monitors is starting to increase.

When it comes to preparing images for viewing on portable devices such as smart phones and tablets, resolution requirements change dramatically. This is due to the trend for these devices to have extremely high resolution screens. For example, the recommended image resolution for images being viewed on an Apple device with a Retina screen can be as high as 600 ppi.

Resolution for Print. To determine optimal resolution for printing, a simple formula can be applied. This formula will defend against undesirable effects of images with inadequate resolution. This formula takes into account a phenomenon known as the two times rule. The rule states that in order for a bitmap image to give the illusion of a continuous tone image, there must be twice the resolution in the image than the printing linescreen on press, when the image is at its final size. If the image has less than two pixels for every printing dot, the individual pixels will become evident to the observer. The formula for this equation is as follows:

$$R = 2 \times \text{lpi} \times \text{sf}$$

where: R = resolution, lpi = lines per inch, sf = scaling factor

For example, let's say you have a digital image that is 72 ppi, and you would like to place this image into a layout at 67% of its original size. The layout is for a brochure that will be printed at 150 lpi. Will the resolution of the image be sufficient? The above formula can be used to determine what resolution would result in an adequate final resolution:

$$R = 2 \times 150 \text{ lpi} \times 0.67 = 200 \text{ ppi}$$

Based on this information, we know that the minimum required resolution for the image is 200 ppi. If our image is 72 ppi, and we are placing it at 67% of its original size, the effective resolution for the image will be 107 ppi (72 ppi : 0.67 scaling factor). Consequently, it has been determined that the resulting resolution will not be

sufficient. The image will either have to be placed at a smaller size, or a new image will have to be taken that has a higher resolution.



Figure 3-2. The image on the left has been placed at 100% of size, and has a resolution that is appropriate for printing. The image on the right has been enlarged 800%, effectively lowering the resolution, resulting in a pixelated image.

Image File Formats

Bitmap and vector files can be saved in a variety of different file formats. Each file format typically will be optimized for a specific end-use or file type. For example, the bitmap file format GIF (Graphic Interchange Format) is suitable for the web, but should never be used for commercial printing. Other file formats are more flexible, and could be used for a variety of end uses. Vector images can only be saved in a limited number of file formats without being converted into bitmap format. For a summary of various image file formats and uses see [Table 3-2](#).

Table 3-2. File Formats and Uses

<i>File Format</i>	<i>Image Type</i>	<i>Description</i>
Native Formats		
Adobe Illustrator (.ai)	Vector	Native application file. Can be imported natively in Adobe InDesign or exported as SVG and other formats for web.
Camera Raw (incl. DNG)	Bitmap	Native full megapixel, high-resolution camera images. Must be saved in standard formats for use in print and web. DNG is Adobe's Digital Negative universal format for camera raw.
Photoshop Document (.psd)	Vector, bitmap, or both	Hi-res file format that can contain any combination of vector or bitmap data. PhotoShop files are often used to save "working" files for image manipulation. They can contain layers, effects, and extra channels. Photoshop files can be placed natively into InDesign, but generally must be saved as another file format to be used in other applications, such as TIFF and JPEG for print and JPEG, PNG, or GIF for web.
For Print		
Encapsulated PostScript (.eps)	Vector, bitmap, or both	Hi-res file format that can contain any combination of vector or bitmap data. A variation of EPS (EPS DCS) can be used to maintain spot channels in PhotoShop files. EPS files can be compressed using either lossless or lossy compression.
Tagged Image File Format (.tif)	Bitmap	Hi-res commercial printing application. TIFF files typically do not have the flexibility and features of EPS files, but result in a smaller finished file size, which makes them more efficient. TIFF files can be compressed using lossless compression, most typically LZW compression.
Joint Photographic Experts Group (.jpg)	Bitmap	Jpegs are compressed images. Jpeg compression is lossy, so it affects the quality of the image. Too much compression will create artifacts in the image that will show in print or on screen. Lo-res to hi-res application, depending on resolution and compression level.
For Web		

Bitmap File (.bmp)	Bitmap	Low-res RGB file format common on the Windows operating system. Suitable for screen-based applications such as the Internet, PowerPoint, etc.
Graphics Interchange Format (.gif)	Bitmap	Lo-res file type created for use with the Internet. Gif files are very small in file size due to the fact that they use index color and have a limited color palette. Gif files are best used for illustration-type images as opposed to photographs.
Portable Network Graphics (.png)	Bitmap	PNGs are compressed images. PNG compression is lossless, so it has little effect on image quality. One advantage of PNG files is that they support transparency, so they are a popular choice for graphics where it is desirable to have a transparent background. They can be RGB, 8-bit or 24-bit color, and are more flexible than GIF files.
Joint Photographic Experts Group (.jpg)	Bitmap	Jpegs are compressed images. Jpeg compression is lossy, so it affects the quality of the image. Too much compression will create artifacts in the image that will show in print or on screen. Lo-res to hi-res application, depending on resolution and compression level.
Scalable Vector Graphic (.svg)	Vector	Vector format for the web, can be exported from Adobe Illustrator and other vector graphic programs.

File Formats and Workflow

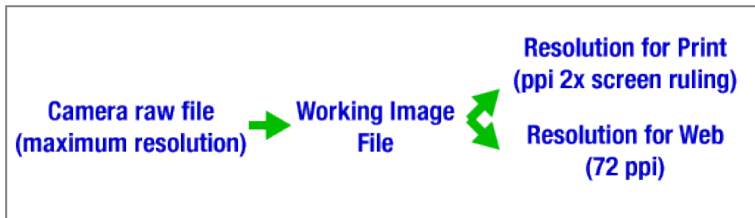


Figure 3-3. Image workflow logically starts with images at the camera’s maximum resolution and in camera raw format. Files can then be saved for working with a bitmapped image-editing program (“working image file”) and then resolution set for print (top branch, resolution in ppt at 2x screen ruling) and/or web (bottom branch, 72ppi).

Most digital cameras can capture images in uncompressed native, or camera raw, format, or in several different sizes and quality levels of JPEG-compressed images. Some photographers prefer to save JPEG images because processing is faster, but they may lose some of the available resolution and image tonal data. With the fast microprocessors and solid state drives on today’s computers, camera raw processing has become a lot faster than in years past, and most professional photographers prefer to shoot in camera raw.

Each camera manufacturer and camera model has its own proprietary format of camera raw. To open the files on a computer, the software publisher needs to write a conversion algorithm from the camera’s raw format to a standard file format. A universal camera raw format is Adobe Digital Negative, or DNG.

Camera raw files are like the digital equivalent to a traditional film negative – they contain all the data captured by the camera, but they are not processed into final images. This means that camera raw files are not restricted to any process parameters and remain extremely flexible in how they are “digitally developed.” Camera raw files have the greatest ability to match (or improve upon) the original scene.

Like traditional negatives, Camera Raw files must be post-processed in order to be representative of the target scene. There are two processes that must be performed to a Camera Raw file before it can be used in a print application. First, the image must be demosaiced. This process maps the monochromatic data captured by the camera's CCD array and translates it into RGB data. The second process is rendering. This is where the RGB data is enhanced to create an image that either attempts to represent "pleasing color", or, in the case of product photography, match the original colour precisely.

Since bitmapped image files are end-use dependent, a logical starting point with a DSLR camera would be to capture camera raw (**Figure 3-1**). Raw files need to be converted to standard file formats (e.g., TIFF, JPEG, PSD), without loss of resolution, for processing (Figure 3-1, "Working Image File"). Different resolutions are required for web, print, eBooks, and other forms of output. So the working image file can be saved in the appropriate format, using for example Photoshop's Save for Web or Export As functions.

Placing Photos in Pages

Print Pages

Images can be placed in pages for print or web, including apps. Different programs, languages, and image file formats are suitable for each application (**Table 3-3**).

Table 3-3. Page Layout Applications

Type of page	Example applications	Image file types	Colour mode	Transparency
Print Page	Adobe InDesign, QuarkXPress, Microsoft Word, Google Docs, other apps	TIFF, JPEG (high-quality), PSD	RGB or CMYK	PSD
Web Page	HTML, CSS, JavaScript; Adobe Dreamweaver, text editor	JPEG, PNG, GIF	RGB	PNG, GIF

For print, page layout applications like Adobe InDesign can combine vector and bitmap images with text, then save pages in native or standard formats like Adobe PDF. Because these programs are meant to handle a large amount of information, they have numerous tools to maximize productivity and efficiency. For example, they can automatically create a table of contents, generate indexes, create master page designs, organize multiple documents into one project, and even synchronize documents to each other.

Page layout programs are preferable to word processing programs when designing content for print applications. For one thing, they support CMYK colour models, whereas word processors are based on RGB models, which can negatively affect print quality (for example, RGB black text may separate into 4-color black when converted to CMYK, causing registration issues on press). Page layout programs also offer greater flexibility than word processors when it comes to importing and placing images, including enhanced text-wrapping features and the ability to support clipping paths. Users can place images in picture boxes and text in text boxes, then set type to wrap around the images (**Figure 3-4**).

Although these programs are well suited for merging images and illustrations on the same page, they are not image editors. If you want to edit an image that is used in a page layout program, you must open it up in the appropriate alternative program (e.g. Illustrator for vector art or Photoshop for bitmaps).

Web Applications

Images for web should generally be 72 ppi resolution, RGB colour mode, and set to final size, rather than being resized with the “width” style. Achieving the smallest possible file size makes pages load faster and helps retain readers’ attention.

28. Working with Printers, Web, and eBook Publishers

RICHARD ADAMS AND REEM EL ASALEH, MARTIN HABEKOST, JASON LISI, AND ART SETO

In this chapter, we assume you took some great photos with your camera phone or a DSLR camera and you want to print and/or place them on the web or in an eBook. For this purpose, we created five “personas,” or characterizations of users, and what they want from images that are reproduced in print, on the web, and in eBooks ([Table 6-1](#)).

Table 6-1. Examples of Photo Users

<i>user</i>	<i>what they want</i>	<i>file format</i>	<i>colour mode</i>
home inkjet, laser with RGB driver	colour that matches screen resolution for US Letter paper	TIFF, JPEG	RGB
professional inkjet with CMYK RIP	colour that matches screen proof that matches litho press resolution for poster, banner	TIFF, JPEG-Hi	RGB (convert CMYK in RIP)
lithography	colour that matches screen and/or proof	TIFF, JPEG-Hi	RGB (convert CMYK in RIP)
web	good resolution fast download time	JPEG, PNG, GIF	RGB
eBook	good resolution fast display time small file size	JPEG, PNG, GIF	RGB

Image Capture for Print and Web

Advanced-amateur, professional point-and-shoot, DSLR cameras and newer camera phones can generally capture camera raw and several quality levels of compressed JPEG photos (e.g., high, medium, low). For capturing high-quality photos for reproduction, it is recommended to capture in camera raw, which gives the highest resolution and tonal range available from the camera.

Camera raw photos cannot be placed in page layouts for print or on the web. They must first be converted to a standard file format like TIFF, JPEG, or PNG. If you are using the image format JPEG make sure to use the “High Quality” or “Highest Quality” setting. These settings use minimal compression, allowing you to keep as much image information as possible. The TIFF file format is usually used for professional image reproduction using print processes like lithography and/or flexography. On the web or for electronic publishing the JPEG or PNG file format is usually used.

Problems Facing Photos for Reproduction

In discussing how to prepare photos for print, users should keep in mind certain problems or challenges that occur when digital images are translated from RGB to CMYK mode for reproduction on paper and also when RGB images are displayed in eBooks and on the web.

Gamut compression. The first problem is that digital photos can contain more colours than can be reproduced with process-colour inks on paper, which is known as gamut compression (**Figure 6-1**). This often results in disappointed users: they saw a very colourful photo on-screen and are disappointed it lost some of its colour in print. In some cases, it's possible to preview the colour, if you have an ICC profile for the printer and a program like Photoshop that can preview photos. Photoshop allows you to set up a proof view in the

“View” menu. This allows you to simulate how your image will look in certain print conditions.

Photos in eBooks and on the web may not reproduce with the same colour as the original photo unless the photographer and web surfer are using the same colour profile.

Resolution. Users want photos that reproduce with sharpness and detail. Generally printers—be they home inkjet or laser, commercial inkjet or digital, or lithography—will break down image pixels into microscopic halftone dots or random-dot screens. Generally, images with a resolution of twice the screen ruling will reproduce well. Those with lower resolution will reproduce with a “stair-stepping” or “pixelized” effect in which readers can see individual pixels, or image squares (**Figure 6-2**). Higher-than-necessary resolutions may result in large file sizes that create even larger page layout documents, and these can be difficult to transport, email, upload, download, and process.

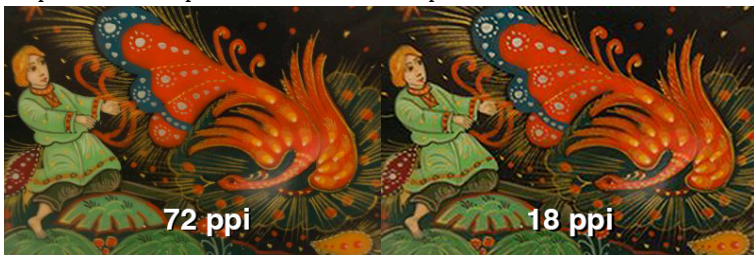


Figure 6-2. Same photo at normal (72 ppi) resolution (left) and 18 ppi (right).

Download time. Web and eBook publishers also want high-quality images but at the same time want to avoid excessively large files that take a long time to display or to download. A 2016 study by the BBC revealed that the average user is willing to wait only 3 sec. for a shopping site to open before moving on to another site. For this reason, it’s wise to size images no larger than will be necessary for the maximum anticipated screen size.

Home Inkjet/Laser

User #1 has a home colour inkjet or laser printer. They want to print single copies or at times a few copies to hand out at meetings. Their printer uses random-dot, or stochastic, screening to print microscopic toner particles or ink droplets (**Figure 6-3**). The printer has a built-in driver that's designed to accept RGB images.

This user wants images with good resolution, with lack of “jaggies,” or pixelization. They may also want their page layout file to be small enough to email or transport on a USB drive.

For User #1 we recommend saving images in uncompressed TIFF or high-quality compressed JPEG format at 300 pixels per inch (ppi) resolution. Many desktop printers have a built-in driver that's designed to accept images in sRGB mode and convert them to the printer's colour system, such as CMYK or CMYKcm (cyan, magenta, yellow, and black, and light cyan and light magenta). In this case, the best way to get matching colour is to send the printer files in RGB mode and in the standard RGB (sRGB) colour space.

Large-Format Inkjet and Digital Print

User #2 wants to get a poster, sign, or banner printed on a large-format printer. Since such printers are rather expensive and require sufficient space, this user would probably bring their page layout files to a print shop or commercial inkjet printer.

Large-format inkjet printers are often used with raster image processors (RIPs) that can either be built-in or run on a PC that connects to the printer. Colour can be matched by using industry-standard profiles that conform to the International Color Consortium (ICC) specifications. These profiles are often made available by ink and media manufacturers for specific RIPs and output resolutions.

Our suggestion would be that User #2 leave their images in RGB mode and in a specified colour working space, such as sRGB (smaller gamut) or AdobeRGB (bigger gamut). The RIP would then convert the colour mode to CMYK for the specific colour format, ink, media, and resolution used by the printer.

Similar recommendations could be made for high-volume digital printers that use dry or liquid toner.

Lithography

User #3 wants to use their photos in a book, magazine, catalogue, brochure, pamphlet, newspaper, advertising insert, or similar job. Offset lithography is suitable for high-quality printed products when more than a few hundred and up to a million copies are required.

The offset printer most likely uses a PC-based raster image processor (RIP) software to image aluminum printing plates for the press. The printer may have made a custom ICC profile for the press, ink, and paper being used, or they may print to an industry specification such as the Specifications for Web Offset Publications (SWOP) or General Requirements for Applications in Commercial Offset Lithography (GRACoL), for which ICC profiles already exist.

Our suggestion for User #3 would be to check with their printer about what file format, colour mode, and resolution they would prefer for images. Ideally, this user would keep their photos in RGB colour space to maximize the colour gamut and allow the printer's RIP to make the conversion to CMYK for the specific press being used.

For colour-critical jobs, the printer may be able to supply User #2 with an ICC profile to use in previewing, or “soft proofing,” their images on a monitor.

eBooks

User #4 is taking photos to illustrate an eBook. The publisher plans to release the eBook in multiple formats, including MOBI for Amazon Kindle, EPUB for multiple eBook readers and tablets, and Apple iBooks for iPads (**Figure 6-4**).

For User #4 we recommend considering whether their images will be, for example, half-page or full-page and whether they can be enlarged by tapping on the screen. In this case, User #4 could consider the maximum resolution of an iPad with Retina Display is 2048×1536 pixels or double standard HD in both dimensions (1024×738 px). Therefore a half-page photo that does not enlarge, at 1024×738 px, would reproduce with high quality.

If using Photoshop to convert digital photos for eBooks, User #4 may find that the program's File > Export > Save for Screen or Save for Web features could be handy. These dialogue boxes allow the user to specify output format and resolution before a file is saved.

A few general guidelines for eBook publishing are that these books are quite often read on relatively small screens. For example, the MOBI file format for Amazon Kindle has an image size limitation of 64kB, so they work best with small screens. Some eReaders use eInk displays, which usually are for black & white text and images. eInk displays are not as energy-hungry as tablet displays. The advantage of eInk displays is that they can be read in full sunlight. A disadvantage is, that they don't switch pages as quickly (though this is changing). Images for eReaders should be in sRGB colour space.

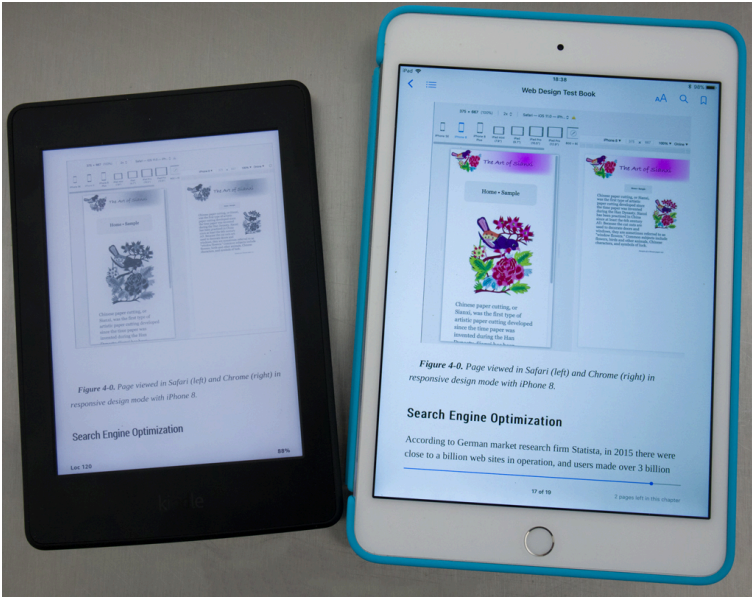


Figure 4-0. Page viewed in Safari (left) and Chrome (right) in responsive design mode with iPhone 8.

Figure 4-0. Page viewed in Safari (left) and Chrome (right) in responsive design mode with iPhone 8.

Figure 6-4. Same eBook displayed on two contrasting eBook readers, an Amazon Kindle Paperwhite (left, about \$100) is black-and-white, and an Apple iPad Mini (about \$400) with color.

Web

User #5 wants to place photos on the web. In this case, they could consider whether a photo will be reproduced at a half-page or full-page width. Surveys say that the typical screen size in use today is 1366×768px, therefore a half-page image 683px wide and 72 ppi should reproduce with good quality. An example of an increasingly popular high-resolution display is the iMac 4K, which is 4096×2304, three or four times standard HD in both dimensions (i.e., 4×1024 and 3×768).

Table 6-2 below compares the file size and download times of the image in Figure 6-1, which was taken with a 24-MP camera that produced a 6000×4000 pixel image. Keep in mind that, according to

the BBC study mentioned above, users are only willing to wait 3 sec. for an entire page to load.

Table 6-2. File Sizes and Download Times

<i>compression</i>	<i>file size (MB)</i>	<i>download time (sec.)</i>
none (6000×4000-px image)	34	176
JPEG-Max (100%)	19.9	103
JPEG-Very High (80%)	10.8	56
JPEG-High (60%)	6.2	33
JPEG-Med (30%)	2.77	15
JPEG-Med (30% and res. 4096px wide)	1	6

29. Photoshop

RICHARD ADAMS AND REEM EL ASALEH, MARTIN HABEKOST,
JASON LISI, AND ART SETO

Introduced in 1989, Photoshop is a market-leading image editing program that is useful for opening, formatting, editing, and saving images for different applications.

Image Capture

The best way to capture high-quality images is with a high-quality camera phone or a digital single-lens reflex (DSLR) camera, whether mirrored or mirrorless.

Camera raw format captures the full megapixel and density range of the camera, however such large images are seldom necessary for the web (for example). In fact, they can be detrimental to loading times. Camera Raw includes both proprietary formats for each camera manufacturer and model, as well as the universal digital negative (DNG) format.

When opening camera raw format in Photoshop's Camera Raw plugin (**Figure 8-1**), web designers should think about the maximum image size they will need, then use the image resizing feature to get the desired size. The site websitedimensions.com says that 35% of web surfers use a browser window that's 1366×768 px, while 20% use 1920×1080. If this is true then the maximum size window would be 2 MP (1920×1080) and a full-size image would not need to be larger than that. It may be useful for the designer to think about the anticipated maximum size of an image as being a full-page, half-page, or quarter-page image. A quarter-page image would need to be 960×540 or 0.5 MP.

Suggested Photoshop Workflow for Web

1. Set camera exposure, white balance, and depth of field for optimum photo.
2. Record in camera raw format, [bracketing exposures](#)
3. Open photos in Camera Raw plugin, select correct exposure, set image size, and open
4. Edit as required
5. Export to JPG or PNG using Export > Save for Web.

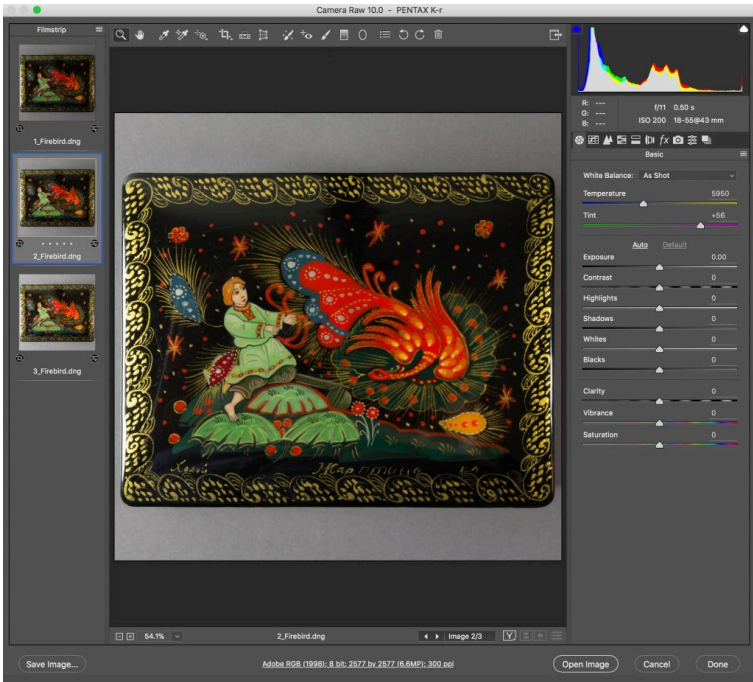


Figure 8-1. Photoshop's Camera Raw dialog box offers the opportunity to open several photos' camera raw files at once, make settings, and save in standard formats. In this case a bracketed series of exposures (i.e., one slightly too dark and one too light) was taken with a 24-MP camera. The best photo was opened at a resolution of 72 ppi and size appropriate for the web.

Making Transparent PNG Files

If your image contains one or a group of subjects that you want to publish on the Web without the background, save the image as a PNG file with transparent background (**Figure 8-3**).

First, make a selection path around the object(s) you want to isolate from the background. Then right-click on the selected subjects and choose "New Layer from Cut." Select the background

layer and set its transparency to 0%. Save for Web in Photoshop, check the Transparency option, and verify in the preview.

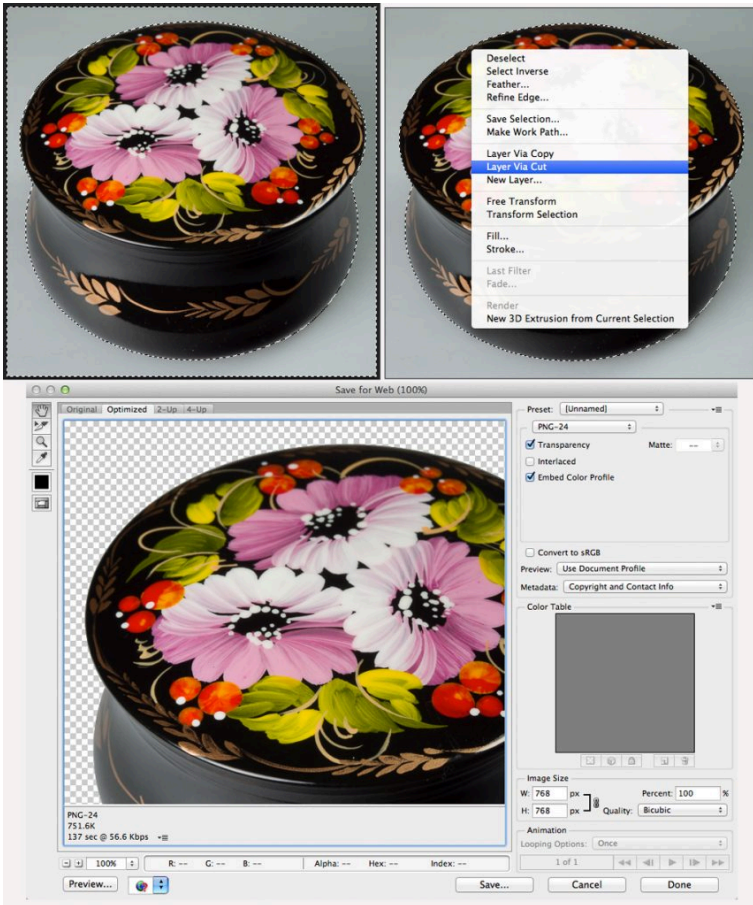


Figure 8-3. Making a transparent PNG file by selecting the object, bringing it to a new layer using “New Layer via Cut,” deleting the background, and Export > Save for Web with Transparency checked.

Saving Images for Web

Once an image has been opened and edited in Photoshop, it can then be saved in a format suitable for web (JPG for photos and PNG when transparency is required) using the Export > Save for Web feature. This dialog box (**Figure 8-4**) includes settings for image format, transparency, size, and resolution.

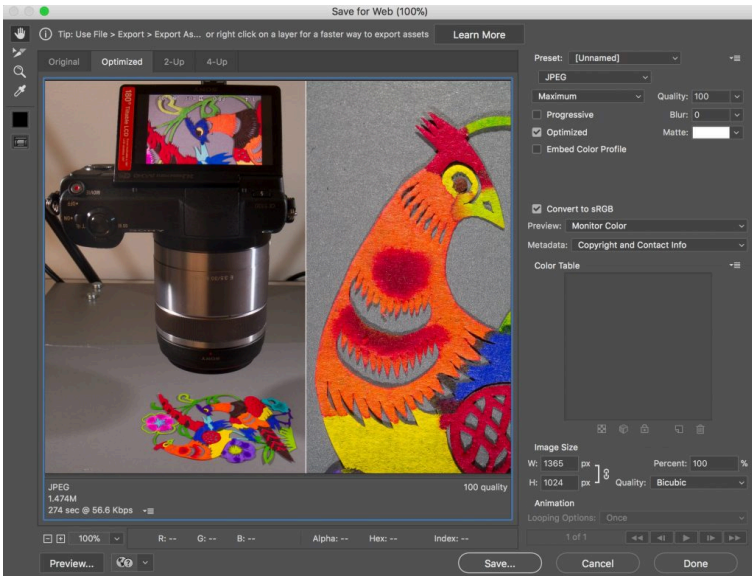


Figure 8-4. Photoshop's Export > Save for Web dialog box offers the opportunity to customize the image format (upper right corner) and size (lower right) and also includes a prediction of download time (lower left) at various internet bandwidths.

Non-Destructive Editing

As a bitmap image-editing program, Photoshop enables users to change the tone and colour, along with the pixel content, of images.

This is known as *destructive editing* because the original characteristics are altered.

Non-destructive editing is done through layers and masks and preserves the original pixel information. There are three reasons why non-destructive editing is useful:

1. *Preserving the original.* Since non-destructive editing preserves the original pixels, you can always go back to the original image if you don't like the results of your edit.
2. *Making a record.* Non-destructive edits provide a step-by-step record of changes, so that you can later go back to them. This could be useful when editing for a client, to show what edits were made and justify the time spent making them.
3. *Working faster.* Editing via layers and masks allows you to organize your edits, see what you are doing, and work faster and more efficiently.

Tools for Non-Destructive Editing

Layers. A fundamental concept of non-destructive editing is to apply edits to Photoshop Layers. Adding a layer is like placing a clear plastic overlay on top of a photographic print, and making the edits on the plastic. The effects of the edit layer can be applied to the layer(s) below, then turned on and off to visualize the photo with and without the edits.

Layer Masks. A Layer Mask accompanies a Layer and can hide or show part or all of the effects of the Layer.

Adjustment Layers. This type of Layer applies Image > Adjustment effects, such as Brightness/Contrast, Levels, Curves, and others, via a Layer, so that changes are non-destructive.

Layer Styles. A Layer Style adds effects to another layer, such as a drop shadow, emboss effect, gradient, or other effect.

Smart Objects. These include placed images and image

components whose original pixel data is preserved after edits. Let's say you place a logo or other image into an existing image and then want to reduce its size. If first converted to a Smart Object, Photoshop will retain all the pixels in the original logo so that it could be enlarged later.

Smart Filters. These are Filters applied to Smart Objects so the effects of the filter can later be removed or modified.

Content Awareness. A form of artificial intelligence, content awareness examines neighbouring pixels and uses them to fill in spaces, move objects, and resize images.

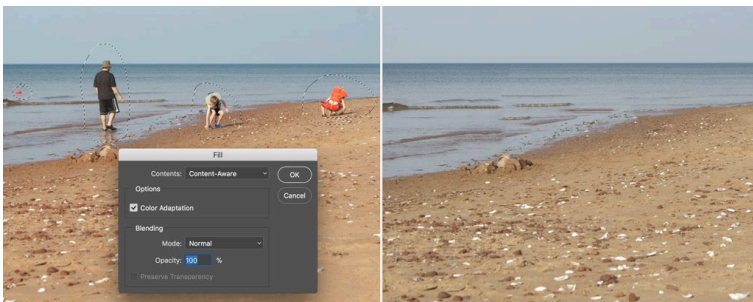


Figure 8-5. People were removed from this beach scene using Photoshop's Content Aware Fill feature. Marquis were drawn around each object to be removed, then Edit > Fill was selected and set to Content Aware. (Photo by Jason List.)

Tips for Non-Destructive Editing

Duplicate a Layer. Let's say you open a digital photo in Photoshop and want to make some edits. The fastest way to edit non-destructively is to duplicate the Background Layer into which the photo is opened. Simply drag the layer to the New Layer icon in the Layers palette to duplicate it. Or select the layer and choose Duplicate Layer from the Layers menu or the upper-right popup menu in the Layers palette.

Retouch through a Layer. When retouching defects, artifacts, or

undesirable features of an image, the Clone Stamp, Healing Brush, and Spot Healing Brush tools can be applied through a Layer (Table 8-3). Simply check “Sample All Layers” or choose “Current and Below” from the popup in the Properties menu. (Not all tools work through layers, see Table 8-4. In this case, duplicate the layer before retouching it.)

Table 8-2. Retouching Tools that Work through Layers
Clone Stamp Tool
Healing Brush Tool
Spot Healing Brush Tool

Table 8-3. Retouching Tools that Don't Work through Layers (duplicate layer first)
Content-Aware Fill
Content-Aware Move
Content-Aware Scale

Use an Adjustment Layer to Change Tone or Colour. To improve contrast, brightness, highlight, shadow, gray balance, selective colour correction, and other adjustments, apply an Adjustment Layer to make these changes non-destructive.

Apply a Layer Effect. Layer Effects make it easy to add a colour blend, metallic effect, drop shadow, and many others in a non-destructive manner.

Use a Layer Mask. A Layer Mask hides, shows, or alters the appearance of its associated layer. Example: If you apply a colour fill to a layer, the colour can be selectively applied using a Layer Mask.

Painting or filling with black negates the effect of the associated layer, while painting with white or the Eraser Tool reestablishes the effect.

Use a Smart Layer for Filters. Photoshop features dozens of filters that can add noise, sharpen, smooth, and otherwise alter the appearance of images. Applying them as Smart Filters to a Smart Object preserves the original appearance of the object or layer.

Table 8-4. Layer Types in Photoshop

1. Layer
2. Layer Mask
3. Layer Effect
4. Adjustment Layer
5. Overlay

Place Smart Objects for Resizing. When another file, such as a logo, is placed into an existing file as a Smart Object and resized, Photoshop retains all the pixels in the original. This enables the size to be readjusted without loss of information.

Use Content-Aware Scale to Resize. One of several content-aware features, Content-Aware Scale uses artificial intelligence to resize images while retaining the original scene objects.

Use Content-Aware Fill to Remove. This feature is useful for removing objects from scenes, such as people on a beach. Select the object(s) with one of the selection tools, then apply Edit > Fill > Content-Aware.

Use Content-Aware Move to Move. If you want to relocate an object instead of deleting it, the Content-Aware Move tool examines surrounding pixels near the source and destination to make the moved object(s) blend in with the new background.

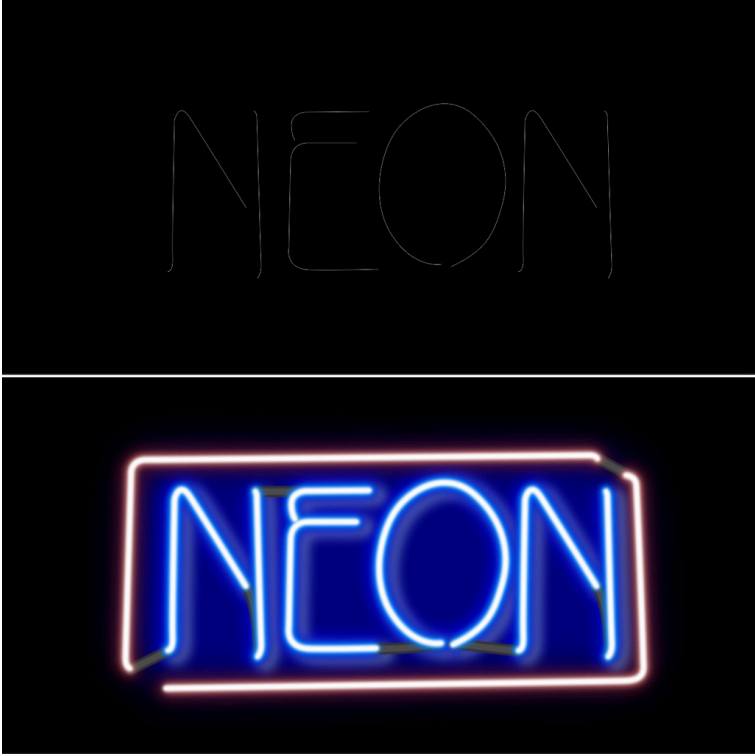


Figure 8-6. This neon type effect was created from a path using Layer Styles.