

Accessibility Handbook for Teaching and Learning

Accessibility Handbook for Teaching and Learning

BFRASER AND LUKE MCKNIGHT



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CLEARING A PATH FOR EVERYONE!

"Clearing a Path for Everyone" Michael Giangreco And Kevin Ruelle / University Of Vermont Center For Digital Initiatives Collection (Source)

Introduction

This book was created by Luke McKnight (Assistive Technologist, Langara College) and Briana Fraser (Educational Technologist, Langara College) with assistance from Clover Duong (Assistive Technologist Project Assistant, Langara College). This resource is intended as a reference for educators

and support staff to understand digital accessibility, create accessible documents, and ensure the access means of all are met.

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Using This Book

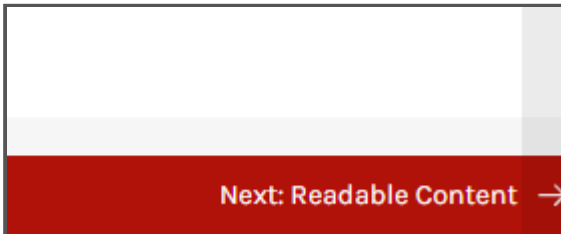
First, a brief introduction to using this resource.

In This Chapter:

1. Navigation
2. Glossary
3. Hypothes.is
4. Videos
5. Accessibility Statement

Navigation

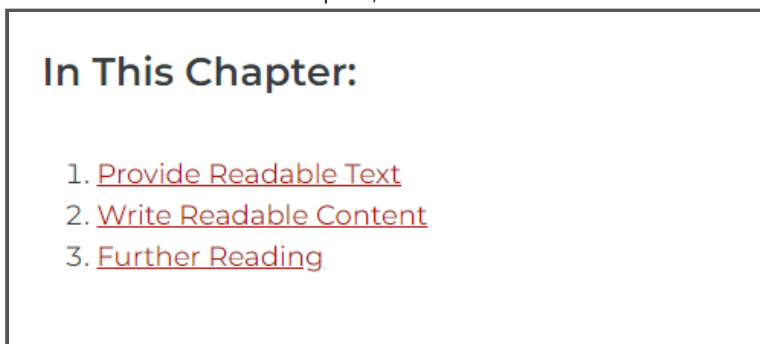
Use the next or previous buttons to move between chapters:



The **Contents** button will expand the table of contents menu allowing you to navigate:

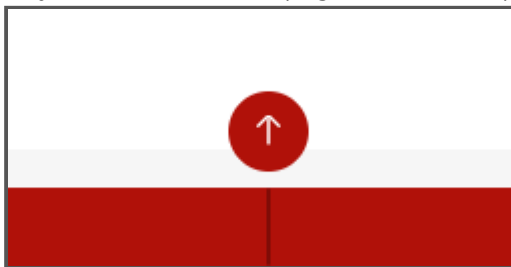


Most chapters contains a table of contents that links to specific sections of each chapter, such as:



Select any link to skip to that part of the chapter.

As you move down the page, a 'back to top' button appears:



Select this button to move back to the top of the page.

Glossary

Click with a mouse, **Tab** to with a keyboard, or use the buttons list on a screen reader to read glossary terms.

- Use plain language
- Avoid small fonts
- Provide sufficient space between lines of text
- Do not use colour alone to convey information
- Ensure sufficient **contrast** between text and background
- Use descriptive **hyperlinks** instead of pasting URLs directly

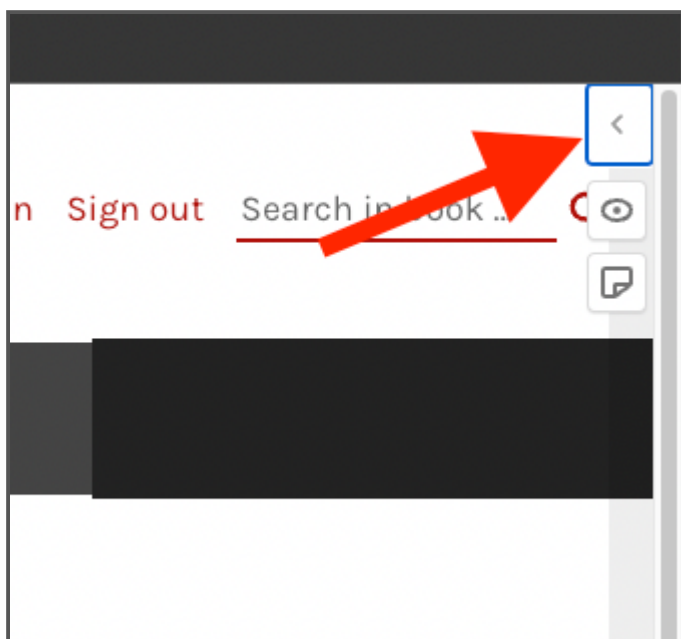
Glossary terms appear in bold, red text with a dotted underline. They are in the keyboard tab order and presented as buttons to screen readers.

Hypothes.is

Use **Control** (**Command** on macOS) and **F** to search for keywords.

You can use the built-in hypothes.is annotation plugin to highlight content in this resource.

Select the **Annotation Sidebar** in the top right of the page.

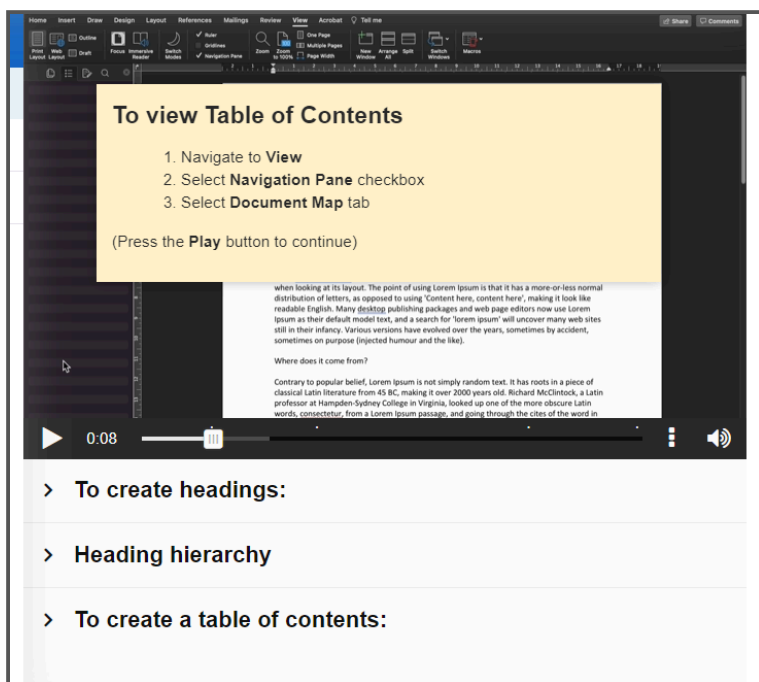


Login or signup to hypothes.is

Highlight text and select **Annotate** to add a note or **Highlight** to highlight content.

Videos

This book includes a number of interactive videos. The video will display a process and then pause to present an overlay with text equivalent instructions. Press the **Play** button to continue. Text equivalent instructions will also be included immediately following the videos. The screenshot below of a later chapter is an example of what to expect.



Accessibility Statement

The web version of this Pressbook conforms with Web Content Accessibility Guidelines 2.0, level AA.

Of note:

- All text is 12 point or larger for body text
- All content has appropriate colour contrast (apart from one instance of poor contrast intentionally included as a bad example)
- Content in web and EPUB export can be zoomed to 200% with no need for horizontal scrolling
- All videos with audio are captioned
- All images include alternative text or are marked

decorative

- Tables are properly formatted
- All link text is descriptive
- Links do not open in a new window or tab
- All H5P activities are verified accessible by the author
- Math content is either an image with all information contained in the alt text or created using LaTeX and rendered with the Pressbook MathJax plugin

If you encounter an accessibility barrier or have any other questions or comments, contact assistivetech@langara.ca.

Why Digital Accessibility Matters

Curb Cuts



Take a moment to consider who curb cuts are built for?

Many people's first, and correct, thought is wheelchair users and people who are blind. Curb cuts are *essential* for some people to navigate and access the world.

But curb cuts have many other benefits.

Consider other people who might rely on curb cuts:

- People pushing a stroller or pulling a shopping cart
- People using a walker, walking stick, or cane
- Children learning to walk or anyone having difficulty making the step up
- Cyclists locking up their bike
- Someone on crutches or with other temporary disability
- Movers, delivery people

The digital world includes elements like curb cuts: headings,

colour contrast, alternative text, closed captions, and many others. We may traditionally think of these as accommodations essential for some users, but in fact they benefit everyone, including content creators.

Consider that some accessibility needs are persistent, such as blindness; some are temporary, such as screen fatigue; and some are situational, such as forgetting one's glasses or glare from the sun. By designing material properly you ensure everyone, regardless of access need or circumstance, will be able to consume and engage with your material in a consistent and functional way.

Digital accessibility, like accessibility in general, means the ability for everyone regardless of access means to consume, interact and engage with digital material. Digital accessibility is an iterative process and digital accessibility is a spectrum; few documents or webpages are 100% accessible. However, increasing the accessibility of your content increases your audience, their comprehension, and includes the maximum number of people.

Accessibility is democratic, just, equitable, and inclusive allowing all to access information. By following some simple best practices and employing the resources found in this guide, you can easily increase the digital accessibility of your material.

PART I

ACCESSIBLE CONTENT

Frankly, there are a lot of things to consider when creating content.

Some basic elements to consider:

- **Structure**
- **Colour and Contrast**
- **Use of images**
- **Links**
- **Plain English**
- **Tables**

Or: **SCULPT**¹

Additionally, you might focus on:

- **Tables**
- **Hyperlinks**
- **Recordings**
- **Inclusive font**
- **Visuals**
- **Examine**
- **Structure**

Or: **THRIVES**²

Those are a great place to start. In this guide we will focus on making content accessible **FAST**.

When creating content, focus on:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1561#h5p-115>

Additionally, use tools to assist you:

- Use built-in tools for tables, lists, and links
- Use **templates**
- Use **accessibility checkers**
- This Pressbook

This guide will expand on each of these principles, explaining key concepts and instructions for creating accessible content with common software and platforms.

Worcester County Council SCULPT



SCULPT by Helen Wilson is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. Based on work at Worcestershire County Council.

Centre for Educational Development (CED) THRIVES



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1. Function

In this chapter:

1. Plain Language
2. Robust
3. Media

Plain Language

Create your content using **plain language**. Plain language best practices include:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=2063#h5p-86>

Consider the Plain Language Action guide and this guide to using simpl(er) words and phrases.

Robust

Ensure your content works:

- Check your content on multiple devices and browsers
- Zoom in to 200%
- Use Tab to check reading order and focus states

Media

Include captioned media in accessible players that do not autoplay.

2. Appearance

In this chapter:

1. Accessible Font
2. Hyperlink Text
3. Accessible Colour

Accessible Font

All text content needs to be readable. Accessible fonts are:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=2065#h5p-87>

Hyperlink Text

Use **descriptive hyperlink text** instead of pasting URLs directly.

Hyperlink text should be:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=2065#h5p-88>

Accessible Colour

Text must have a **contrast ratio** of at least 4.5:1 against the background colour.

For example, black on white is 21:1 and orange on white is 3.37:1.

The next chapter examines colour in further detail.

3. Accessible Colour

In this chapter:

1. Accessible Colour
 2. Platform Specific Instructions
 3. Colour Code Tools
 4. Further Reading
-

Accessible Colour

[illegible]

Colour contrast is a key element of accessibility. 1 in 12 men and 1 in 200 women have some kind of colour vision deficiency. This means it is important to ensure foreground information has sufficient contrast against background colours and that

colour is not the only means to convey or emphasize information.

However, good colour contrast practices aren't just for those with an identifiable colour deficiency.

Benefits for students

- Includes all, regardless of access means
- Provides similar appearance regardless of device and user settings
- Retains all information if printed in black and white
- Reduces eye fatigue, glare from the sun, and allows use of dark/night mode or custom contrast settings
- Makes content easier to read for everyone

Benefits for instructors

- Allows for customization and styling without excluding anyone
- Ensures information looks similar regardless of device and user settings
- Retains all information if printed in black and white


- Reduces eye fatigue, glare from the sun, and allows use of dark/night mode or custom contrast settings
- Analyzing use of colour serves as a reminder to emphasize important content in text form, not solely relying on colour

Colour can be expressed digitally in different ways with Hex, RGB, and HSL/HSV/HSB the most common colour codes.

Enter a Color:

name, hex, rgb, hsl, hwb, cmyk, ncol:

<u>Name</u>	no name
<u>Rgb</u>	rgb(241, 90, 34)
<u>Hex</u>	#f15a22
<u>Hsl</u>	hsl(16, 88%, 54%)
<u>Hwb</u>	hwb(16, 13%, 5%)
<u>Cmyk</u>	cmyk(0%, 63%, 86%, 5%)
<u>Ncol</u>	R27, 13%, 5%



In this guide, we refer to Hex colour codes, but the principles are the same regardless.

For proper colour contrast, aim for **at least** a 4.5:1 ratio. To (over)simplify, that means the text is 4.5 times brighter than the background. For large text, size 18 point or greater, or 14 point or greater that is bold, requires only a 3:1 ratio. Logos and decorative images have no requirements.

Black text on a white background is good colour contrast (21:1). **Orange text on a white background (or vice-versa) is not (3.37:1)**

Platform Specific Instructions

To find appropriate colours and/or to change colours in:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=100#h5p-20>

Colour Code Tools

There are many options for finding colour codes, when necessary.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=100#h5p-21>

Contrast Checkers

WebAIM (Accessibility in Mind) is an exceptional resource that has a contrast checker, a link contrast checker, and additional reading on colour contrast in general.

ACE (Accessibility Colour Evaluator) is an excellent tool for checking colour contrast. You can set multiple colours for multiple elements (background, text, link, hover, etc.) and see the corresponding colour contrast ratios.

Consider some of these as well and find what works best for you:

- Color Contrast Checker

- Palette Checker

- Who can use this color combination?

- Color Blind Web Page Filter

- Safe Hexadecimal Color Codes

Further Reading

WebAIM guide to WCAG colour guidelines.

4. Structure

In this chapter:

1. Structure
 1. Navigation
 2. Headings
 3. Lists

Structure

Well **structured** documents are essential to allow assistive technology to navigate your documents. Structured documents help all readers with context, organization of ideas, and clarity.



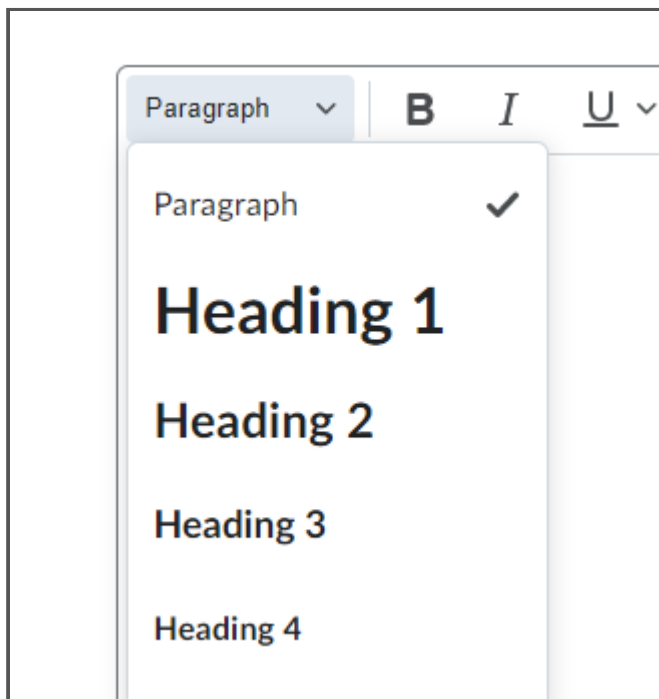
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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=2067#h5p-89>

Navigation

- Add a table of documents to documents longer than 5 pages
- Provide **skip links** in HTML
- Include multiple ways to navigate (Previous and next buttons, menus, site map, etc.)

Headings



Headings are an important part of documents and web pages. **Screen reader** users rely on headings to navigate the web and longer documents. For anything beyond a few paragraphs, headings are *essential* for screen reader users.

But, like curb cuts headings have many other benefits.

Benefits for students

- Includes all, regardless of access means

- Provides context and explains relationships between ideas
- Emphasizes key concepts
- “Bookmarks” in a long document for readers to use to take breaks and resume their place
- Allows for skimming to review and find specific content efficiently

Benefits for instructors

- In Word, headings can be used to create a table of contents automatically
- Drag and drop headings in the Word Navigation pane to move all subheadings and subordinate content under that heading
- Update heading style to change the appearance of all headings of that level
- See how information flows and review relationships between concepts
- Create a summary or overview document

Lists

Use built-in list tools and semantic HTML lists.

5. Text Equivalents

When creating something that isn't text, add:

- **Alt text** to images and graphics
- **Closed captions** to videos
- **Transcripts** to audio
- Table data to charts and figures
- Captions to diagrams

Further, don't rely on colour alone to convey meaning or importance.

For example:

- Use colour, shapes, and text in charts and diagrams
- Add text indicators to highlighted table cells
- Include reminders like "important" or "remember" in addition to bolding emphasized text

The next two chapters will expand on alt text and closed captioning in greater detail.

6. Alternative Text

In This Chapter:

1. Alternative Text
 2. Common Platform Guides
 3. Alt Text Decision Tree
 4. Further Reading
-

Alternative Text


Provide Alternative Text

Alternative Text

Provide alternative text for the image. This text should convey the same information as the image. If this image does not convey any information, select "this image is decorative".

Alternative Text:

☐ This image is decorative



Alternative text (alt text) is a description coded into images

that indicates the image's meaning to screen reader software and conveys the information to blind users. Alt text allows all users to consider the purpose and function of images. If for some reason an image cannot be viewed (slow connection, error with hosted image, or use of assistive technology) alt text provides the meaning and intent of an image.

According to WCAG 2.0 Guideline 1.1.1 : "All non-text content that is presented to the user has a text alternative that serves the equivalent purpose."

Images and diagrams are excellent compliments to text and vice-versa. Including visuals can break up large block of texts and increase understanding. However, do not rely on any one format alone.



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Tip: Consider why you have included a visual.

- If it is purely **decorative** mark it as such.
 - If the image contains information repeated in adjacent text, you can likely mark it as decorative.
- If it is to add additional context, "Photo of Michael Jordan" in an article about Michael Jordan is useful alt text.
- However, if your image includes information, try writing your alt text as how you might describe the visual element to a friend over

the phone.

- If you include an image of a bird, the alt text should include the colour of its beak and feathers, whether it is perched or flying, or other activities and details shown in the image.
- If there is an image of Mount Fuji, effective alt text might be “A snow capped mountain with a flat top, surrounded by forest and farm land.”
 - However, including that image in an article about Mount Fuji you could likely use “Mount Fuji on a rainy day”

Alt text is *essential* to screen reader users to understand content.

But alt text has other benefits as well.

Benefits for students

- Includes all, regardless of access means
- Includes users with low bandwidth or inconsistent connection
- Allows users with content blockers to

understand images

- Provides context, purpose, and information of the image if an image does not load

Benefits for instructors

- Provides clues for moved or missing image source to be replaced
- Provides a built-in review of why you are including an image
 - Is it decorative? Does it contribute useful information? If not, is it necessary?

Common Platform Guides

How to add alt text to...



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Alt Text Decision Tree



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=48#h5p-73>

Further Reading

Tips for alt text by type of image from W3C Web Accessibility Initiative.

W3 Web Accessibility Initiative's alt text decision tree is useful for narrowing down what your alt text should convey.

WebAIM offers a comprehensive resource on alt text.

Diagram Center advanced alt text guidelines are helpful and has an e-book of alt text samples organized by graphic type. Additionally, Diagram Center's training tool helps to better understand how to write alt text.

Portland Community College has an excellent presentation on alt text for complex images.

Read more about alt text for data visualization.

7. Captions and Transcripts

In This Chapter:

1. Captions
 2. Platform Captioning Guides
 3. Creating Caption Files
 4. Transcripts
 5. Further Reading
-

Captions



Closed captions provide a text version of all audio elements in a video, presented visually in time with the video. Traditionally, we think of captions as an accommodation for viewers who cannot hear the audio in a video due to hearing loss. Statistics suggest 4-5% of the general population suffer some form of hearing loss. That number increases to around 20% for people over aged 60. However, 80% of 18 to 24-year-olds regularly use subtitles when watching video.

While captions are essential for many, they have many other benefits.

Benefits for students

- Includes all, regardless of access means
- Allows for better comprehension, understanding, and focus
- Helps understand unfamiliar names and terminology
- Assists with understanding accents different from the viewers' own
- Helps understanding for viewers with English (or other language in video) as an additional language
- Allows for watching in a loud environment or a shared space (library, shared office, living room, etc.) and/or without headphones
- Includes a viewer with an ear infection or pain
- Provides for user preference: ~80% of 18 to 24-year-olds regularly use captions when watching video

Benefits for instructors

- Allows for indexing and searching of video
- Improves **SEO**
- Assists in locating a specific term in a video and directing viewers to a **timestamp**
- Allows for easily locating specific topics and create video chapters
- Provides an easy method to convert a spoken presentation to text form
- Ensure names and terminology are communicated exactly as they are spelled

Best Practices



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Platform Captioning Guides

Kaltura



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Other Common Video Platforms



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=30#h5p-1>

Social Media



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here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=30#h5p-49>

Creating Caption Files

You can also use a text editor (like Notepad for Windows or TextEdit on MacOS) to create or edit .SRT files (.SRT and .VTT are the most common file formats for subtitles). Consider this guide for manually creating and editing .SRT files.

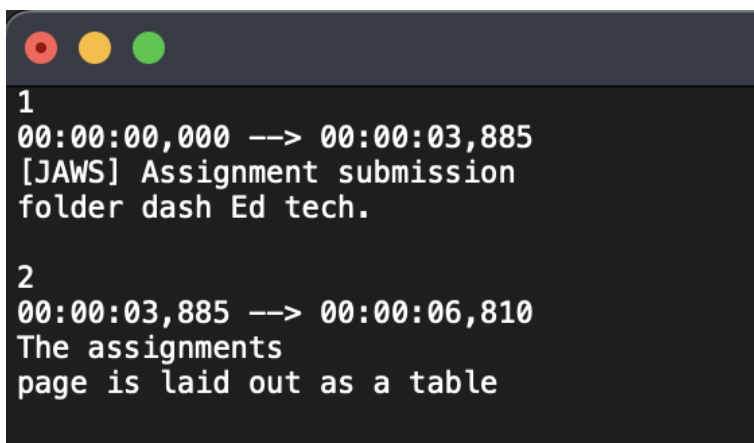
Creating .SRT and .VTT Files



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=30#h5p-62>

Here is an example of the proper formatting of an .SRT file in TextEdit:



Use HappyScribe's convert SRT to VTT tool or 3Play Media's caption converter tool if you need a different file format.

For instructions to upload caption files, consult the platform guides earlier in this chapter.

Transcripts

Transcripts are a text document containing all the audio content in media, including videos, podcasts, and audio recordings. Transcripts may also include additional information regarding visual elements and actions such as descriptions of what is on screen. Unlike captions, transcripts are not timestamped or synced with the media. A transcript is particularly useful to text-to-speech and screen reader users because many users set their software to read at a rate much faster than natural human speech. Transcripts can also be searched for words, names, and terminology.

Transcription Tools

Use Word to transcribe either by recording directly in Word or uploading an audio file.

Mac OS also supports dictation that could be used to develop a transcript.

Google Docs also allows dictation that could be used to write a transcript.

Further Reading

Toronto Metropolitan University's guide to captioning and description.

WebAIM guide to captions, transcripts, and audio descriptions.

Described and Captioned Media Program's guidelines and best practices for captioning educational video.

BBC Subtitle Guidelines (the most extensive resource for captioning guidelines on the web).

Google Chrome now offers live captioning on any video. This feature does not absolve content creators/providers from adding captions to video content, however, if encountering a video without captions on the wild web, this feature can be invaluable. This tool relies on the built-in captioning settings on your computer. To view or change these settings:

- Use subtitles and closed captioning on Mac
- Change Windows caption settings

8. Tools

Use built-in software and platform features to make your content accessible.

- Use built-in tools for tables, lists, links, and styles
- Use **templates**
- Use **accessibility checkers**
 - Office, Brightspace, and Acrobat Pro DC include automated accessibility checkers
 - Automated checkers will check for common issues but do not guarantee accessibility

By using the best practices and tools introduced in this guide, you create accessible content that allows for user choice.

9. User Choice

Allow users to consume content as they want. Whatever you create, assume readers will consume it in a different way than you do. That may mean on a phone, on a magnified screen, during their commute, or read aloud.

To ensure everyone can consume your content:

- Provide multiple formats



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1569#h5p-85>

- Ensure content is adaptive, **responsive**, and can reflow
 - Web content, **EPUB**, and Word are excellent
 - PDF is much more difficult

PART II

SOFTWARE GUIDES

Next, learn how to make accessible documents on different platforms.

10. Microsoft Office Accessibility

Microsoft Office includes built-in tools to assist you in making accessible documents.

In This Chapter

1. Function
 1. Write Plainly
 2. Tables
 2. Appearance
 1. Accessible Font
 2. Hyperlinks
 3. Structure
 1. Document Properties
 2. Document Structure
 3. Images and Graphics
 4. Lists
 4. Text Equivalents
 1. Alternative Text
 5. Tools to Avoid
 6. Accessibility Checker
 7. Sharing
 8. Further Reading
-

Write Plainly

Use the Editor tool to check **reading level**. Navigate to **Home > Editor** and select **Document Stats**. Aim for a Flesch-Kincaid score of 7-9.

Tables

Tables are useful for organizing data. Properly built and formatted tables are completely accessible.

In Word and PowerPoint, navigate to:

1. **Insert** tab
2. **Table**
3. **Insert Table**
4. Indicate number of columns and rows and press **Ok**
 1. You can add columns and rows later



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-24>

Accessible Font

For Word documents and Excel spreadsheets:

- Use sans-serif or simple serif font, size 11 or greater
 - Size 9 is acceptable for foot/endnotes or captions
- For PowerPoint, use font size 18 minimum
- Use an **accessible colour**
 - Font must have a contrast ratio of at least 4.5:1 against the background
- Left-align text
- Use built-in tools for spacing and alignment



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-22>

Hyperlinks

Create meaningful hyperlink text.

- Avoid vague instructions like “see” or “click here” or “read more”
 - Not only are those not helpful out of context, but self-describing links may help you locate your resource if the URL changes
- Do not paste URLs as **hyperlink** text
 - If URLs must be included, provide self-describing hyperlink text and format URLs as normal text with no link attached.

- Use default link styling (blue, underlined text)



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-29>

Document Properties

The document title is announced to assistive technology and is much more pleasant and informative than the file name (but allows you to retain your file naming conventions). Other fields are useful but not required.



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Document Structure

Providing **structure** to documents is essential for assistive technology, but help all readers navigate your documents efficiently and understand relationships between topics.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-92>

Microsoft guide to finding accessible templates for Office products.

Images and Graphics

Apart from adding effective **alt text** to images, there are a few additional considerations for visual elements in Office documents.



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Lists

Properly formatted lists organize information and makes your documents accessible.

- Use bullet lists for unorganized lists
 - Lists where the sequence is not important
-
1. Use numbered lists for items where sequence is important
 2. Such as steps in a process

To create a list:

1. On the **Home** tab

2. Select **Bullets, Numbering, or Multilevel List**
 1. The dropdowns accompanying each style offer more options and customization.
-

Alternative Text

Assistive technologies employ **alternative text** (alt text) attached to images to inform users of the context and purpose of images and visual elements. Alt text is a text alternative to non-text content to ensure all users can access information.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-90>

Review this Pressbooks' chapter on Alternative Text for more information.

Include **table** data for charts.

Ensure embedded media has text equivalents. Videos must have **closed captions** and audio must have a **transcript**.

Tools to Avoid

- Strikethrough
- Highlighting
- Dropcap
- Word Art, Smart Art, text effects
- Ungrouped related shapes
- Watermarks
- Symbols, except for the following safe characters:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-48>

Accessibility Checker

Use Office products' built-in **accessibility checker** to check for common issues. Note, these tools may not catch all possible accessibility issues.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-81>

In the Accessibility pane select **Keep accessibility checker running while I work** checkbox to see a realtime accessibility message in the bottom status bar. Click **Accessibility: Investigate** at anytime to open the Accessibility pane.

Like any automated tool, Office's accessibility checker will not catch any and all accessibility issues. Here is a summary of what it does look for and how well it catches those issues:

Element checked	Reliability of checker
Structure and use of heading styles	<p>Poor.</p> <p>Will show if there are no headings on a long document but doesn't flag issues on shorter documents. A single heading is enough to pass the checker even though the document remains inaccessible. It cannot test the logic of the heading structure.</p>
Colour	<p>Moderate.</p> <p>Can find poor colour contrast but cannot tell if colour has been used as a sole indicator for information.</p>
Use of images	<p>Moderate.</p> <p>Will find images that have neither Alt text, nor are marked as decorative as well as those where the Alt text is just the file name. But it cannot identify whether the Alt text is appropriate or even meaningful. It will find images that are not in line with the text. In-line images may not be as aesthetically pleasing but they are easier for screen readers to find.</p>
Links	<p>Poor.</p> <p>It does not check for link text.</p>
Plain English	<p>Poor.</p> <p>It does not check for this, but you can check yourself by switching on the readability stats as described in the section on Understandable Content.</p>
Tables	<p>Fair.</p> <p>It finds whether the table has the Header row marked. It may warn if tables have split or merged cells.</p>

Miscellaneous	Poor. Does not check text justification, videos for captions, or form labels.
---------------	--

This table is adapted from work originally developed by AHEAD and Alistair McNaught and is made available under a **CC BY-NC-SA** creative commons license.

Read more about checking for accessibility issues with the Office Accessibility Checker and learn about Office Accessibility Checker rules and messages.

Sharing

Best practice is to share material in advance of presentation or class.

- This allows users to check for barriers beforehand
- All users can take additional, in-depth notes and understand terminology and names with greater comprehension
- Users that experience barriers can zoom in or adjust the documents to their viewing preferences

Sharing a read only file is the most accessible way to share Office documents for reading.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-83>

You can share Word and PowerPoint files with various levels of permissions. There are additional options for protecting your Excel workbook, sheet, or part of your spreadsheet.

Export to PDF

You can very easily export Office documents to PDF. Keep in mind, extra work may be needed in Acrobat DC Pro to ensure the PDF is accessible. See this guide's PDF accessibility chapter for more information.



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1553#h5p-82>

Further Reading

Use this Word Accessibility quick guide (Word document, 49KB) as a reminder of Word's accessibility tools.

Refer to this PowerPoint quick guide (Word document, 43KB) for options and tools.

Use this Excel Accessibility quick guide (Word Document, 43KB) as a reminder of Excel's accessibility tools.

Microsoft outlines best practices to make documents accessible.

WebAIM guide to creating accessible documents in Word.

Contact assistivetech@langara.ca for further information or assistance.

11. Additional PowerPoint and Excel Features

More PowerPoint Features



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1873#h5p-93>



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1873#h5p-94>

More Excel Features



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1873#h5p-95>

12. Brightspace Accessibility

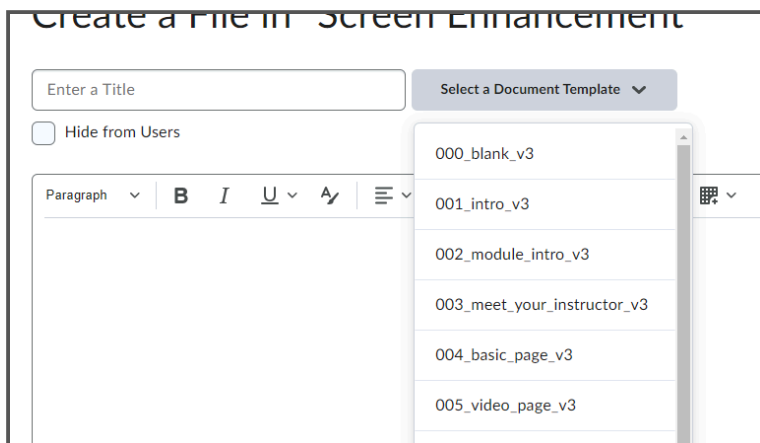
Starting with an accessible course design will help ensure an inclusive and equitable experience for all learners. The tips in this chapter will refer to Brightspace, but the concepts discussed apply to all online content.

In This Chapter:

1. Templates
2. Format Text
3. Headings
4. Alternative Text
5. Descriptive Hyperlinks
6. Lists
7. Tables
8. Uploaded Content
9. Accessibility Checker
10. Further Reader

Templates

Create great-looking, responsive, and accessible content topic pages using the page layouts provided in the **template** package. The layouts are designed to be edited using the HTML Editor in the Learning Environment.



Be consistent: use the introductory template for all introductory pages, the video page for videos, etc.

To access the templates, **Create a File** and then click on **Select a Document Template** menu next to the title text box.

Format Text

Use the built-in editor tools to change text. All font options are available on the Brightspace editor toolbar.

- Use a sans-serif font with a minimum size of 11
- Avoid excessive italics
- Left align text for languages that read left to right

Colour Contrast

- Aim for at least 4.5:1 for normal text (11-12 point) and 3:1 for large text (18 point +)

- Use the **Check Accessibility** tool:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=34#h5p-113>

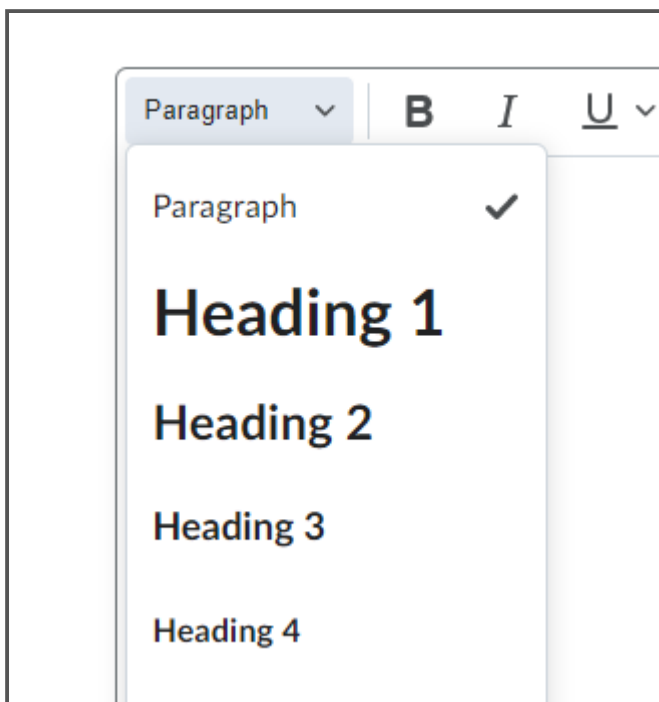
Do not use colour alone to convey meaning or emphasis. You may use coloured text to highlight content, but best practice would be to also bold the text and include an indication, such as “important” or “remember” in text form. Further, ensure charts and diagrams do not rely on colour alone to convey meaning or relationships, consider using different line shapes, symbols, and labels.

Headings

Headings allow learners to understand the logical structure of the page and navigate to different sections. Assistive technology can convey this structure to screen readers and speech-to-text software if the headings are properly formatted, not simply text with increased size or bold text.

Pages should begin with an H1, with H2s, H3s, etc. nested below. Headings must be in sequential order. Do not skip a heading level. Body or paragraph text may follow any heading level. (Note: If the heading levels are not in order, the Accessibility Checker will report **Heading order must be sequential.**)

The HTML editor offers tools to build proper heading hierarchies. Highlight text and choose the appropriate heading level.



Consider H1 as the title, H2 as section headings, H3 as sub-section headings, etc.

Alternative Text

Screen reader software can read descriptions of images to users. The **alt text** should convey the information and context of the image in a concise way.

When adding an image, you will be prompted to add alternative text:


Provide Alternative Text

Alternative Text

Provide alternative text for the image. This text should convey the same information as the image. If this image does not convey any information, select "this image is decorative".

Alternative Text:

☐ This image is decorative



Enter the image description in the "Alternative Text:" box. Images that do not convey information may be marked ("This image is decorative") as decorative and screen reader software will ignore the image.

If you have an existing image without alt text, **right-click** on the image and select **Image:**

Paragraph ▾ | **B** *I* U ▾ *A* | ▮ ▮ ▮ ▾ | ▮ ▮ ▮ ▾ | 🎧

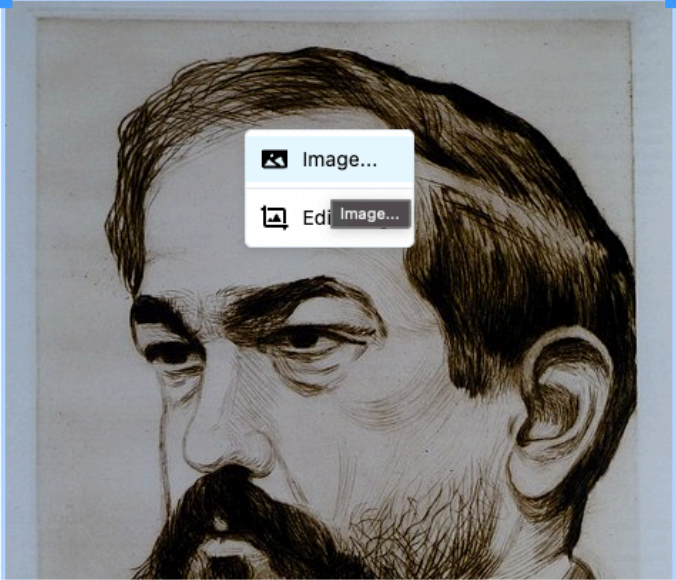
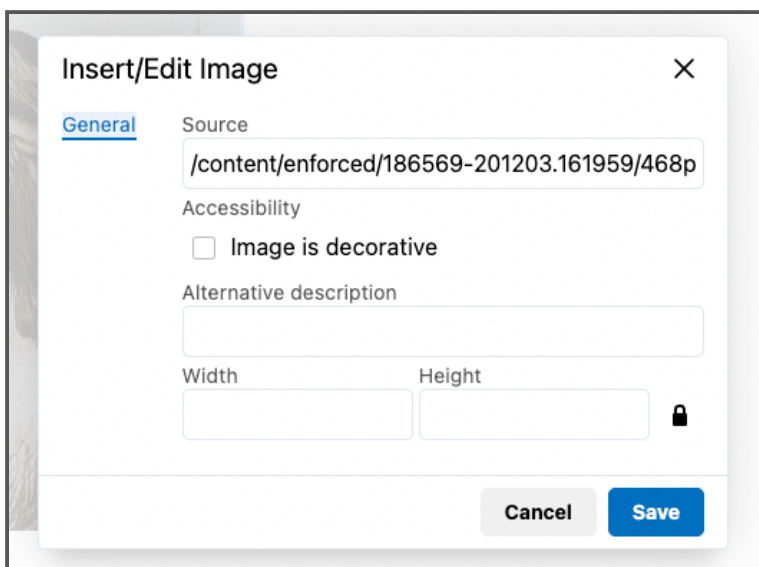


Image...
Edit Image...

/content/enforced/186569-201203.161959/ Change Path

Save and Close Save Cancel

Enter alt text in **Alternative description** field and click **Save**:



Insert/Edit Image ✕


General

Source

Accessibility

☐ Image is decorative

Alternative description

Width Height 

Cancel Save

The Accessibility Checker will display **"Images must have alternative text"** if alt text is not added. Alt text can also be added from inside the accessibility report panel.

Read more about alternative text.

Descriptive Hyperlinks

Self-describing links are useful for all learners. A good descriptive **hyperlink** tells the reader what the linked resource is, a reason to visit the page, and who hosts it.

- Hyperlink text should be unique and descriptive.
 - Do not rely on surrounding text to provide context.
- Do not paste URLs as text.
 - Read a URL aloud to yourself. Is it a pleasant experience? Assistive technology will read the full URL

aloud if present. Please avoid including the full URL. If you feel it must be included, considering using a link shortener like bitly

- Do not hyperlink phrases such as “click here,” “Link;,” “see,” or “click for details.”
 - Users know they must click on a hyperlink. Consider telling users where the link will take them and why they might want to go.
 - Assistive technology indicates links to users. Using “Link: example” will read as “Link link: example.”
- If multiple hyperlinks link to the same destination, make the link text the same.

Consider the accessibility of the resource you are linking to. Also, consider indicating that you are linking to a video or an interactive element.

Adding Hyperlinks in Brightspace

1. Highlight your descriptive text
2. **Right-click** and click select the link icon (looks like a small chain)
3. Or, press **Control (Command on macOS) and K**
4. Paste the URL in the dialog that appears

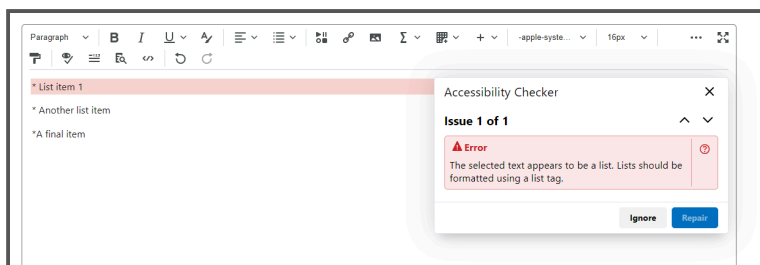
Additionally, you can insert a link via the format toolbar:

1. Choose the **Insert Quicklink** button and select **URL**.
2. Paste the URL in the appropriate field and add your descriptive text in the **Title** field
3. Select **Insert**

Tip: Apart from accessibility, good self-describing hyperlinks will allow you to re-locate the resource if the URL change.

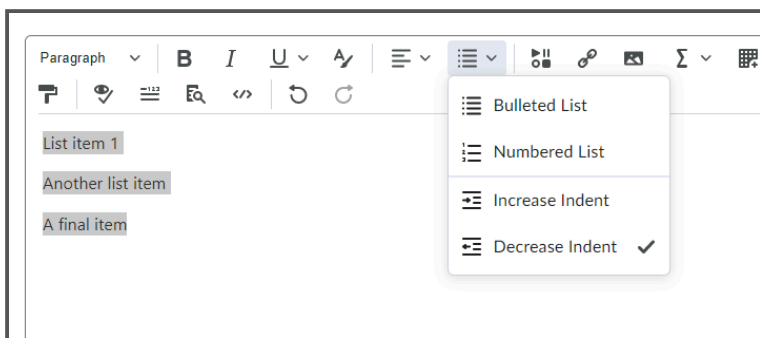
Lists

- Bulleted (unordered) lists should be used for a list of items with no emphasis on their order
- Numbered (ordered) lists should be used for items where sequential order is important, such as steps in a process
- Properly formatted lists organize your information effectively and communicate it to assistive technology users as you intended
- Do not manually insert symbols and use Tab to create indents. The **Accessibility Checker** may note improperly formatted lists



To make a properly formatted list:

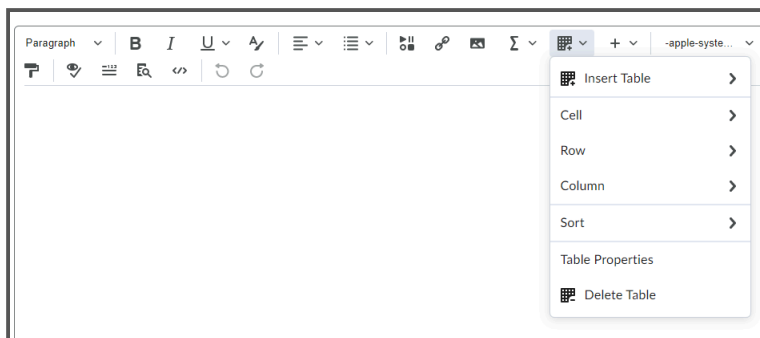
1. Select the content you wish to make into a list
2. Select the **List menu** button
3. Select **Bulleted List** or **Numbered List**



Tables

Properly formatted **tables** are accessible to text-to-speech and screen reader software.

Use the built-in tool to create a table.



Here are some common errors the Accessibility checker will flag in table formatting.

1. **Tables must have captions.**

How to fix: set a brief descriptive text to indicate the content of the table. The simplest way is via the Accessibility checker tool which will prompt for a caption. This will add <caption> to within the <table> element.

2. **Tables must have at least one header.**

How to fix: the simplest way is via the Accessibility checker tool which will prompt you to choose table header to “Header Row” or “Header Column”, which will change the selected data cells `<td>` to header cells `<th>`.

3. **Table headers must be associated with cells.**

How to fix: Set header scope to “Row” or “Column” for simple table header, which will add scope attribute (`<th scope="row">` or `<th scope="col">`) to associate header cells and data cells.

*If that all seems rather complicated, do not worry, the Brightspace accessibility checker will walk you through step-by-step to make tables accessible.

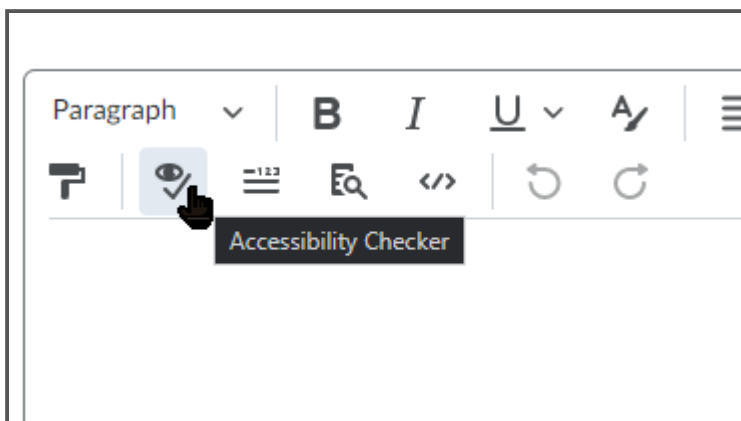
Uploaded Content

Included documents (Word, PDF, etc.) should be checked for accessibility.

Embedded or linked videos should be **captioned**.

Accessibility Checker

The check **accessibility tool** may catch common accessibility issues in your content and offer suggestions to help you fix the issues on the spot. The accessibility checker is available on the HTML editor toolbar in Brightspace.



To use the accessibility checker, follow the steps in this video:



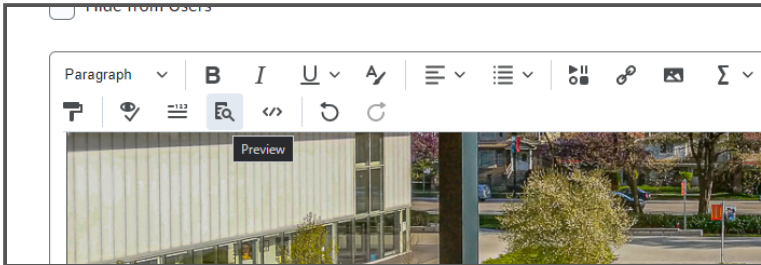
An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=34#h5p-61>

The accessibility checker tool checks for a number of issues. Below is a summary of what is checked and how well the Brightspace checker does in flagging issues:

Element checked	Reliability of checker
Structure and use of heading styles	Good. Recognizes text that has been formatted to appear as a header but is not tagged as such. Also flags headings out of sequential order. Recognizes lists created manually using symbols and suggests creating a semantic list.
Colour	Good. Can recognize contrast errors and offers easy methods to improve contrast. Cannot determine if colour is used as sole indication of importance.
Use of images	Moderate. Will find images that have neither Alt text, nor are marked as decorative as well as those where the Alt text is just the file name. But it cannot identify whether the Alt text is appropriate or even meaningful.
Links	Poor. It does not check for link text. Does not note adjacent links directed to the same URL.
Plain English	Poor. No readability statistics, only word, character, and paragraph counts.
Tables	Good. Notes lack of table caption. Asks for table summary on complex tables. Requires header cell(s). Does not flag merged or split cells as these are accessible in HTML.
Miscellaneous	Does not check text justification or media for captions.

The Preview tool will show you how the page will appear to students. Use this as a last step to ensure that on top of being accessible, your page appears as you want.



Further Reading

D2L article on using the Brightspace Accessibility Checker.
Meeting web content accessibility standards.
Accessible courses and course material.

13. WordPress and Pressbooks Accessibility

WordPress is one of the most common content management systems in use. Pressbooks is built on the WordPress platform, so many functions are the same. Langara's iWeb and CourseWeb use WordPress.

In This Chapter:

1. Themes
2. Best Practices
3. Headings
4. Links
5. Alt Text
6. Tables
7. Exporting Pressbooks
8. Further Reading

Themes

WordPress has thousands of themes. Some are free and many are paid. Regardless of what theme you use, it is easier to start with something accessible than fix an inaccessible theme.

You can filter WordPress themes for “Accessibility Ready.”

1. Click the **Feature Filter** button
2. Check **Accessibility Ready** checkbox
3. Click the **Apply Filters** button

This reduces the list of themes significantly, but using an “Accessibility Ready” theme does not guarantee accessible content.

Best Practices

Make content easy to read and navigate, by using:

- **Plain language**
- **Structured content**
 - Use **headings** and lists
- Default fonts
 - Standard font size is 16px, best expressed as [n]rem
- A simple font that has a contrast ratio of at least 4.5:1
 - Read more about contrast in the Accessible Colour chapter of this book

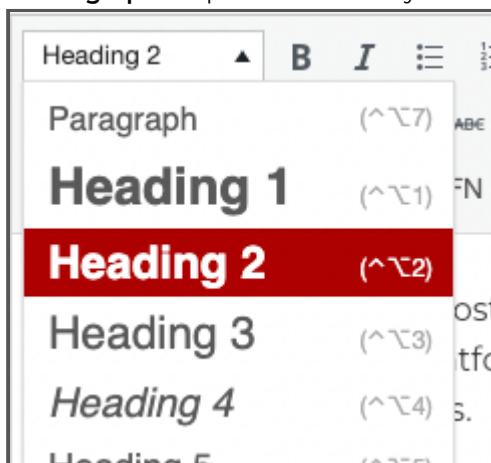
Avoid:

- Leetspeak, calculator spelling (i.e., 80t5 for bots), text emoticons (i.e., >:(), ASCII art (i.e., (^._.^)~)
 - All capitals
 - Excessive use of italics
 - Justified alignment
-

Headings

Headings provide structure for your page and the information it presents. Headings allow all users to skim and find what they need. Navigating a page by headings is essential for screen reader users to navigate the web.

To designate text as a heading, highlight your text and select the **Paragraph** dropdown to select your desired heading level.



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here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1267#h5p-97>

Links

To add a link, highlight text and use the **Insert/edit link** button or press **Control/Command** and **K** to insert a link.

Good **hyperlink** text should:

- Be descriptive, unique, and meaningful
 - Describe what a link is and why a reader would click on it
 - Avoid using “click here” “read more” “download” etc.
 - Maintain meaning when removed from surrounding text

Links should open in the same window by default. This helps assistive technology and mobile users. Visitors to your page can open links in a new tab if they choose. If a link opens in a new window or tab, include “(opens in a new window)” in the link text.

Avoid using URLs as hyperlink text. If you must provide the URL, include useful hyperlink text as outlined above and then include the URL as non-linked, regular text.

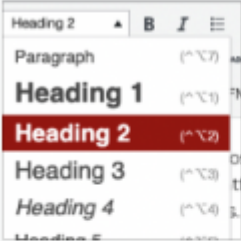
When linking to a file, indicate the file type either in context, such as “Download a PDF copy of this page”, or in parentheses at the end of the link text: “Download the report (Word document)”.

Alt Text

Include the **alt attribute** for all images. If there is no alt attribute, assistive technology will read the src attribute aloud. Mark decorative images with alt="" or leave alt text field blank in Media Library.

Enter an image description in the **Alt Text** field when uploading a new image:

ATTACHMENT DETAILS



Screen-Shot-2022-08-22-at-15.21.56.png

22 August 2022

45 KB

241 by 226 pixels

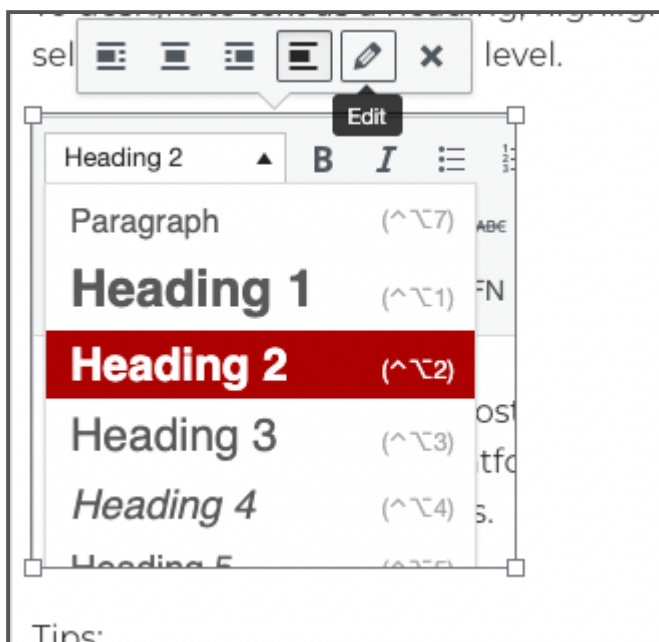
[Edit Image](#)

[Delete Permanently](#)

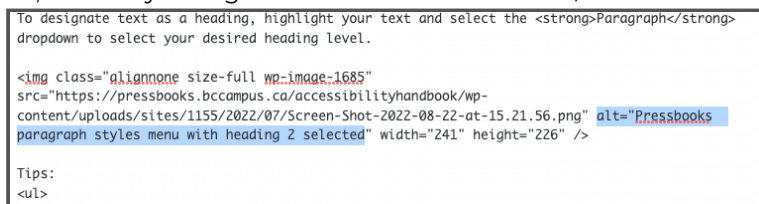
Alt Text

[Describe the purpose of the image.](#) Leave empty if the image is purely decorative.

Or, edit an existing image to add alt text:



Or, manually change the alt attribute in the Text/HTML editor:



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1267#h5p-98>

Refer to the Alternative Text chapter in this book for more information.

Tables

Insert **tables** using the **Table** tool on the editor toolbar.

1. Change table appearance via **Table > Table Properties**
2. Set cell type and scope via **Table > Cell Properties**
 1. Of particular importance is setting header cells
 2. Set header row via **Tables > Row> Table Row Properties**

Avoid merged and split cells. You may use them, but additional work is required to set scope.

Check function of table by placing cursor in A1 and pressing **Tab**. Ensure a logical **reading order** is followed.

Do not use an invisible table for alignment or layout.

Exporting Pressbooks

HTML is generally more accessible than a PDF. At the very least it is much more difficult to make a PDF accessible than it is HTML content. If you need to share a page as a PDF, make it accessible using Adobe Acrobat and the chapter on PDFs in this book.

Pressbooks offers many export options. To export your Pressbook:

1. Navigate to the **Dashboard**
2. Select **Export** from the sidebar
3. Check the relevant formats
 1. **PDF (for digital distribution)** will be the best place to start in creating an accessible PDF copy

2. **EPUB 3** is one of the most accessible and customizable formats, but requires software for users to read
 3. **PDF (for print)** should only be used explicitly for printing purposes as it will retain none of the coded structure in your Pressbook
 4. There are other formats you find useful:
 1. XML and XHTML
 2. Common Cartridge for importing your Pressbook into a Brightspace course
 3. OpenDocument
-

Further Reading

Learn more about Accessibility in WordPress.

Read about how to make your Pressbook accessible.

14. Accessible Video Meetings

Making a virtual meeting or presentation accessible is a simple process. Consider the following tools and best practices for Zoom and Teams.

In This Chapter:

1. Zoom
 1. Before Your Zoom Meeting
 2. During Your Zoom Meeting
 2. Teams
 1. Before Your Teams Meeting
 2. During Your Teams Meeting
 3. Accessible Screen Sharing
 4. After Your Meeting
-

Zoom

Before Your Zoom Meeting

Before your Zoom meeting, consider the following to ensure an accessible meeting:

1. Include all information in invitation

2. Share material in advance
3. Mute participants and/or mute on entry
4. Enable automatic **captions**

The following interactive is a guide to each of the above steps:



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here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1909#h5p-118>

During Your Zoom Meeting

During your meeting:

1. Make a plan and communicate to attendees
2. Mute all participants
3. Avoid virtual backgrounds
4. Consider accessible presentation tips
5. Use tools like co-host, multi-pin, and focus mode
6. Enable captions

The following interactive is a guide to each of the above steps:



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here:

[https://pressbooks.bccampus.ca/
accessibilityhandbook/?p=1909#h5p-119](https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1909#h5p-119)

Teams

Before Your Teams Meeting

1. Include useful information in the meeting invitation
2. Mute all participants
3. Share material in advance

The following interactive is a guide to each of the above steps:



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from this version of the text. You can view it online
here:*

[https://pressbooks.bccampus.ca/
accessibilityhandbook/?p=1909#h5p-125](https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1909#h5p-125)

During Your Teams Meeting

1. Make a plan, ask for input, and communicate with attendees
2. Mute all participants

3. Avoid complicated background filters
4. Use tools like Spotlight and Pin
5. Enable live **captions**

The following interactive is a guide to each of the above steps:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1909#h5p-126>

Accessible Screen Sharing Best Practices

Consider the following when sharing your screen:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1909#h5p-123>

Inclusive Presenting

To present inclusively, consider **integrated description**. Integrated description means effectively describing visual elements while presenting.

The most effective way to describe things is to be specific:

- Refer to size, position, or unique characteristics

- Say: “The bookshelf is about six feet high, and is 75% full of books.”
- Say: “I’m going to click on the close button in the top right of the window.”
- Reference slide number, figure label, etc.
- In addition to point to an image or question, refer to “the image of a horse in the top left” or “question number three”.
- Spell complex words out letter by letter. This will aid all participants with understanding and comprehension.
- Identify yourself and other speakers
 - Use your own comfort level, but consider introducing yourself and describing yourself.

Try to be concise and direct while including all relevant information.

After Your Meeting

After your meeting, share as much as possible.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=1909#h5p-122>

PART III

PDF ACCESSIBILITY

An accessible PDF is **tagged** with code that provides structure for assistive technology. PDFs can be crafted from scratch, but the most common method is to take an existing document or presentation and export it to PDF. You might find that making an accessible document or presentation is the best use of your time and share those versions instead of, or in addition to, a PDF.

15. Creating Accessible PDFs

PDFs are popular and useful but may not always be the best choice. A PDF can be time consuming to repair for accessibility. Consider providing Word or PowerPoint copies of material as well as PDF (most documents can have editing restricted). If linking to a PDF, indicate file type in the link text: "Syllabus 2021 (PDF)", for example.

In This Chapter:

1. Export to PDF
 2. Scanned PDFs
 3. Accessible PDFs
 4. Reading Order
 5. Check Accessibility
 6. Further Reading
-

Export to PDF

For the majority of PDF documents, you will be converting a Word or PowerPoint document. Refer to previous chapters for best practices to create accessible documents in those formats and ensure you properly export the file to PDF.



An interactive H5P element has been excluded from this version of the text. You can view it online

here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=37#h5p-45>

Scanned PDFs

PDFs are a common output format for scanned documents. A scanned document will be a flat PDF, essentially an image of text. That is not accessible. Adobe Acrobat Pro DC provides tools to fix this.

Consider looking for an existing accessible electronic version of your resource.



An interactive H5P element has been excluded from this version of the text. You can view it online

here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=37#h5p-44>

Accessible PDFs



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=37#h5p-111>

Acrobat **Accessibility Check**

Using Adobe's built-in tools will catch some accessibility issues in your document. Completing this step will save you from having to do extra work later.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=37#h5p-99>

Fixing Common Accessibility Issues



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here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=37#h5p-46>

Remediating PDFs can be difficult and time-consuming. Some people do this work full-time and still encounter

difficulty. Please contact assistivetech@langara.ca for more information about remediating PDFs.

Reading Order

One of the most important elements requiring manual checking is the **reading order** of your document. Adobe documentation suggests using the Reading Order pane and Reading Order Panel. We recommend against this practice because this method contributes to what some call the “Z order problem.” When re-ordering content in Acrobat using the Reading Order pane, some content may “disappear” (YouTube opens in new tab).

To solve this issue:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=37#h5p-101>

Reading Order determines the order of items when the document is reflowed, such as when zoomed or viewed on a mobile device. Changing the reading order may affect the content hierarchy and tags order. Any changes to reading order must be checked in content and tags panes.

The **Content** pane is a hierarchical view of the items within a PDF. Changing the order of content will alter the visual appearance of the document.

The **Tags** tree determines the reading order for assistive technology, such as text-to-speech engines and screen readers. Changing the order of tags does not alter visual appearance of document.

This is a unique issue to the PDF file format.

Check Accessibility

After you remediate your PDF, run the **Accessibility Check** tool again.

1. Select **Tools**
 1. **Accessibility > Accessibility Check** or **Full Check**
 2. Right click on various errors for explanation and tips for fixing the error.
2. Read Out Loud will give an idea of how a screen reader or text-to-speech software will read your document
 1. Select **View > Read Out Loud > Activate Read Out Loud**
3. Select **View > Zoom > Reflow**
 1. As you zoom in, content should reflow into a vertical column with no need for horizontal scrolling

Further Reading

CreativePro's 10 steps to accessible PDFs.

Adobe guide to making accessible PDFs in Acrobat Pro.

Adobe guide to Acrobat Pro Accessibility Check.

List of Adobe Acrobat DC accessibility training guides.

Adobe guide to OCR and editing scanned PDFs.

Microsoft guide to exporting documents to PDF.

Microsoft video guides to PDF accessibility.

Web Accessibility in Mind Guide to PDF Accessibility.

George Brown College in-depth videos of Adobe accessibility.

16. PDF Forms

In This Chapter:

1. Best Practices
 2. Acrobat Prepare Form
 3. Initial Accessibility Checks
 4. Automated Accessibility Check
 5. Javascript
-

Best Practices

1. Ensure form has clear instructions
2. Create visual labels for all fields, place labels adjacent to corresponding fields
 1. Ensure labels are meaningful and clear
3. Use tooltips
4. Include meaningful group labels where appropriate
5. Indicate required fields and field constraints (such as specific date format)
6. Provide help and hints where appropriate

How to create a PDF form in Acrobat

For additional information, consider WebAIM's guide to form tags.

Acrobat Prepare Form

Create form layout in Word or InDesign and export as an accessible PDF document. Open in Acrobat Pro DC.

1. Select **Tools** tab and find the Forms & Signatures section
2. Select **Prepare Form** tool and click **Add** or **Add Shortcut**
3. The **Prepare Form** tool will appear in the right side tools pane



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=730#h5p-106>

Initial Accessibility Checks

To assess the accessibility and usability of your form, check:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=730#h5p-102>

You can add a single form field if you discover one missing during your checks:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=730#h5p-103>

Automated Accessibility Check

1. Select **Tools**
 1. **Accessibility > Accessibility Check** or **Full Check**
 2. Right click on various errors for explanation and tips for fixing the error.
2. Read Out Loud will give an idea of how a screen reader or text-to-speech software will read your document
 1. Select **View > Read Out Loud > Activate Read Out Loud**
3. Select **View > Zoom > Reflow**
 1. As you zoom in, content should reflow into a vertical column with no need for horizontal scrolling

Tab through your form once more to be sure.

Javascript

You can add Javascript to PDF. This may prove useful for certain forms.

To create fillable text fields that include existing lines for printing and filling by hand, use one of the following methods to ensure accurate text entry:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=730#h5p-104>

You may also wish to include a clear fields button:



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[https://pressbooks.bccampus.ca/
accessibilityhandbook/?p=730#h5p-105](https://pressbooks.bccampus.ca/accessibilityhandbook/?p=730#h5p-105)

17. Advanced PDF

Ensure you have Acrobat Pro DC, Acrobat Reader lacks the features necessary to make PDFs accessible.

In This Chapter:

1. Manual Tags
 2. Types of Tags
 1. Artifacts
 2. Tables
-

Manual Tags



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=722#h5p-108>

Types of Tags



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=722#h5p-107>

Artifacts

If you want screen readers to ignore certain content, such as decorative images, you must mark those items as **Artifacts**.

To mark objects as an artifact:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=722#h5p-109>

Tables



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=722#h5p-110>

PART IV

ADVANCED GUIDES

18. Other Document Suites

If you are using a document suite other than Office, find information for common platforms below.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=528#h5p-39>

19. STEM Accessibility

Math and science can be complex for many learners regardless of ability or experience. If that content is not accessible, many learners may be left behind.

In This Chapter:

1. Using EquatIO
2. STEM in Brightspace
3. Math in Word Documents
4. Math on the Web
5. More Tools
6. Links and Further Reading

Creating accessible math and science content is easy using tools such as Equatio, Brightspace, and Office. We will examine the details below, but first let's consider some best practices.

Present information in multiple ways:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-77>

EquatIO

Langara has a site license for EquatIO, which means faculty, students, and staff can log in with their Office365 email and use all features of EquatIO. EquatIO is very intuitive and easy to

use. Anywhere you can input text, you can use EquatIO to write math, and anywhere you encounter math, you can use EquatIO to read and copy math. EquatIO handles multiple inputs and outputs including plain text, LaTeX, MathML, and images. EquatIO also has chemistry and graphing tools.

The following is an overview of Equatio for Google Chrome. Equatio is also available as a desktop application (Windows, macOS), mobile (m.equat.io), and web portal (equatio.texthelp.com).



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-68>



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-37>

STEM in Brightspace

There are a number of ways to embed math and science content in Brightspace pages.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-69>

Math in Word Documents

Microsoft Word includes an equation tool that can create accessible formulas and equations.



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-38>

Microsoft Word Online includes an equation editor but does not allow for full accessibility. Create and finalize your documents in Word desktop (Windows or Mac).

Additionally, you can use **EquatIO's** desktop version to insert math into a Word document.

PDF

If you intend to distribute material in PDF format, ensure the PDF is verified for accessibility. However, passing automated accessibility checks rarely ensures complete accessibility of PDFs, especially a document containing math. Best practice would be to create a Word document and export it to PDF, retaining the Word document as a template for future changes and exports. You could also distribute the Word document to those who need it, or best practice would be to distribute both formats to students, allowing them the choice based on preference or need.

Math on the Web



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-70>



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-76>

Consider these sources on MathML:

W3C overview of MathML.

Mozilla Developer Networks explains how to write MathML.

How to Make Math Accessible on the Web (TextHelp).

MathJax organization.

More Tools



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=32#h5p-31>

Links and Further Reading

[Accessible Periodic Table of the Elements](#)

[Independence Science Periodic Table of the Elements](#)

[NIST Digital Library of Mathematical Functions](#)

[Chemistry add-in for Microsoft Word](#)

20. Social Media Accessibility

Social media is a dominant force in online life. By following these easy steps, you can ensure your posts are accessible and inclusive.

In This Chapter:

1. Social Media Best Practices
2. Common Platform Instructions

Social Media Best Practices



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=386#h5p-27>

Common Platform Instructions



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=386#h5p-28>

Visit [Accessible-social.com](https://accessible-social.com) for common social media accessibility best practices and additional resources.

21. Accessible Web Content

Web accessibility best practices focus on removing barriers and providing equal access to information and web content. Barriers may be visual, motor, auditory, or cognitive. Web design significantly impacts users' experience and using proper formatting and tools allows all users to access your web content. The principles outlined here are essential for some users, but benefit all including those using mobile devices, different browsers or operating systems, or older hardware.

In This Chapter:

- POUR
 - Easy Accessibility Checks
 - Accessibility and Design
 - Tools and Links
-

POUR

The best practice for web accessibility is to follow the POUR principles. Web content should be **Perceivable**, **Operable**, **Understandable**, and **Robust**.



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=925#h5p-78>

Easy Accessibility Checks

Review your web content and consider the following questions:



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<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=925#h5p-53>

Accessibility and Design

Most web accessibility features are invisible and will not interrupt design choices:

- **Alt text** is hidden in code, read only to screen readers
- Form labels are expressed in visible text regardless and made accessible with `<label>`
- **Heading** tags `<H1>` are code to provide structure
 - Modify CSS to change style.
- **Tables:** `<th>` `<tr>` `<td>` are coded within the table and do not change appearance
- Lists: `` `` `` `<dd>` are code to organize lists, but appearance can be modified with CSS
- Language and viewport attributes are part of your HTML document

- You can set a different language for part of your page:
`Hola. Me llamo Pablo`. This has no effect on styling
 - Making your page keyboard accessible changes nothing about appearance or design
 - **Closed captions, transcripts, and audio descriptions** are a user choice
-

Tools and Links

Checklists

The Web Accessibility Checklist is extremely useful for initial auditing.

The A11y project provides an interactive checklist to check web accessibility.

Intopia's Accessibility Not-Checklist is an excellent, approachable resource.

Tools

W3C WCAG reference.

Lighthouse (Chrome DevTools) testing tool.

Understanding Lighthouse error messages.

Firefox Accessibility Inspector.

WAVE by WebAIM testing tool extension.



An interactive H5P element has been excluded from this version of the text. You can view it online

here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=925#h5p-80>

WebAIM WCAG Checklist.

Additional Accessibility Considerations



An interactive H5P element has been excluded from this version of the text. You can view it online

here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=925#h5p-36>

22. Making Email Accessible

Email is one of the most common forms of communication and crafting accessible emails is simple. The specific instructions below will refer to Outlook; however, the principles are the same regardless of email client.



An interactive H5P element has been excluded from this version of the text. You can view it online

here:

<https://pressbooks.bccampus.ca/accessibilityhandbook/?p=92#h5p-15>

Further Reading

Consider the Microsoft guide to Outlook accessibility. The website should responsively display information based on your device, but you can also switch tabs (Windows, Web, MacOS, iOS, Android) to see specifics for your device.

23. Descriptive Audio

Descriptive audio presents an audio description of visual narrative and elements in video. This ensures viewers who cannot see the visuals displayed can still understand context and information.

In This Chapter:

1. Described Video
 2. Inclusive Presenting
 3. Further Reading
-

Described Video

Described video includes a secondary audio track synchronized with a video or presentation that provides descriptions of what is happening on-screen. Often included are descriptions of surroundings, speakers' appearance, body language, and any other non-audio information. The description is added during pauses in dialogue. Some web video players allow for an additional track, however it is not common. At this time, described video is rare and not legally required.

Some principles of described video:

- Describe what is on screen
- Prioritize essential information
- Do not explain or elaborate, focus only on description
- Do not interpret, add opinion, censor, or summarize

- Use the present tense
 - Remain consistent with names of speakers and places
-

Inclusive Presenting

Many web video players do not allow for additional audio tracks as descriptive audio is not yet required by law. However, the principles of describing visual elements can create a more inclusive environment while presenting. To incorporate those principles, consider the idea of **integrated description**. Integrated description means effectively describing visual elements while presenting.

The most effective way to describe things is to be specific:

- Refer to size, position, or unique characteristics
 - Say: “The bookshelf is about six feet high, and is 75% full of books.”
 - Say: “I’m going to click on the close button in the top right of the window.”
 - Reference slide number, figure label, etc.
 - In addition to point to an image or question, refer to “the image of a horse in the top left” or “question number three”.
- Spell complex words out letter by letter. This will aid all participants with understanding and comprehension.
- Identify yourself and other speakers
 - Use your own comfort level, but consider introducing yourself and describing yourself.

Try to be concise and direct while including all relevant information.

Further Reading

Consider AMI guides to described video for advanced techniques.

W3 provides a brief guide to integrated description.

Deque's blog on accessible speaking best practices covers presenting more broadly.

24. ePub

EPUB documents give extraordinary control and customization options to readers.

EPUB documents allow readers to:

- Change background colour
- Change font style and size
- Add bookmarks and highlights
- Pick up where they left off
- Change spacing and alignment

EPUB documents automatically **reflow**, so when a reader zooms in (or reads a document on a small screen) there is no need for horizontal scrolling. Making a PDF reflow is possible but requires a lot of additional work.

EPUB documents can contain multimedia, such as audio and video files and interactive elements like links.

EPUBs are very secure. EPUB is a format for distributing a final version. EPUBs are not meant for documents that will be changed by another party; they are for consumption only. When applicable, prefer EPUBs over PDFs.

The simplest way to make an EPUB file is to export a Word document using WordToEPUB from The DAISY Consortium.

Readers

Google Play Books

Apple Books

Thorium Reader (desktop)

25. InDesign

Creating accessible InDesign documents is simple enough and will save a lot of work when exporting InDesign documents to PDF.

In This Chapter:

1. Metadata
2. Headings
3. Text Frames
4. Lists
5. Tables
6. Images
7. Links
8. Anchors
9. Table of Contents
10. Forms
11. Reading Order
12. Master Pages
13. Export
14. Import
15. Tools

Metadata

Add metadata to documents by navigating to **File > Info** and add a document title and language. Metadata helps assistive technology announce content to users and know what

language to expect. Other metadata will help you and others in searching for files.

Headings and Paragraph Styles

To create accessible **headings** in InDesign:

1. Under the **Type** menu, open the **Paragraph Styles** panel
 2. Select **New Style**
 3. Double click on the newly created style to open the **Style Editor**
 4. Assign a name under **General > Style Name**
 1. Best practice would be to name it H1, H2, etc. as appropriate
 5. Modify the style's visual appearance (font, font size, etc.)
 6. In the **Export Tagging** category, move to **PDF Tag selector** and choose H1, H2, etc. as appropriate
 7. Select heading text in the document and choose newly created style in **Paragraph Styles** panel
 8. Repeat process for different heading levels and paragraph text
-

Text Frames

For text columns or text divided by other document elements, link text frames together for proper flow of text. To create columns:

1. Create text frames

2. Click on the small red plus icon near the lower right corner of the frame
 3. Select next text frame to be linked
-

Lists

- Use built in list tools
 - Use bulleted lists when the order is not important. Use numbered lists when the order is important, such as in steps to a process
 - Do not manually create lists
-

Tables

1. Create **Tables** via **Table > Create Table**
 2. Designate header rows
 1. Tables created in InDesign will need additional work to ensure accessibility if exported to another format, such as PDF
-

Images

Anchor Images

Anchor Images in their specific place within the document:

1. Click and hold on the blue square in the upper right area of the image container
2. Drag the image to its place in the document where you want the alt text to be read Remember to consider reading order of the image's alt text relative to the surrounding text
3. Release the mouse button and the blue square becomes a blue anchor icon

Add Alt Text

Within InDesign consider “object export options” to be synonymous with “**alt text**” in other platforms.

1. Select the image container and navigate to **Object** > **Object Export Options** or Right-click the container (not the image itself) and select **Object Export Options**
 1. Choose the **Alt Text** tab, select **Custom** and type in alt text
 2. Move to the **Tagged PDF** tab
 1. Select **Apply Tag** and choose **From Structure**
 2. Under **Actual Text Source** select **Custom**
 3. Type in alt text description in the text field

To mark an image as **decorative**:

1. Select the image container and navigate to **Object** > **Object Export Options** or Right-click the container (not the image itself) and select **Object Export Options**
2. Move to the **Tagged PDF** tab, **Apply Tag** and choose **Artifact**

Images of Text

For an image, such as a logo or decorative lettering, it may be better to use InDesign's actual text feature, rather than alt text.

1. Right-click on the object and select **Object Export Options**
 2. Select **Tagged PDF** tab
 3. Choose **Custom** from **Actual Text Source** menu
 4. Type the text included in the image
 5. Click **Done**
-

Links

1. Highlight text to be **linked**
 2. Right-click and select **Hyperlinks > New Hyperlink**
 3. Choose **Link to web URLs** to create a link to a webpage
 4. Choose **Link to Text Anchors** to create a link to a place within your document
 1. Select the appropriate anchor from the list
-

Anchors

To create a link to somewhere else in the document, use anchors:

1. Navigate to **Window > Interactive > Hyperlinks**
2. Select the text to be used as an anchor
3. In the **Hyperlink** panel and select **Option**

4. Choose **New Hyperlink Destination**
 5. Add a descriptive name
 6. To link to anchor:
 1. Select text to be link
 2. Right-click and choose **Hyperlinks > New Hyperlink**
 3. Choose **Link to Text anchor** and choose anchor from drop down list
-

Table of Contents

1. Select **Layout > Table of Contents**
2. Add a title
3. Designate paragraph styles in **Other Styles** box and use **Add** button to move them to **Styles in Table of Contents** column
4. Select **Create PDF Bookmarks** checkbox
5. Select **Make text anchor in source paragraph** checkbox to allow you to create links within the document to headings, in addition to the links generated in the table of contents

Read more about InDesign Table of Contents.

Forms

Creating form fields in InDesign will make exporting to PDF easier.

To create a form:

1. Use the **Frame Tool** to draw a frame the size of the form

field

2. Go to **Window > Interactive**
3. Select **Buttons and Forms** to open the **Buttons and Forms** panel
4. With the newly drawn frame selected, choose type of form field from **Type** menu in **Buttons and Forms** panel
5. In the dialogue that opens, the **Description** field will become the tooltip (necessary for accessibility) when exported to PDF
6. Select **Ok**

Form fields created this way will be automatically tagged in PDF format.

Reading Order

Layers

InDesign files will likely include at least three layers: Text, images, and background.

To ensure logical **reading order**:

1. Navigate to **Window > Layers**
2. Re-order text layers to read from bottom to top of the Layers list
 1. What is to be read first visually should be on the bottom of the list. What is to be read last should be at the top of the list.

Articles

To ensure logical reading order:

1. Navigate to **Window > Articles**
 2. The **Article Panel** will open, blank
 3. Open the more menu and select **Use for Tagging Order in Tagged PDF**
 4. Click and drag the first item to the **Article Panel** and provide a name for the article when prompted
 5. Click and drag each item on the page to the **Article Panel** in the order it is to be read
 1. The order of items in the **Article Panel** indicates the reading order for assistive technology and items in the panel can be dragged and dropped to reorder
 6. Repeat for each page of the document
-

Master Pages

Master pages can be used as a **template** when creating InDesign documents. To use Master pages, select **New Master** from the Pages panel. Select **Override All Master Page Items** before creating articles and exporting to PDF.

Export

To export to PDF:

1. Navigate to **File > Export**

2. Choose **Adobe PDF (Interactive)**
3. Click **Save**
4. On the **General** tab, select:
 1. **Create Tagged PDF**
 2. **Use Structure for Tab Order**
 3. **Forms and Media: Include All**
 4. **Embed Page Thumbnails**
5. Select **Export**
6. Open PDF in Acrobat Pro to verify accessibility

To export to **EPUB**:

1. Navigate to **File > Export**
 2. Choose **EPUB (Reflowable)**.
 3. Click **Save**
 1. Add a title to **Metadata**
 2. Under **Object** settings choose CSS Size option of **Relative to Text Flow**
-

Import

If you are importing a Word document into InDesign, only the document's text will be imported.

A properly formatted Word document with heading styles can be imported into InDesign and retain the heading structure (H1, H2, etc.)

1. Navigate to **File > Place**
2. Under **Format** choose **Customize Style Import**
3. Select **Style Mapping**
 1. If you do not have any existing styles you will need to

- map the imported styles to heading tags in InDesign
2. If your InDesign document already has existing styles, match the import equivalents to the styles from the drop down list
 3. Click **Ok**
 4. Click **Ok**
 5. Click in the document to place the imported text
-

Tools

MadeToTag is an InDesign plug-in that adds tools to create InDesign documents for export as accessible PDFs. Read MadeToTag's seven steps to making tagged PDFs in InDesign.

Consider the Government of Minnesota guide to accessible InDesign documents.

Download this chapter as an InDesign quick guide (Word Document, 22KB).

Glossary

accessibility checkers

Automated tools built-in to many platforms that check for common accessibility issues. Are not be considered a guarantee of accessibility.

Accomodation

A reactive adjustment to a resource or activity to make it accessible to a person with a disability.

Alternative Text

Alternative text is a text equivalent of graphics in a document or webpage. Alternative text is coded to be hidden visually, but read to a screen reader user.

ARIA

Accessible Rich Internet Applications are roles and attributes that can make Javascript widgets, error messages, and live content more accessible.

Audio Description

Additional audio added to a video that describes important visual details that are not conveyed by the main audio alone.

Camel Case

Capitalization of the first letter of each word in multi-word hashtags. Without Camel Case, hashtags will be read aloud as one long, unintelligible word.

Also known as CamelCase, Pascal Case, or Title Case

CCTV Magnifier

Closed Circuit TV (CCTV) magnifiers are cameras used to magnify documents or books on a monitor.

Closed captions

A text equivalent of audio content in a video, displayed synchronously. Closed captions are toggled on or off by viewers, as opposed to open captions that are burned into the video and always displayed.

Colour contrast

Colour contrast is the difference in saturation, brightness, and pigment of different elements relative to one another. A contrast ratio of at least 4.5:1 between text and background is required by common accessibility standards.

Contrast ratio

The contrast ratio between the font colour and the background colour. Accessible contrast should be at least 4.5:1.

Decorative image

An image that does not contain unique information or is used for visual appeal only. Decorative images must be marked as decorative or use alt=""

DOM

The Document Object Module (DOM) represents the hierarchical, logical structure of a document/web page.

EPUB

Most common ebook file format. A very customizable and accessible format.

FAST

Function

Appearance

Structure

Text Equivalents

Flattened Copy

A digital object that has been "flattened" into a single layer when exported. A scanned document or a PDF created using "Print to PDF" (or similar) will be a flat image without recognizable text or digital document structure. A flat copy may visually appear as a document, but be completely inaccessible.

Focus

On a webpage, a control or content item that can receive focus by a mouse, keyboard, or screen reader. Typically links, buttons, forms, and menus are focusable.

Focus indicator

A visual indicator of what element on a page is currently focused. This assists users to know where they are on a page and to select menus, links, and buttons with a keyboard.

Focus order

The order in which interactive elements on a page are focused. Focus order should follow a logical pattern that aligns with visual layout.

Functional Accessibility

When something does not meet accessibility standards but is still useable by users of assistive technology.

Headings

Headings are text used to organize a document. Headings are section and subsection titles used to logically separate content, build and show relationships between ideas, and explain the development of concepts. Headings must be hierarchical, not skip a level, and be semantically programmed, not merely cosmetic.

Hyperlink

Linked text to another document or part of document that the user can follow by selecting. Effective hyperlink text should make sense independent of the content around it.

Keyboard trap

When a user cannot navigate away from an interactive element using their keyboard alone.

Label

In HTML, the label element acts a caption for input fields, indicating what a control (form field, check box, radio button, etc.) relates to.

MathML

XML format used to add math to HTML.

OCR

Optical Character Recognition (OCR) is software which converts printed material or images of text into

recognizable digital text. Scanned PDFs require OCR processes to be accessible. Adobe Acrobat includes builtin OCR technology, but other assistive technology software also employ OCR.

PDF

Portable Document Format. Often inaccessible and difficult to edit.

plain language

Plain language is communication your audience can understand the first time they read or hear it.

Reading order

The order in which a screen reader reads content on a page. This should match visual order. Reading order also refers to how a PDF will reflow when zoomed.

Responsive Design

Responsive content automatically adapts to the size of the user's display (phone, laptop, tablet, etc.)

Screen reader

Assistive technology software that reads content aloud and helps blind and low vision users navigate and interact with their computers.

Semantic markup

The use of code (HTML attributes, PDF tags, XML, etc.) to distinguish content by meaning, not appearance. For example, a `<h1>` heading tag creates both a visual and coded navigation waypoint where as increasing the font size and bolding simply makes regular text appear larger.

SEO

Search engine optimization. The process of improve quantity of web traffic coming from search engines.

Skip to main content

Often hidden links accessible by keyboard navigation that assist users to skip over repeated parts of webpages or to different parts of a webpage, such as search or navigation region.

Tables

Information presented in a grid format of rows and columns, generally to show a relationship between sets of set

Tag (PDF)

A tagged PDF includes semantic information and structure to create an accessible document. This is done by adding tags to the document in Adobe Acrobat.

templates

Preset document or file format, used for consistency without having to recreate each time

timestamp

Specific time in video, often expressed as hh:mm:ss

Transcripts

Transcription is the process of converting audio into written text. A transcript is a written record of all audio in media. Captions are synced to the content.

Universal Design

Design of content, software, facilities, and services so that they are useable, without accommodation, by the largest scope of users.

W3C

The World Wide Web Consortium sets web technology standards.

WCAG

Web Content Accessibility Guidelines are maintained by W3C and set the minimum standards for web accessibility.