**EESC 121 Earth History: Fossil Identification Flowchart**

**COLONIAL**

- Large openings (>1mm)
  - **Phylum Cnidaria.** Colonial corals (Tabulate or Scleractinian)

- Microscopic openings or very small openings
  - **Phylum Bryozoa**

- Long narrow, or interconnecting colonies with very small cavities. Usually preserved as thin carbonaceous films in black shale.
  - **Phylum Hemichordata, Class Graptolithina**

- No visible divisions. Irregular mass (or with slight radial symmetry) with spicules or lines of spicules visible. Spicules are a tiny spike shape on the surface
  - **Phylum Porifera**

**SOLITARY** (Non-colonial)

- Bilateral symmetry
  - Tri-lobed, chitin covered
    - **Phylum Arthropoda, Class Trilobita**
  - Bivalved
    - Valves similar
      - **Phylum Mollusca, Class Bivalvia**
    - Valves dissimilar
      - **Phylum Brachiopoda**
  - Planispiral coil, chambered
    - **Phylum Mollusca, Class Cephalopoda, Sub-class Nautiloidea or Ammonoidea. (If Ammonoidea, is it a goniatite, ceratite or ammonite?)**
    - **Phylum Cnidaria.** Solitary coral (Rugose)
    - **Phylum Echinodermata, Class Echinoida**

- Radial symmetry
  - Pentameral symmetry (5 sided)
    - Rosebud shape; stem attachments or fragments; body cavity covered by calcareous plates
      - **Phylum Echinodermata, Class Blastoidea**
    - Stem-like shape, column of stacked discs
      - **Phylum Echinodermata, Class Crinoidea**
    - Cup or horn-shaped
      - **Phylum Cnidaria.** Solitary coral (Rugose)
  - Cone-shaped coil or un-chambered
    - **Phylum Mollusca, Class Gastropoda**