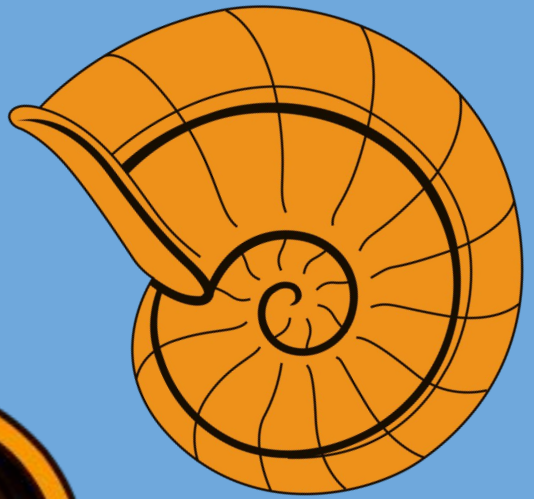
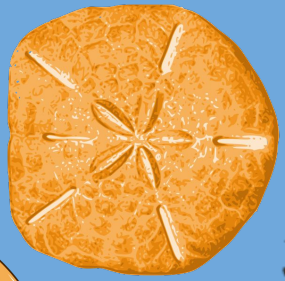
Splash Spring 2025

Spineless Wonders:

Intro to Invertebrate Paleontology





What is an invertebrate?

- Any organism without a spine
- 95% of living species are invertebrates!

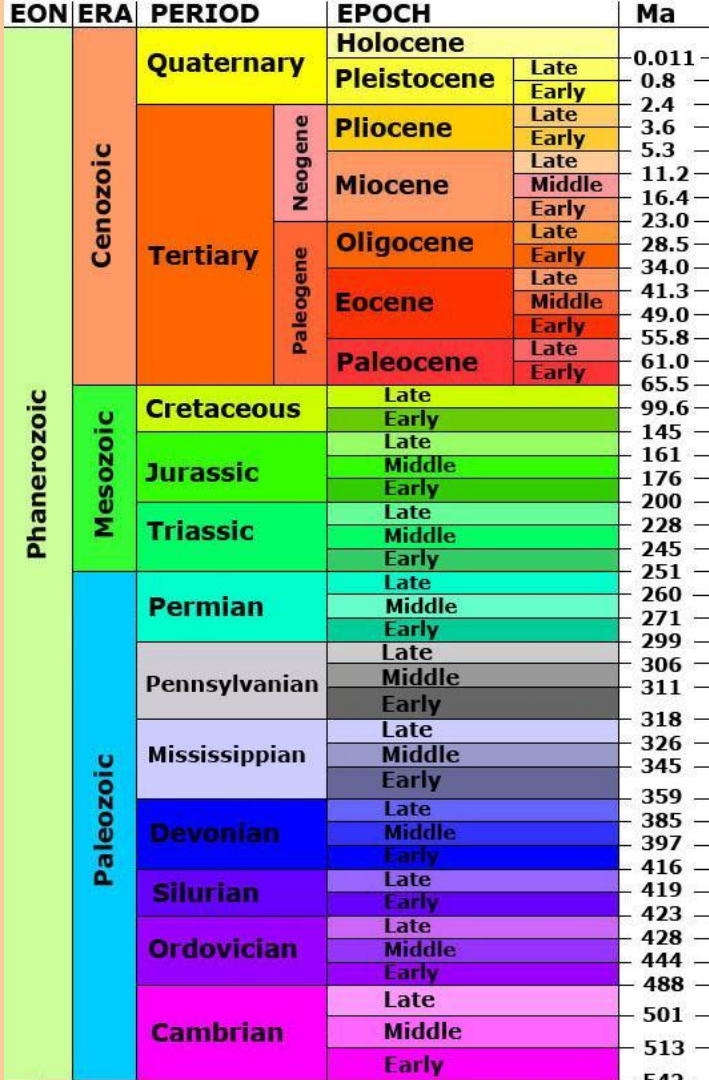
Does anyone know what a majority of animal life on Earth is?

- 85% of living species are Arthropoda - insects, spiders, and crustaceans

What is paleontology?

- The scientific study of the history of life in the **geologic past**
  - The study of fossils to classify organisms and understand how they interacted

- Paleozoic = “ancient life”
- Mesozoic = “middle life”



What is a fossil?

- A fossil is any preserved remains or traces of past life
  - Must be >10,000 years old

- Can be body fossils, trace fossils, or chemical fossils
  - Body fossils: evidence of the physical features (morphology) of an organism
  - Trace fossils: evidence of the behavior of an animal (what did it eat? how did it move?)

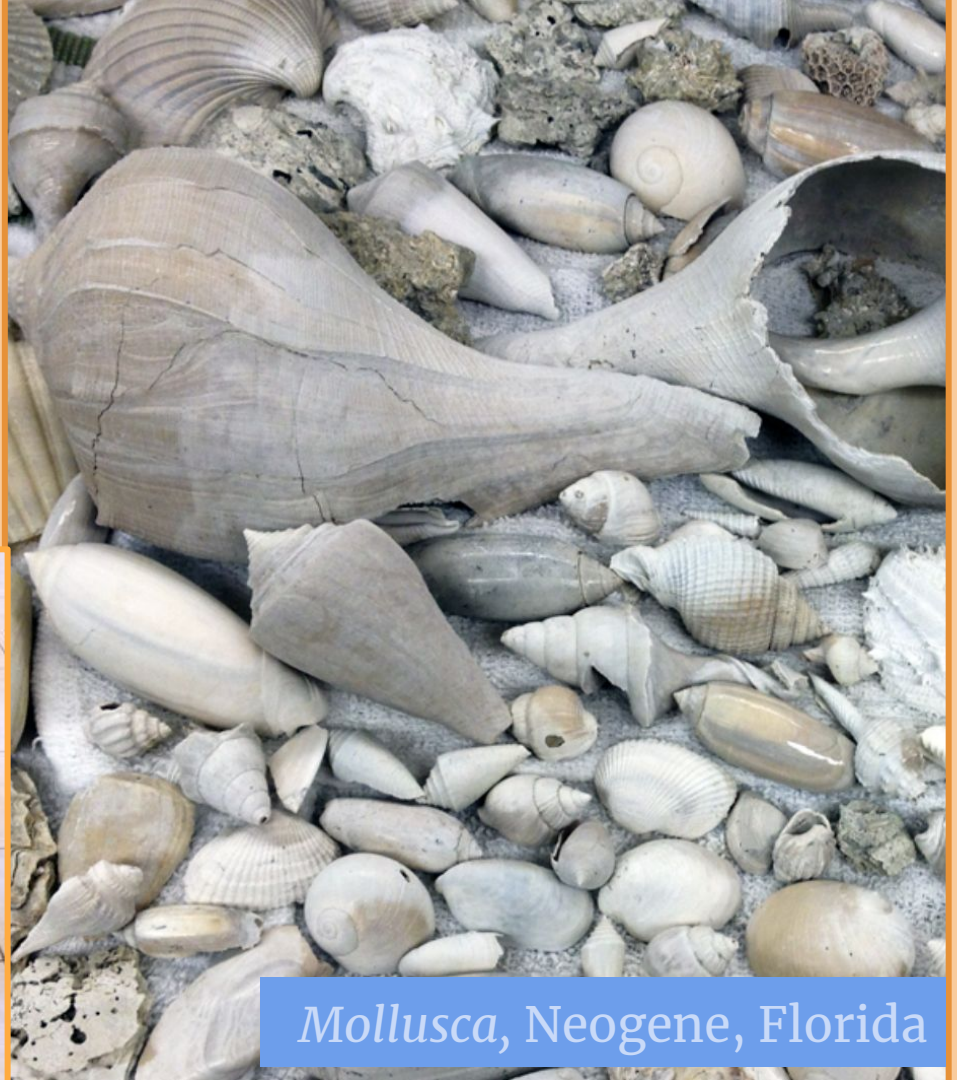
Acutiramus, Silurian, Ontario


Asteriacites, Devonian, Ohio
1.0 cm

How are organisms fossilized?

- Unaltered fossil remains
  - Original skeleton or shell
  - Permafrost

Mammuthus, Quaternary, Yakutia



Mollusca, Neogene, Florida

- Altered fossil remains
  - Replacement
  - Recrystallization
  - Carbonization



- Other types of preservation
  - Infill
  - Impression
  - Concretion

Mollusca
- Gastropoda
- Cephalopoda
- Bivalvia

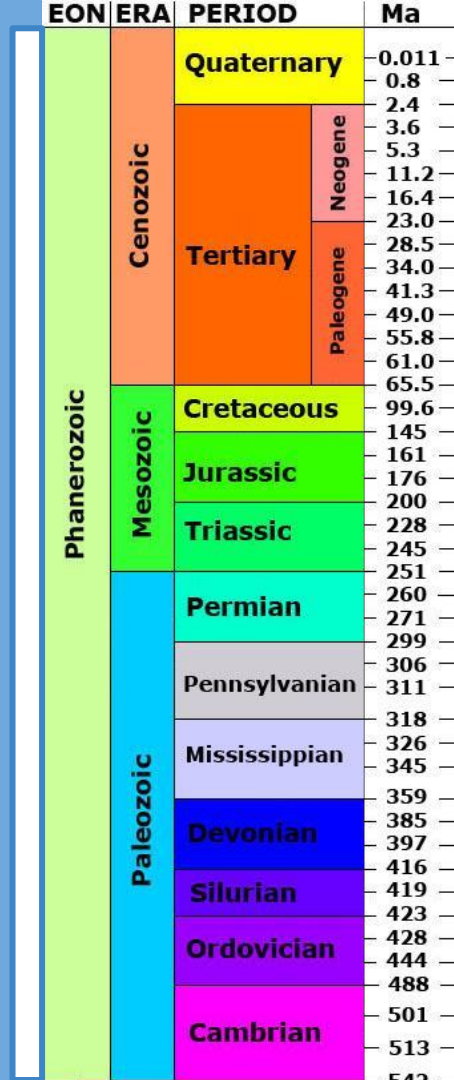
Echinodermata
- Crinoidea

Arthropoda
- Trilobita

Let’s talk about some specific marine invertebrates!

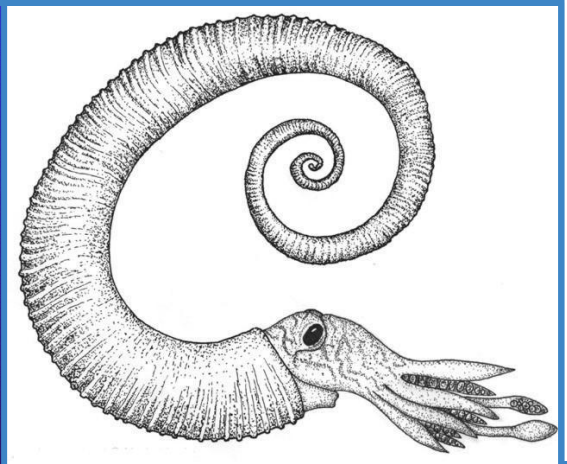
Mollusca, Gastropoda: Slugs & Snails

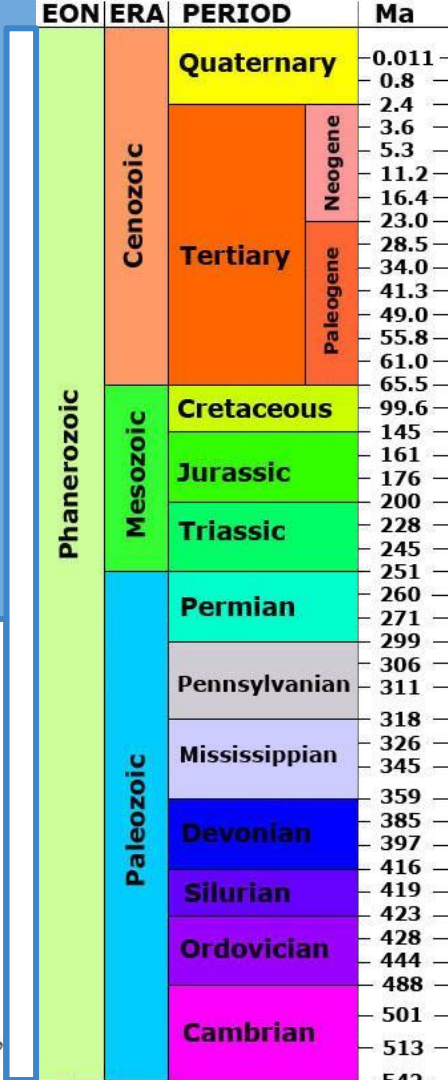
- Aquatic and terrestrial
- Some with shells, some without
- What is preserved?



Mollusca, Cephalopoda: Squids & Nautilus

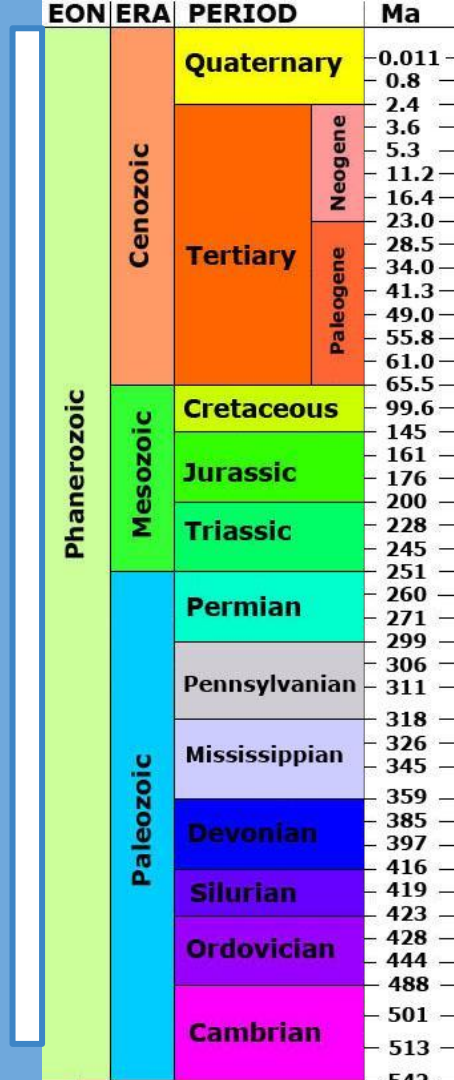
- Marine
- Some with shells, some without
- What is preserved?





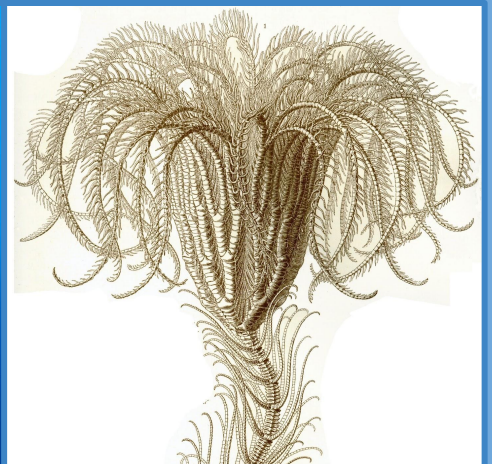
Mollusca, Bivalvia: Clams & Oysters

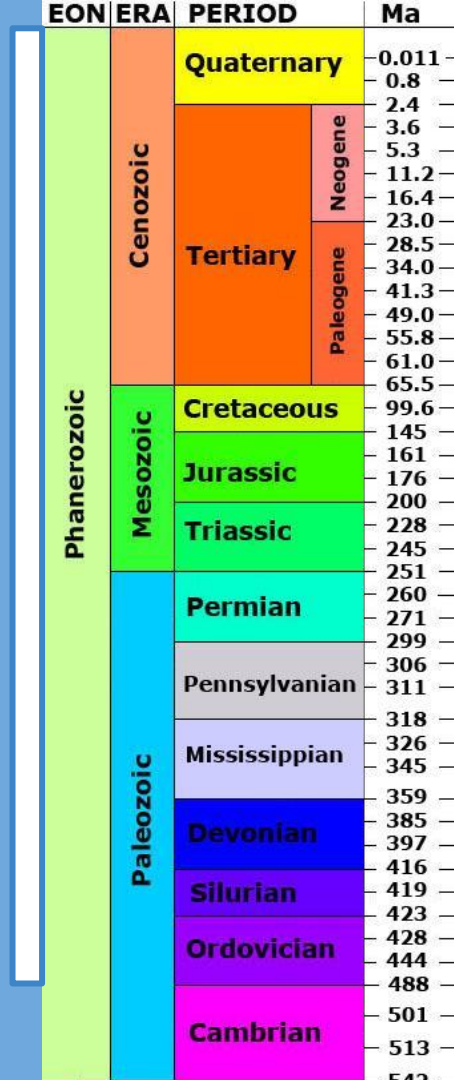
- Aquatic
- Exoskeleton of 2 half-shells
- What is preserved?



Echinodermata, Crinoidea

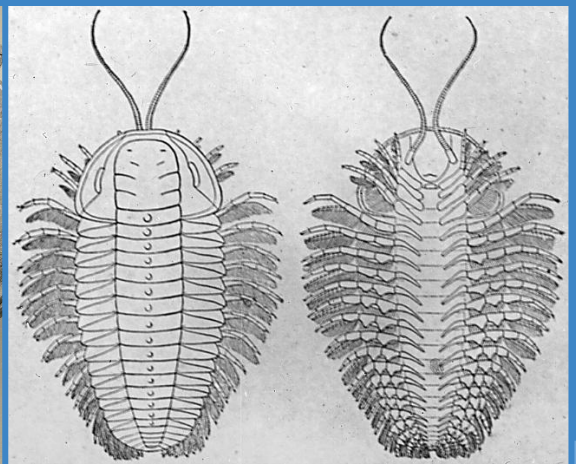
- Marine
- Filter-feeding
- What is preserved?

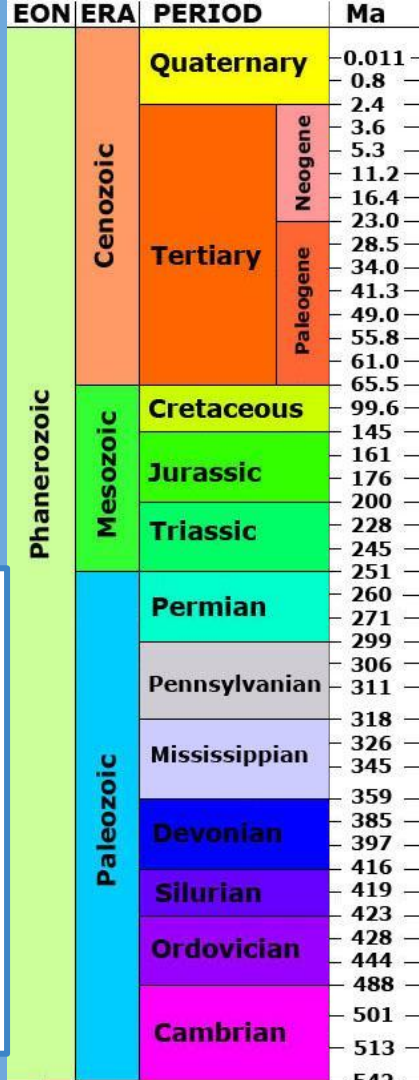




Arthopoda, Trilobita

- Marine
- Ate small invertebrates and detritus
- What is preserved?





Activity: Identifying Marine Invertebrates

1. *What is it?*
2. *Is it a fossil?*
3. *How was it preserved?*