
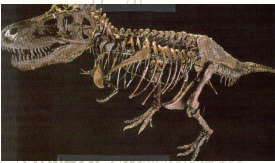


Chapter 12


The History of Life




Fossils & Ancient Life



Tollund Man



Burgess Shale Site



Interpreting Fossil Evidence

– Relative dating –
determining the age of a fossil by comparing its placement with that of fossils in other layers

Relative Dating

younger

↑

older

Numerical Dating

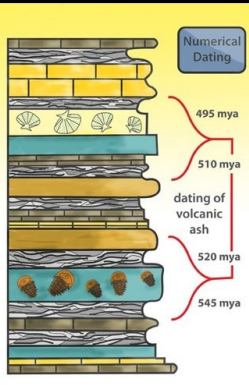
495 mya


510 mya

520 mya

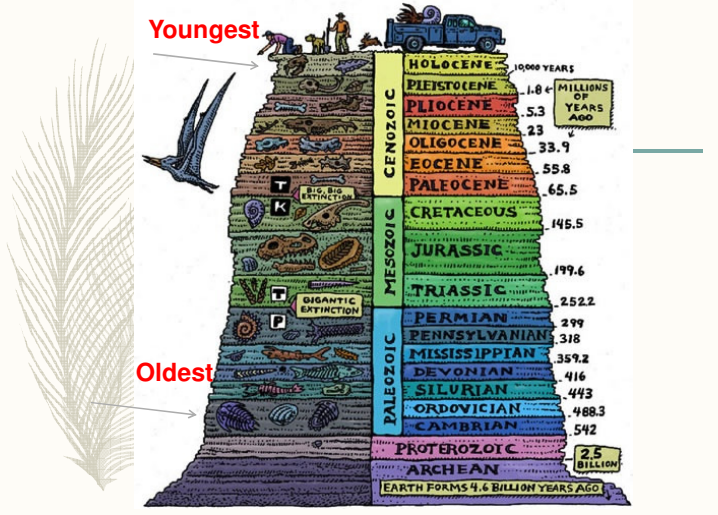
545 mya

dating of volcanic ash





...so the deeper we dig,
the farther back in time we see



Time Period	Approximate Age (Millions of Years Ago)
Holoocene	10,000 years
Pleistocene	1.8
Pliocene	5.3
Miocene	23
Oligocene	33.9
Eocene	55.8
Paleocene	65.5
Cretaceous	145.5
Jurassic	199.6
Triassic	252.2
Permian	299
Pennsylvanian	318
Mississippian	359.2
Devonian	416
Silurian	443
Ordovician	488.3
Cambrian	542
Proterozoic	2.5 Billion
Archean	4.6 Billion

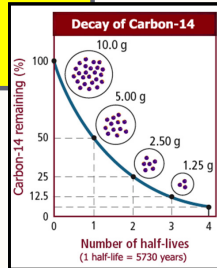
Interpreting Fossil Evidence

- Radioactive dating- technique using natural decay rate of unstable isotopes found in materials to calculate the age of materials.

- Used to estimate fossil's actual or absolute age.
- Used to determine age of the Earth
- Isotope ^{14}C used in radiometric dating



- Half-life- amount of time it takes for half of the isotope to decay into a different element or its product isotope.



Formation of Earth

- Earth's early atmosphere probably contained hydrogen cyanide, carbon dioxide, carbon monoxide, nitrogen, hydrogen sulfide, & water.
- It was much hotter & there was little or no oxygen.



Origin of Eukaryotic Cells

Video

- Endosymbiotic theory - proposes that eukaryotic cells arose from living communities formed by prokaryotic organisms

