

Formation of the solar system

GS 106

Geocentric image

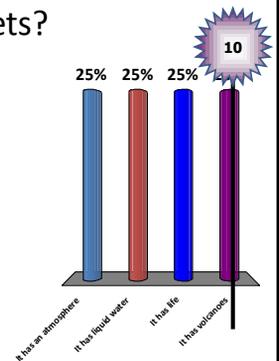


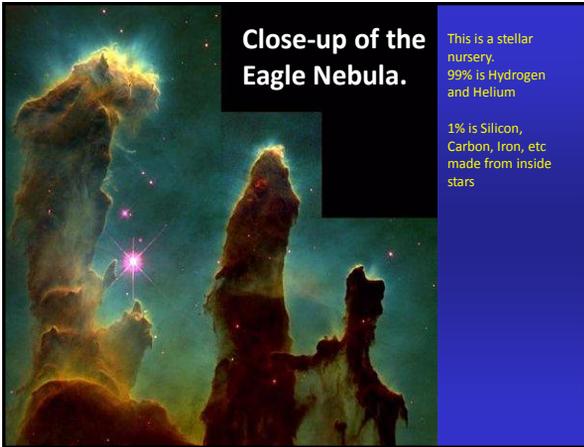
Heliocentric image



What sets Earth apart from other planets?

1. It has an atmosphere
2. It has liquid water
- ✓ 3. It has life
4. It has volcanoes





Nebular hypothesis explains solar system formation

- Formation of accretion disk

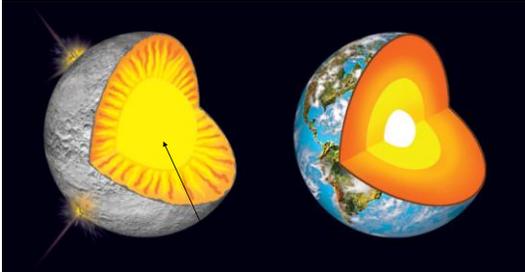
Forming the solar system

- Sun, planetesimals form

Forming the solar system

- Early Earth forms (homogenous)

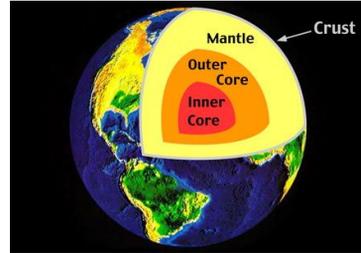
Differentiation



Gravity causes denser materials to sink

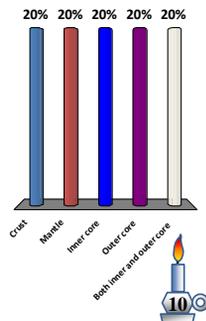
Leading to a layered Earth

A layered Earth



The most dense layer of Earth is

1. Crust
2. Mantle
3. Inner core
4. Outer core
- ✓ 5. Both inner and outer core



Nebular hypothesis explains differences between:

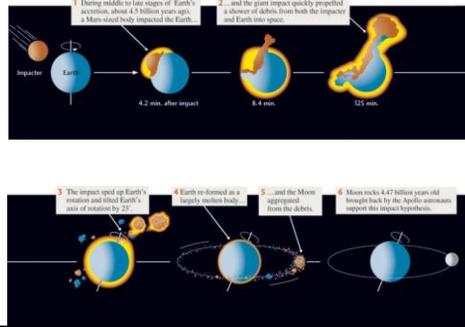
- 1) Inner planets
- 2) Giant outer planets



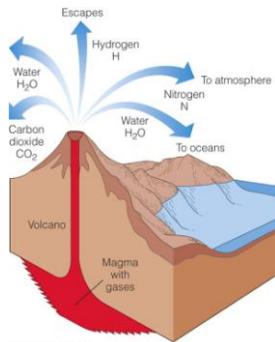
Nebular hypothesis explains impact craters



Moon formation

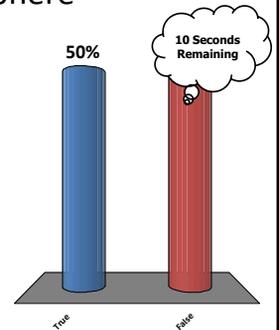


Forming the atmosphere and oceans



Humans could breath early Earth's atmosphere

1. True
- ✓ 2. False



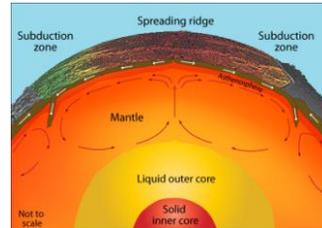
Atmosphere becomes oxygen rich

Photosynthesis: $\text{CO}_2 + \text{sunlight} \rightarrow \text{Carbohydrates} + \text{O}_2$



Cyanobacteria were the some of the first photosynthesizing organisms

Earth has an internal heat “engine” driven by radioactive decay



Convection buckles and breaks the crust.... Producing volcanoes and earthquakes

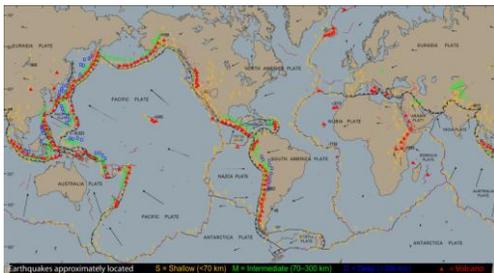


Plate tectonics is a unifying theory

