

GEOL 106 Writing #1 – Intro & Overview

- 1) Approximately how old is the universe? 15-20 b.y.
- 2) Approximately how old is the Earth and our solar system? 4.6 b.y.
- 3) Before a hypothesis can be formed, what is required? observations (data)
- 4) Starting with interstellar (*between star*) dust that came from a supernovae star explosion, briefly explain how we think our solar system formed.

Following the Big Bang, some first generation stars became supernovae, spreading interstellar dust through their region of the universe. A high concentration of dust became gravitationally attracted, began to swirl in a rough disk, then a protosun and protoplanets coalesced and heat up due to further gravitational attraction. The sun began to burn, and the planetesimals eventually formed into planets orbiting around the sun.

- 5) How do the four inner planet differ from the four outer planets in terms of composition?

The inner planets are more dense, metallic and rocky than the outer gaseous and icy outer planets.

- 6) What are the three main divisions of the earth? What is the divisions mostly made up of?

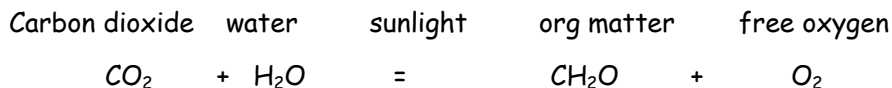
Innermost - core (solid inner and liquid outer); made primarily of Fe and Ni

Middle - Mantle - made primarily of ultramafic silicate rocks with high proportion of Fe , less Si compared to crust

Outermost - Crust; made primarily of silicates rocks with less Fe, more Si than the mantle; ocean crust more mafic, continental crust more felsic

- 7) What development allowed for Earth to have an atmosphere with about 20% oxygen, compared to no free oxygen early in the Earth's history? Write down the associated chemical reaction with chemical symbols and words for each symbol above the chemical symbols.

Photosynthesis by algae eventually produced free oxygen in the atmosphere, which allowed for development of air-breathing higher organisms



- 8) About how many people are there on Earth now? 6 billion

How many are there expected to be by 2050? 9 billion

Where will most of the population growth take place? developing world