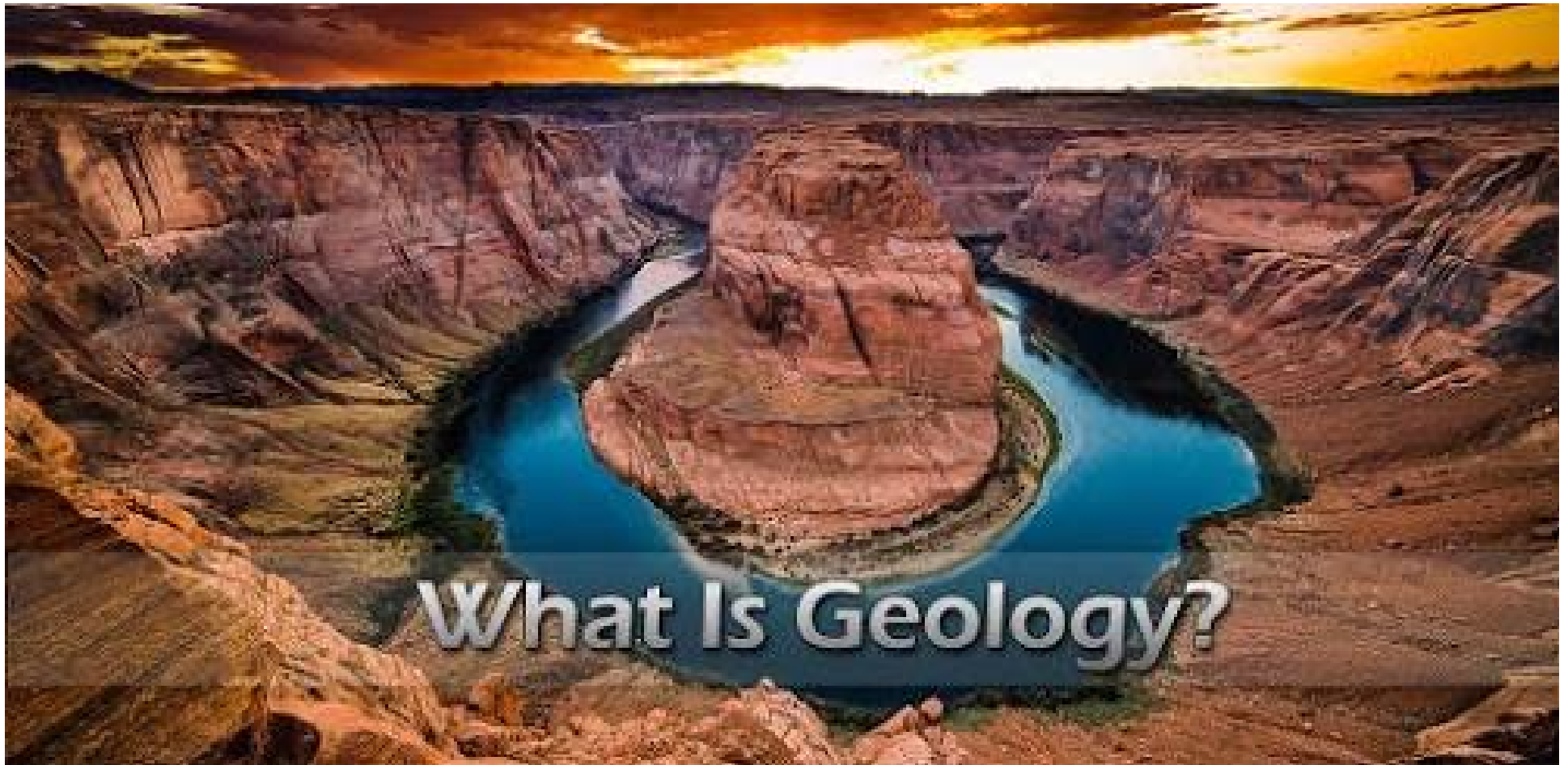


# GEOLOGY: WHAT? WHY? & HOW?





# What Is Geology?

**"Geo"** means Earth

**"Logy"** came from Latin word logos meaning scientific knowledge.

**Geology** is the science that deals with the dynamics and physical history of the earth, the rocks of which it is composed, and the physical, chemical, and biological changes that the earth has undergone or is undergoing.

# ***Geology..... WHY ??***

❑ *Nature is the laboratory for Geologist....*

✓ Other branches of Science do experiment in laboratory or in computer system.  
Geologists visit nature, see the processes live (in case of modern environment).



**DIRECT UNDERSTANDING**

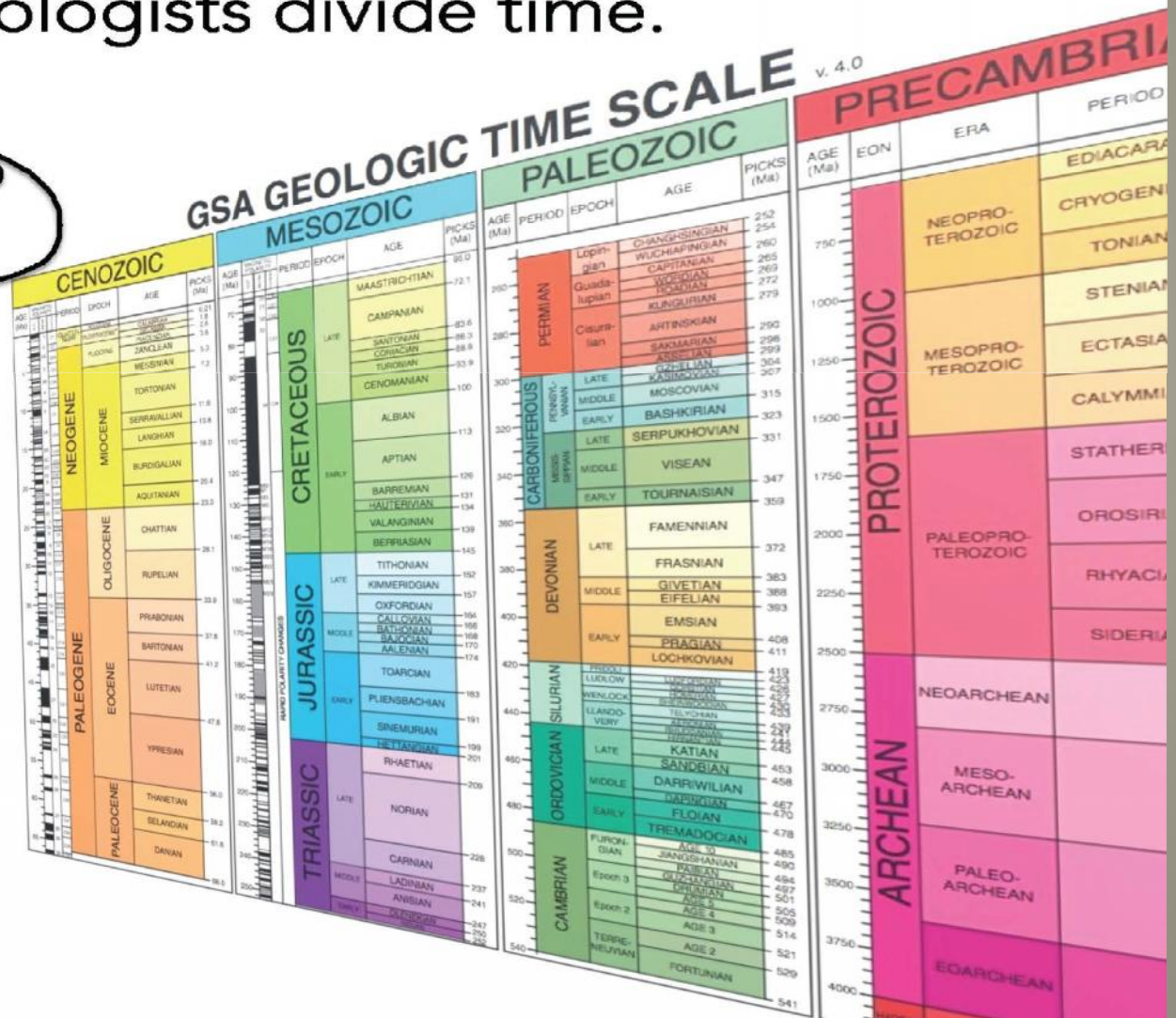
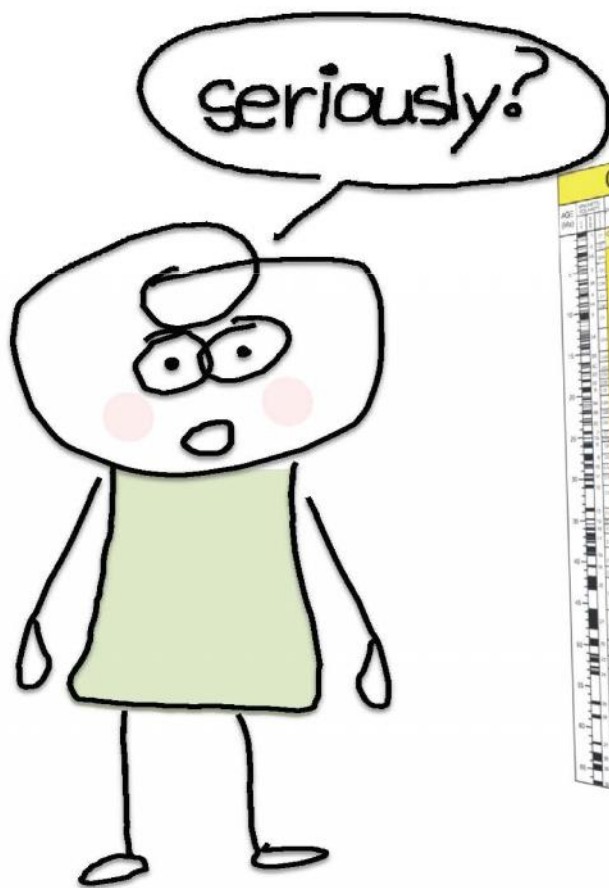
✓ Geologists can reveal the story of a rock by seeing it in the field, can solve the problems standing in the outcrop in front of the exposures (ancient environment).

**Law of Uniformitarianism by James Hutton:**

***“Present is the key to the past”.....***

*Only branch in science that is based on the fourth dimension i.e TIME*

This is how geologists divide time.





## **Age of the Earth**

Earth is estimated to be 4.54 billion years  $\pm$  50 million years old

### **Oldest rock on earth:**

Bedrock in Canada is 4.28 billion years old

### **Oldest mineral on earth:**

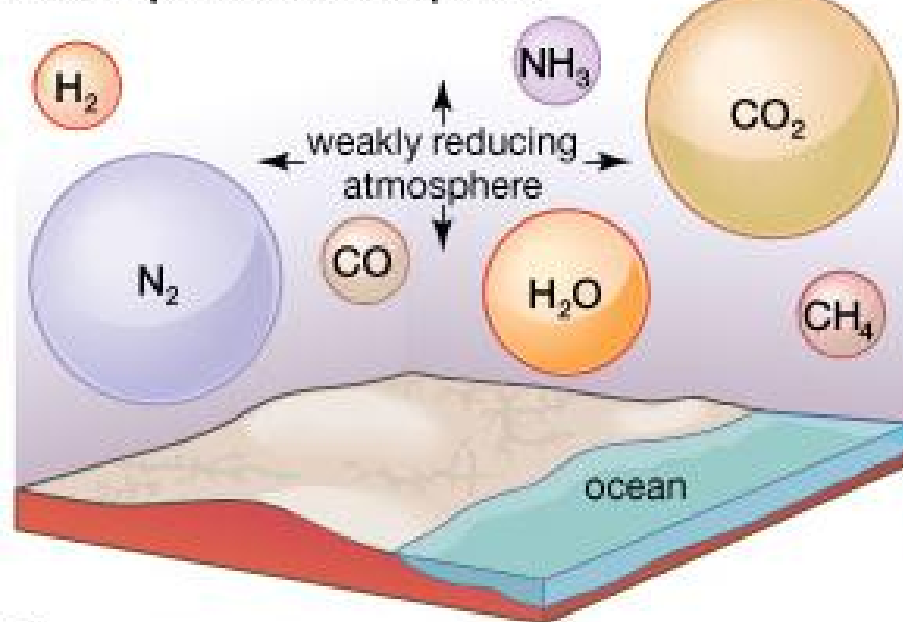
Zircon crystals from Orissa dated 4.24 billion years. These crystals were embedded in a 3.4-billion-year-old granite rock.

**Meteorites that have crash-landed on Earth dated to between 4.4 and 4.5 billion years.**

Geology tells about palaeogeography, palaeoclimate of planet earth; Evolution and revolution of atmosphere, hydrosphere, biosphere

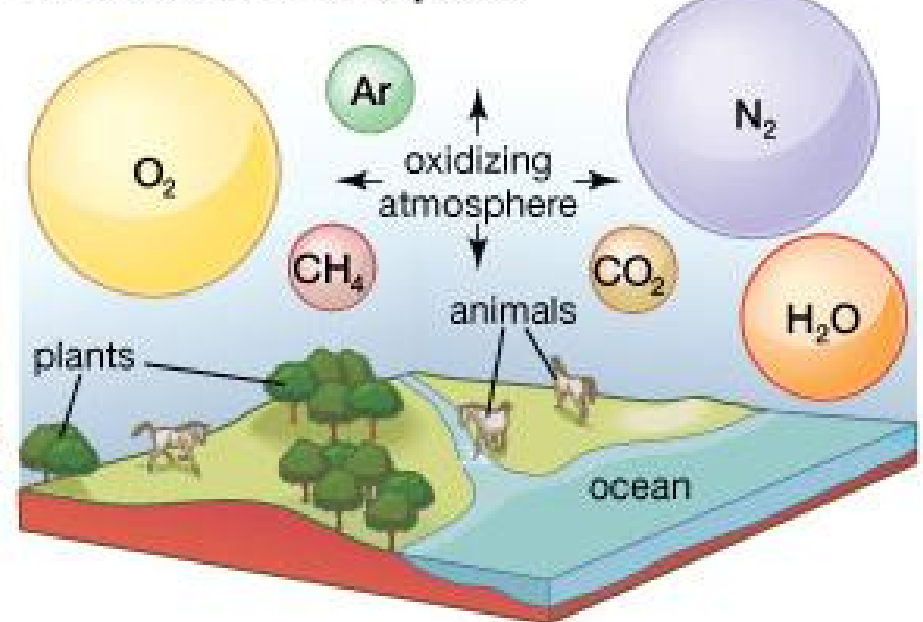
## Atmosphere & hydrosphere

Earth's prebiotic atmosphere

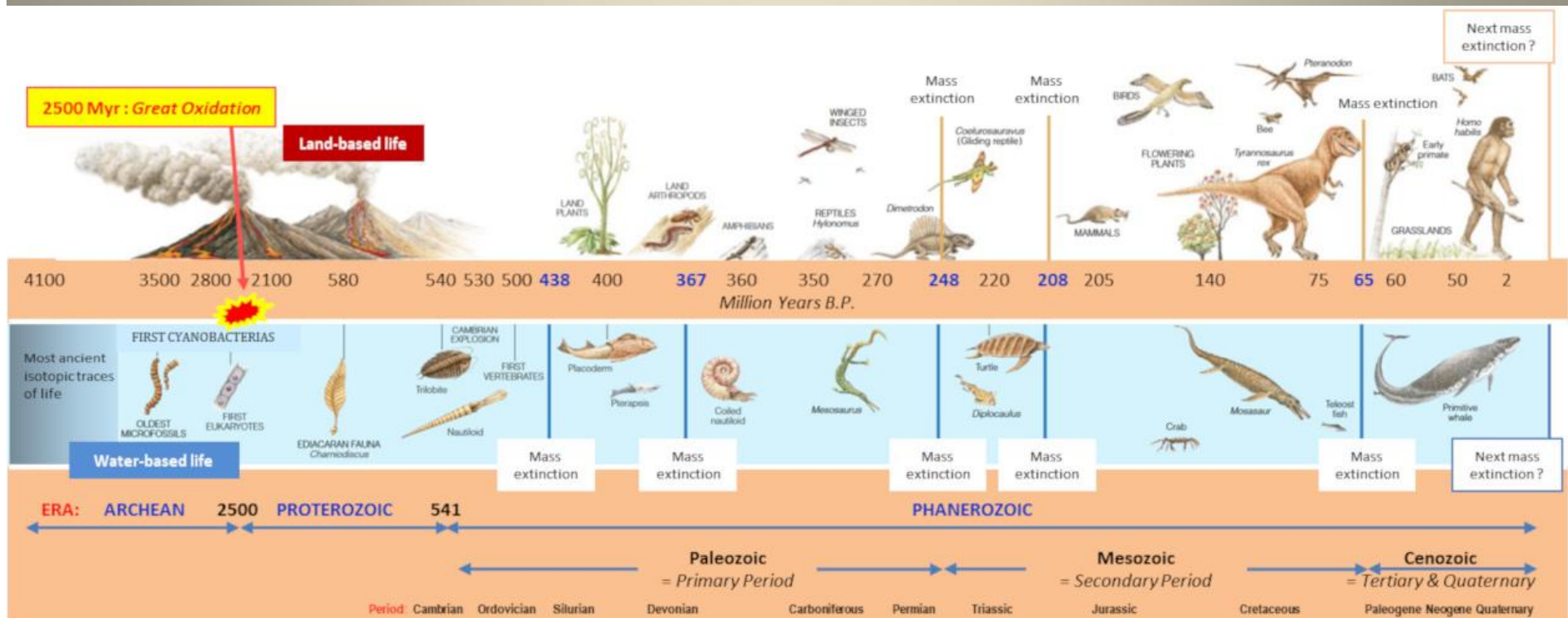


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Earth's modern atmosphere



# Biosphere

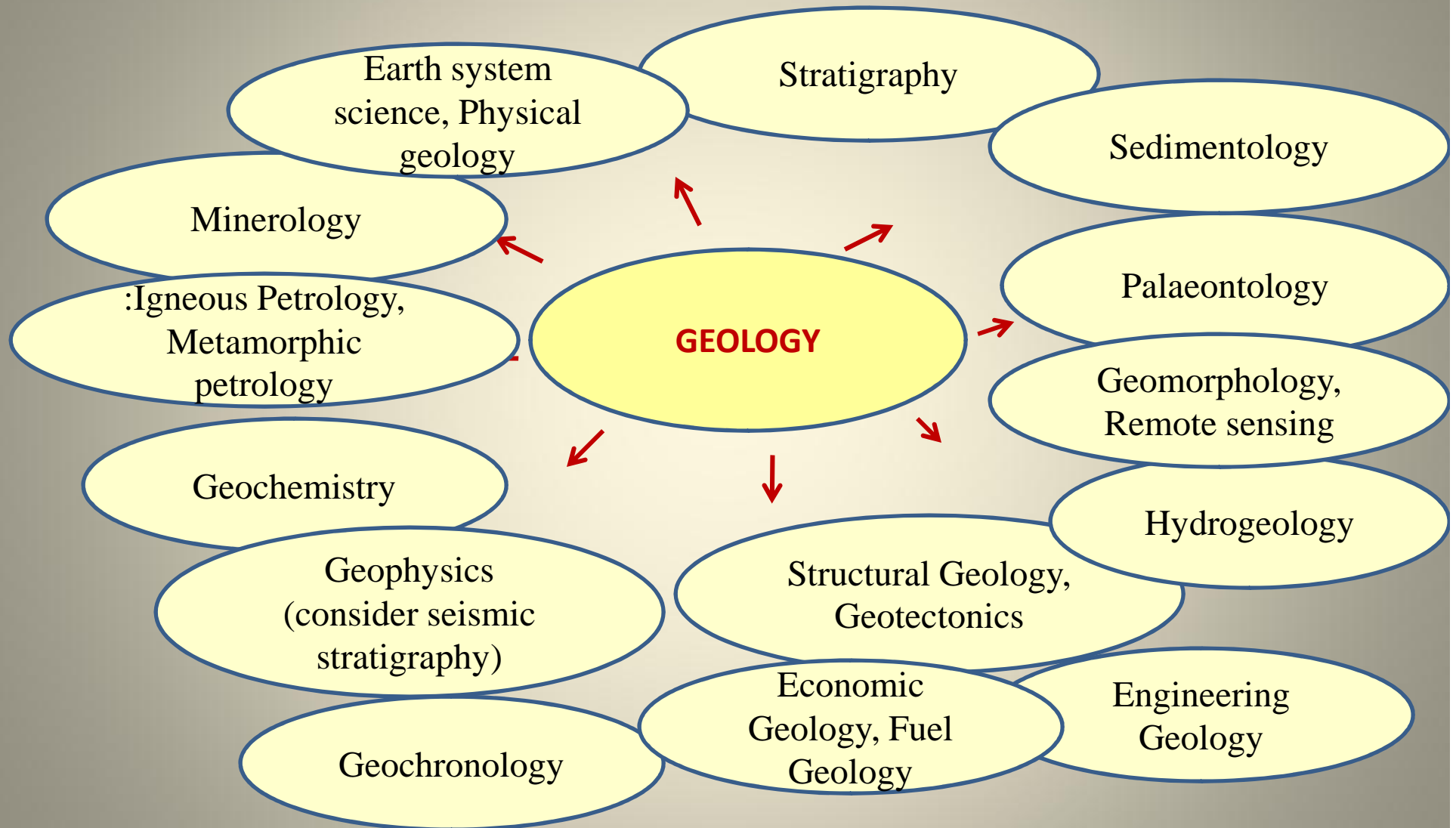




Paleogeographic reconstructions of major continents and oceans throughout Earth history from the Cambrian to Pleistocene.



# ***Geology.....How??***



**DIFFERENT BRANCHES OF GEOLOGY...**



