

# All about the Earth

with Team Get S.E.T

# Today's Agenda

- Overview of Earth's internal structure
- Time-lines
- People in the field
- Fossils
- Rock Layers
- Question time

# Earth Layers

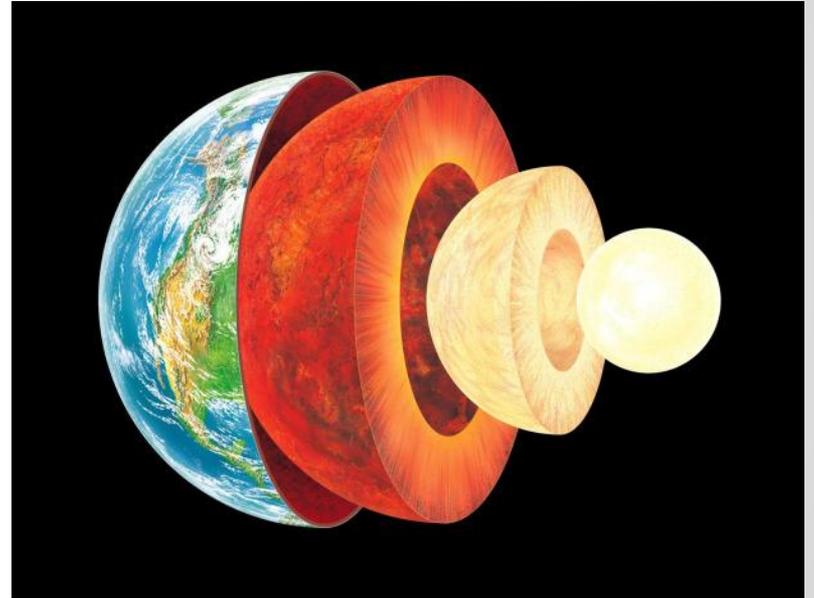
The Earth has 4 distinct layers:

Inner Core

Outer Core

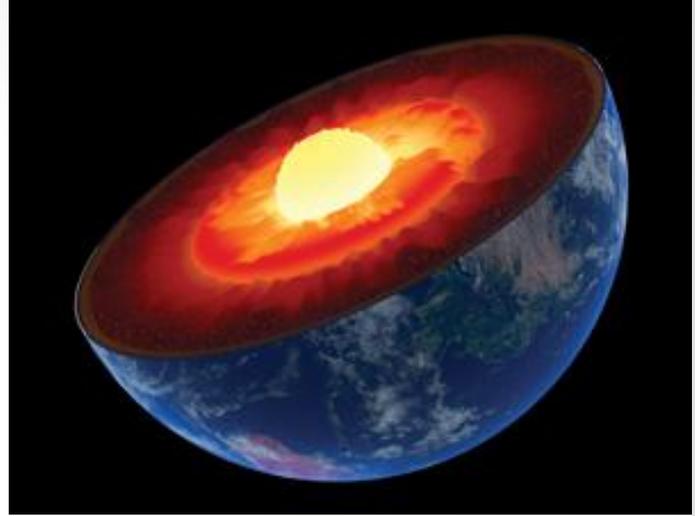
Mantle

Crust



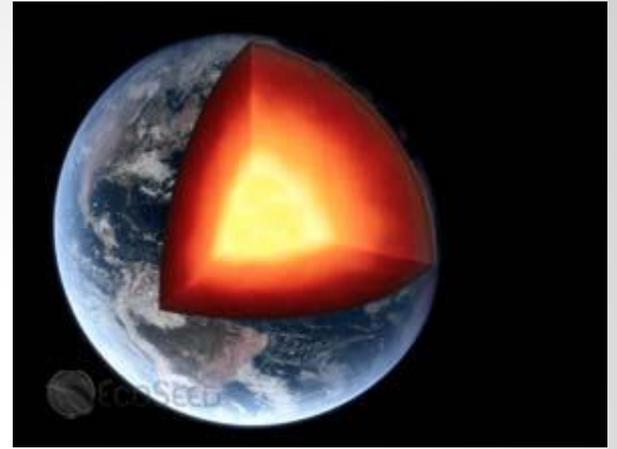
# Inner Core

- Thickness
  - 1,220km or 760mi
- Depth
  - 5000km or 3100mi
- Temperature
  - Hot as the surface of the sun!
  - 5,000-7,000 degrees C
  - 9,000-13,000 degrees F
- Primarily made up of iron and other metals



# Outer Core

- Thickness
  - 2,300km or 1,400mi
- Depth
  - 2,890km or 1,800mi
- Temperatures
  - 4,000 to 5,730 degrees C
  - 7,280 to 10,340 degrees F
- It's 'fluid'



# Mantle

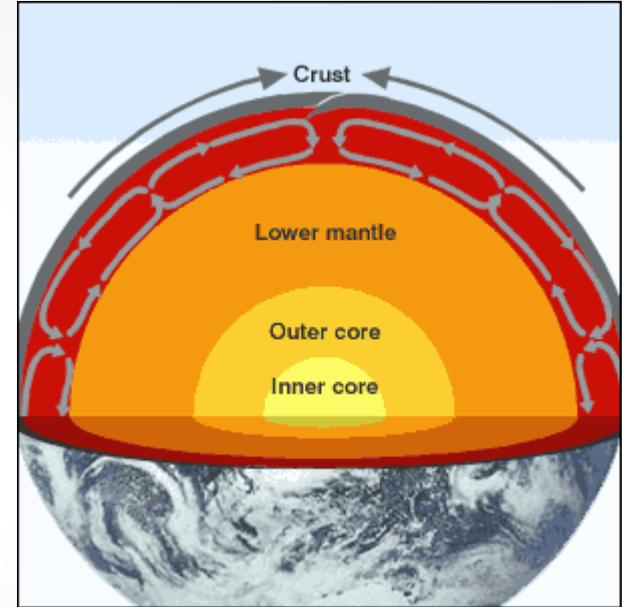
- Thickness
  - 2,900km or 1,800 miles
- Depth
  - 65km or 40 miles
- Temperatures
  - 900 C to 4,000 C !
- Contains many different elements, mostly oxygen.
- Diamonds and other gems form here



# Crust

This is where we all live, on a 30mi thick layer of rock.

- Made of many layers, and a great variety of igneous, metamorphic, and sedimentary rock
- It “floats” on the mantle
- Our plate(the North American plate) moves about 1 inch to the west a year



# Rock Cycle

The crust has been formed over a long time in a continuous cycle

1. Erosion->Sediment
2. Compacting->Sedimentary rock
3. Heat & Pressure->Metamorphic rock
4. Melting-> Magma
5. Cooling->Igneous Rock

# **The role time played in Earth's formation**

Over time, animals and other living creatures that lived on the Earth's surface, become part of the earth as the cycle continued, and eventually 'buried' things.

# Formation of rock layers

Weather breaks down rocks, into smaller rocks

- Grand Canyon

It's moved by wind, rain, and rivers.

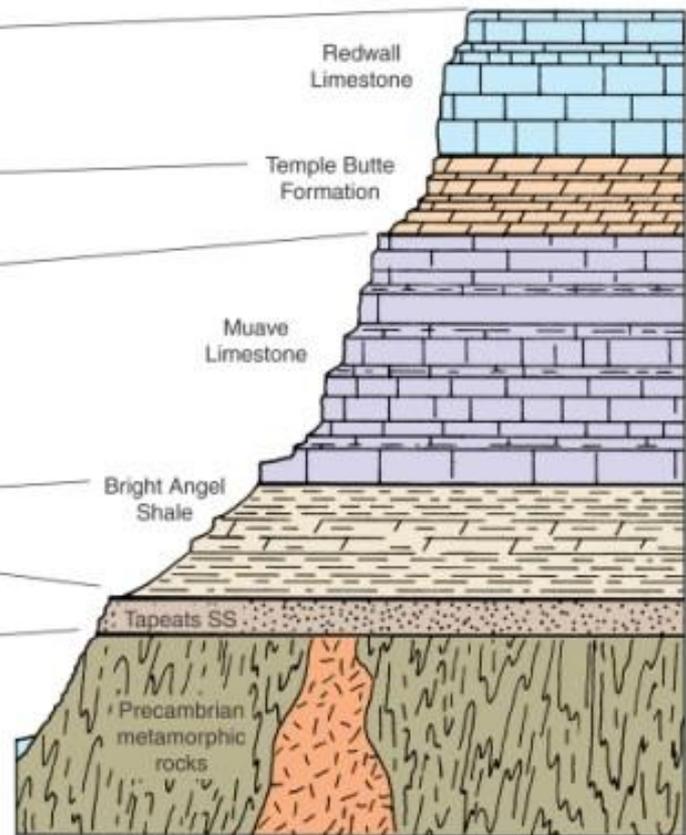
- Sifting

The weight of stuff on top of it compacts the dust and sediment into actual rock!



# Composition of Rock layers

- The types of rock varies
- Depending on how far down, you may find more of one than the other.
- The types of rocks are:  
Sedimentary, Metamorphic, and Igneous



# People in the field

Those that study rocks, animals, and human's past are called different things

Archeology

- the study of the humans of the past

# Archeology

- Study of humans in the past, using bones and different artifacts to see how people lived back then.

# We must go deeper!

Yet as we have searched for clues about what happened long ago, we've found things from times where humans weren't around yet.



# Paleontology

We discovered bones and remains from long ago; Paleontology is the study of life that existed before the first humans.



# Life over the years



# Fossils

- The remains of animals and plants that have died long ago.
- They get 'buried' and encased into stones
- They tell us about history on Earth
- Certain animals only lived at certain times, so we know how old things found near them are.

# Geology

The study of rocks and minerals.

They study how the rock layers were formed.

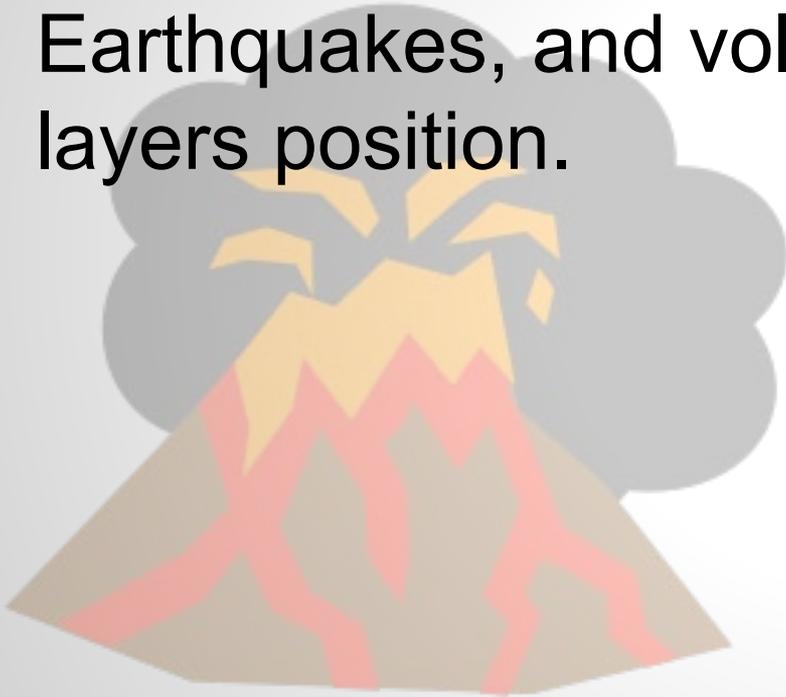
# Myths

Some things that movies are wrong about:

- Humans and Dinosaurs didn't exist at the same time.
- The center of the Earth doesn't lead to some fantasy world

# Disruptions

Earthquakes, and volcanos can disrupt the layers position.



**Next time...**

Rock out on Geologist Day!

Super Rock Fun Time!

**Questions?**

