

## Rock Layers and Fossils Notes

### Age of the Earth

- Scientists have good evidence that the Earth is very old. It is estimated to be about 4.5 billion years old!

### How Do We Know?

- Scientists looked at evidence from:
  1. Rock layers and the fossils found in them
  2. Fossils showing changing life and changing environments
  3. Geological events

### Geologic Time Scale

- By looking at evidence in these three areas, scientists were able to make a geologic timeline of the Earth's history.

### Rock Layers

- Scientific measurements such as radiometric dating use the natural radioactivity of certain elements found in rocks to help determine their age.
- They also use observations of rock layers to help determine the age of rocks.
- As scientists began comparing rock layers from various parts of the Earth, they realized that they were very similar from place to place.
- In other words, they found that rock layers from one part of the Earth matched rock layers from another part.
- They determined this by looking at the characteristics of the rock layers and the fossils found in them.

## Characteristics of Rock Layers

- Characteristics of rock layers can tell us a lot about the age of the Earth.
- For example, a sandstone rock layer with ripple marks in it might indicate a shoreline habitat or riverbed from long ago.
- Rock layers made of sandstone often indicate a marine environment.

## Law of Superposition

- The Law of Superposition tells us that the oldest rock layers will be found on the bottom and the youngest rocks will be found on top.
- Rock layers in between can be ordered from oldest to youngest.

## Fossils in Rock Layers

- We know that the oldest rock layers are found on bottom and the youngest are found on top. The same is true for fossils.
- If a fossil is found in an old rock layer, it means that the fossil is the same age as that layer.
- If a fossil is found in a young rock layer, that fossil is the same age as that layer.

## Putting Together the Puzzle

- As scientists have studied rock layers, they found that they are very similar all over the world.
- The oldest rock layers are on bottom and the youngest rock layers are on top.
- The oldest fossils are found in the oldest rock layers and the youngest fossils are found in the youngest rock layers.
- Rock layers and the fossils found in them help scientists put the puzzle of the Earth's history together.