

Continental Drift Theory

[http://science.discovery.com/videos/
100-greatest-discoveries-shorts-
continental-drift.html](http://science.discovery.com/videos/100-greatest-discoveries-shorts-continental-drift.html)

Continental Drift Theory

- Started with the observation of the similarities in the shape of the west coast of Africa and the east coast of South America (they looked like puzzle pieces).
- This led to:
 - The suggestion is that these two continents were once part of a larger continent that had broken and moved apart.

True or False?

- Based on their appearance, Africa and South America were never joined as part of one larger continent.

Alfred Wegener



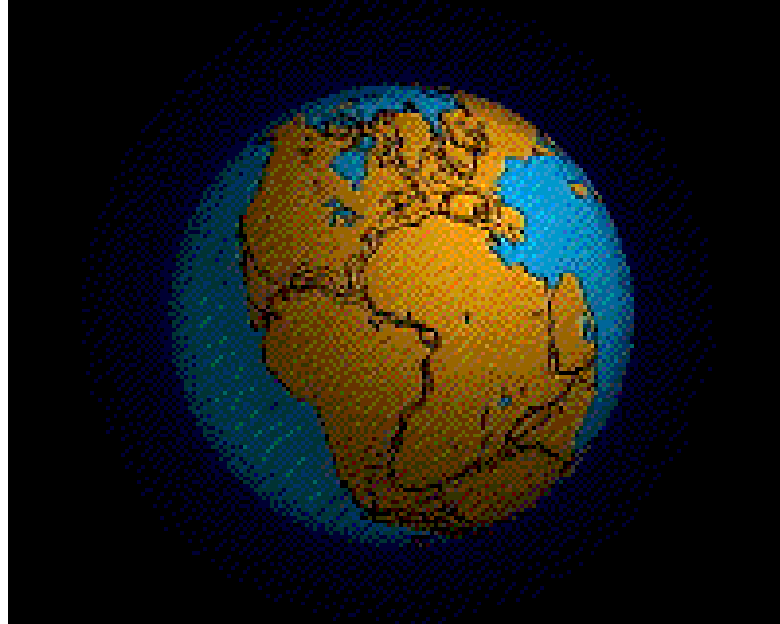
- German scientist. Proposed the most famous version of the continental drift theory, but he could not explain why or how the continents drifted apart.
- His evidence included:
 1. Fossil Evidence
 2. Rocks
 3. Glaciation

True or False

- Alfred Wegener's evidence for continental drift ONLY included:
 - Rocks and Glaciation

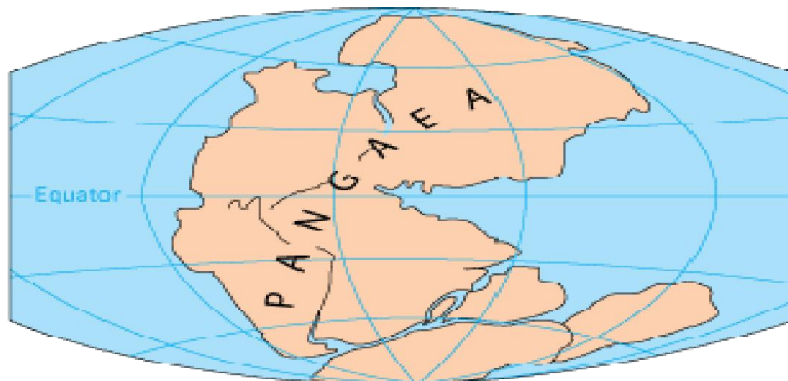
Pangaea

- The last “super-continent” (250 mya) all of the continents hooked together.
- It took over 200 million years for the continents to move to their present locations.

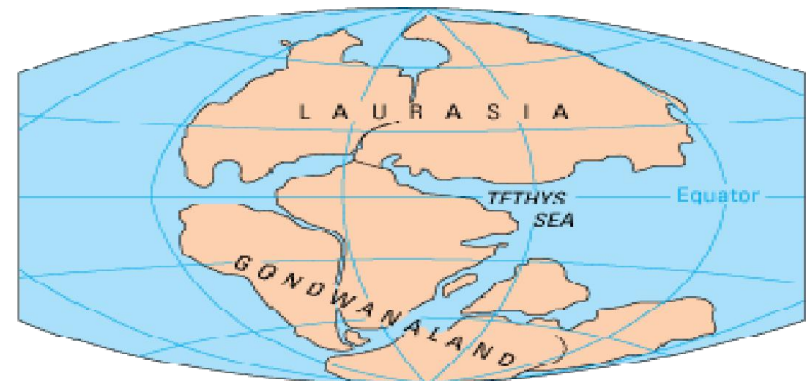


True or False?

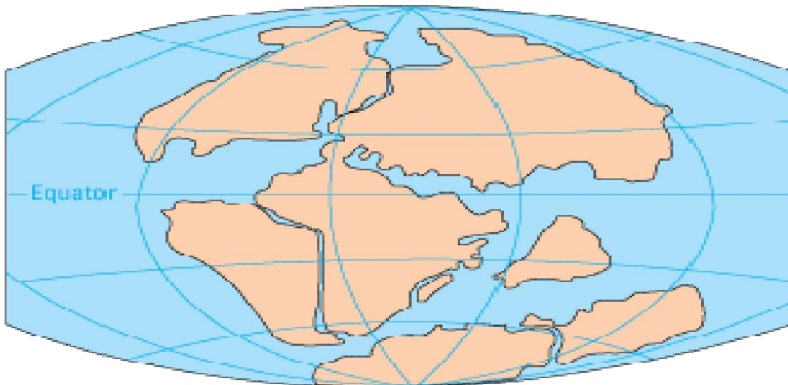
- Pangaea was the last super-continent to have existed on the Earth.
 - How long ago did it exist?



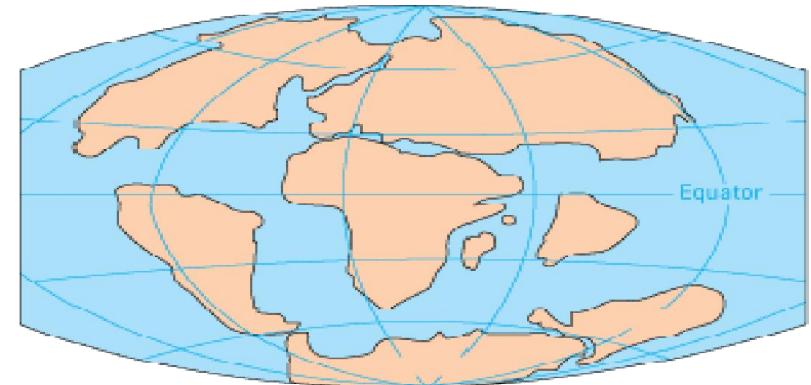
PERMIAN
225 million years ago



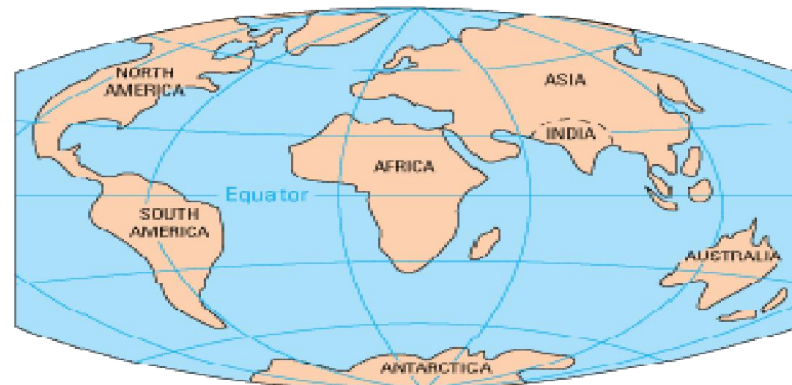
TRIASSIC
200 million years ago



JURASSIC
150 million years ago



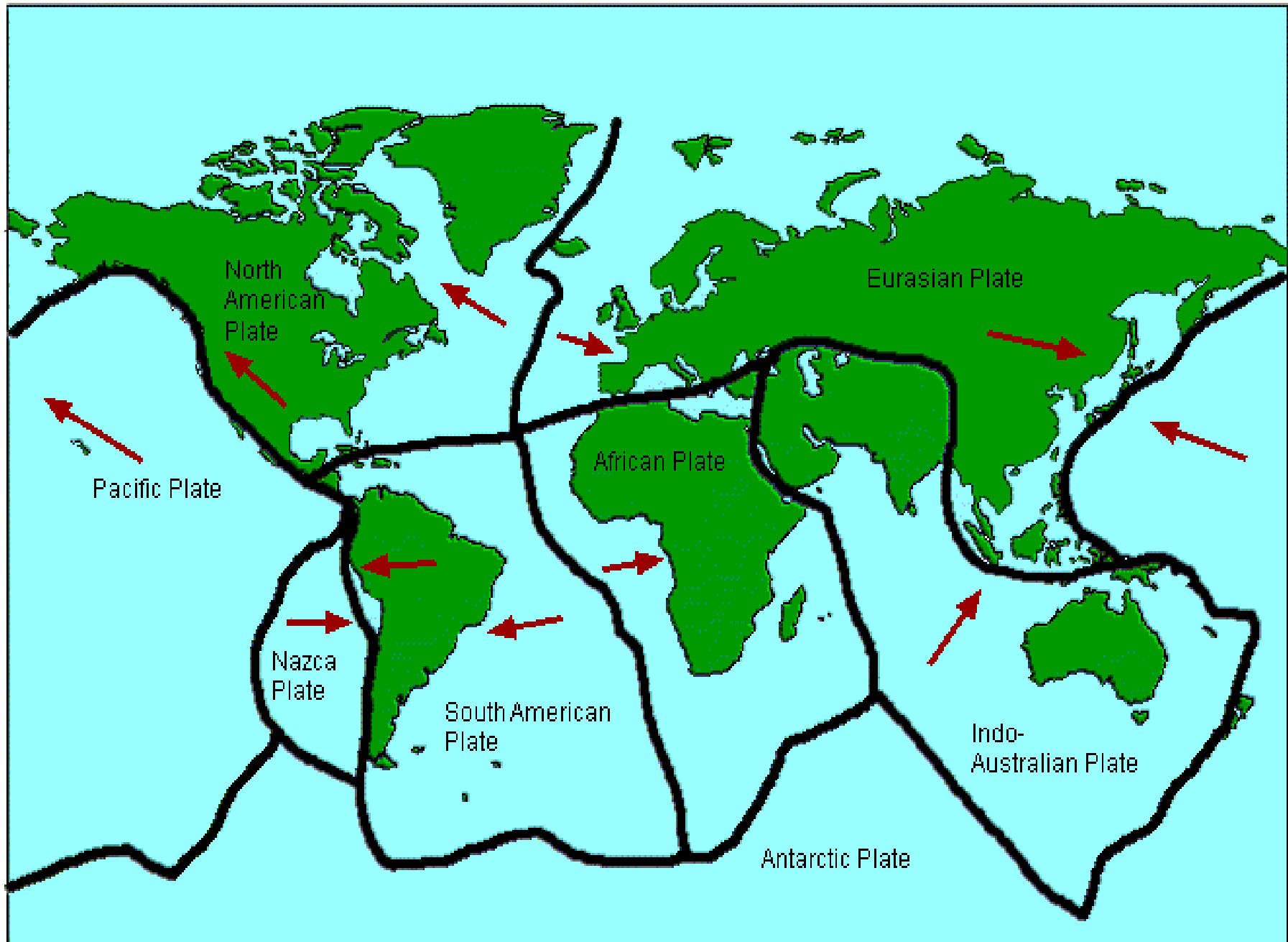
CRETACEOUS
65 million years ago



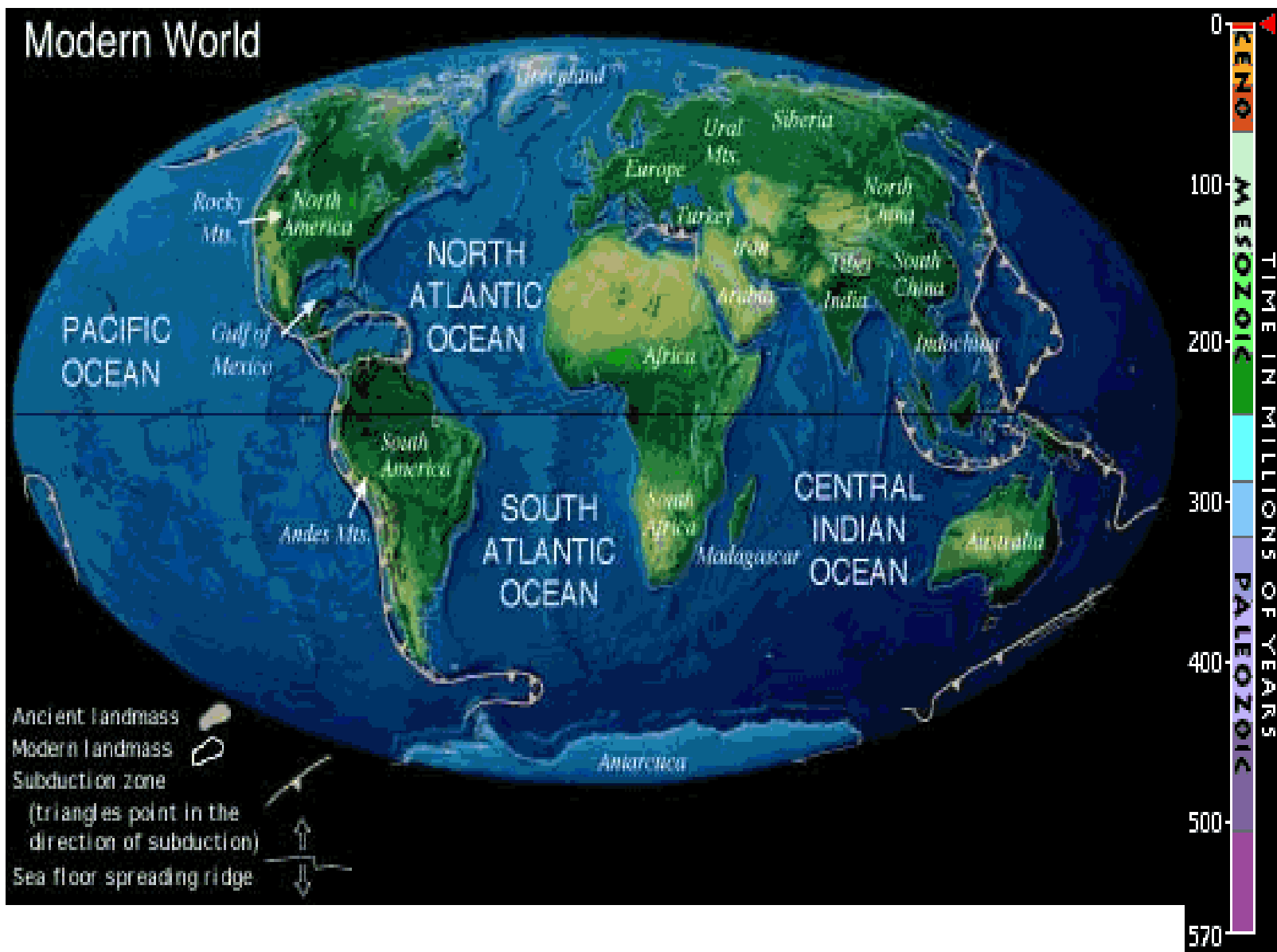
PRESENT DAY

Plate Tectonics

- Study of the theory that the earth's crust is divided into plates (solid pieces) that move due to the forces inside the earth. Became a theory in 1965.
- Approximately **12** major plates
- Larger plates include continents and oceans.



Modern World

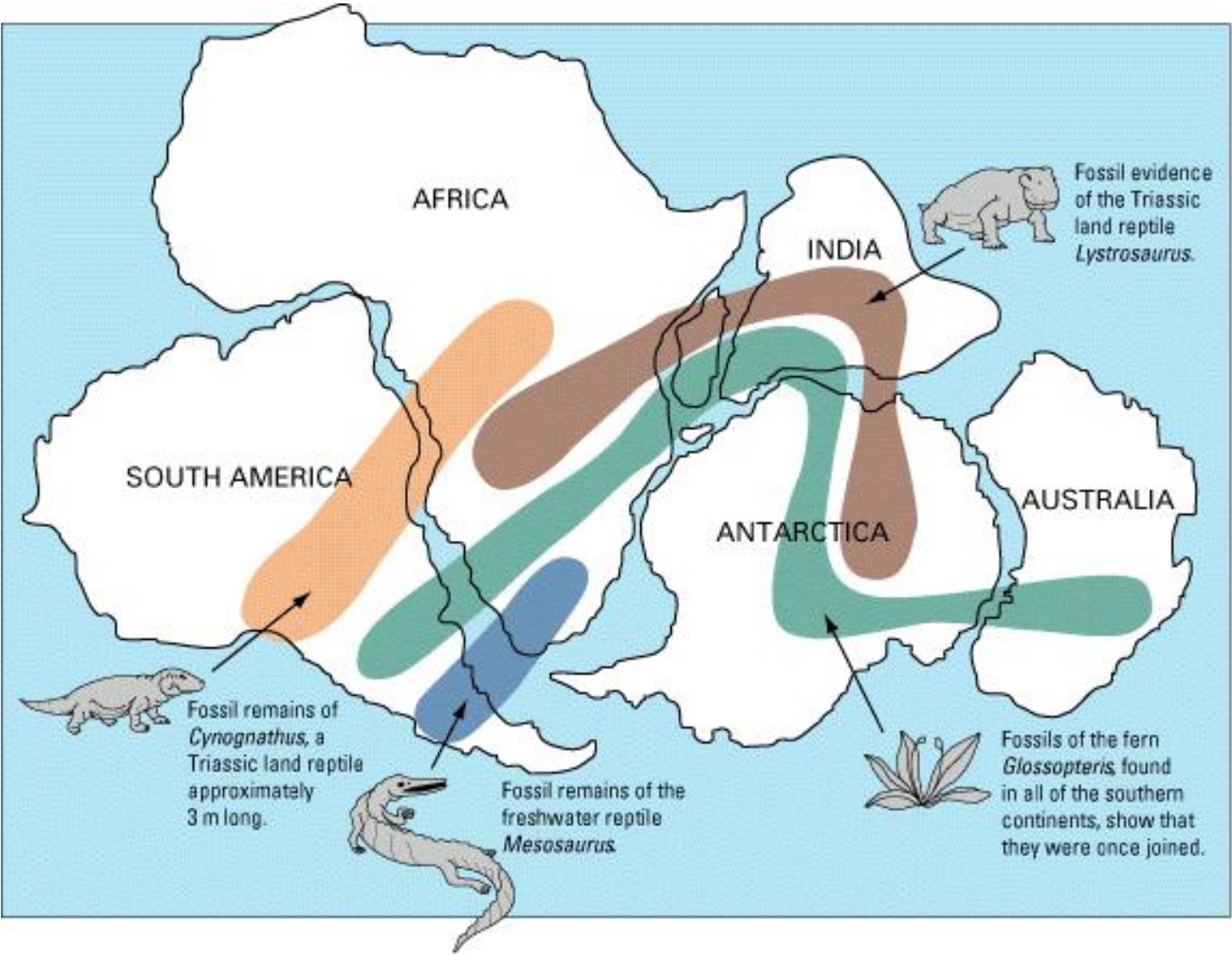


Evidence to support Plate Tectonics:

Fossils:

The same kind of animal and plant fossils were found on different continents.

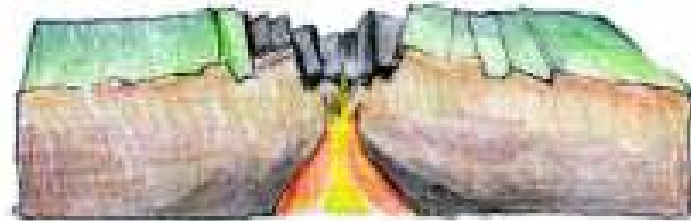
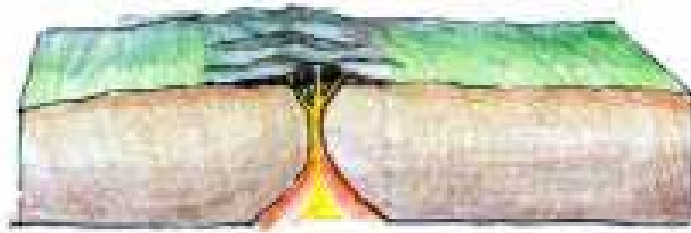
- Ex. -Mesosaurus bones found in Brazil and West Africa
- -Mesosaurus: small reptile that would not have been able to swim across the ocean.
- -Only place in the world found!
- -Therefore, Brazil and Africa must have been connected.



Seafloor Spreading:

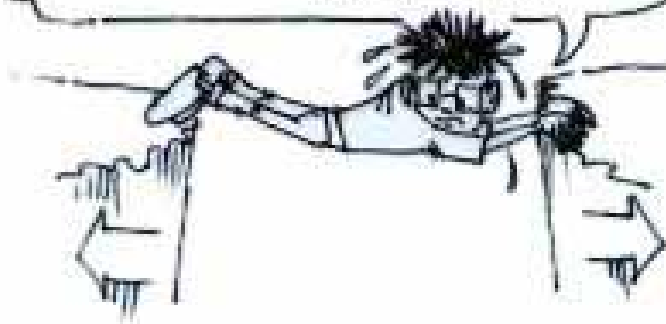
- seafloor moves away from ridge (crack in crust)
- hot magma comes up through crack and cools to form new rock.

This is the HOW !



Sea Floor Spreading... ..
It's tearing me apart... ..

HELP!!

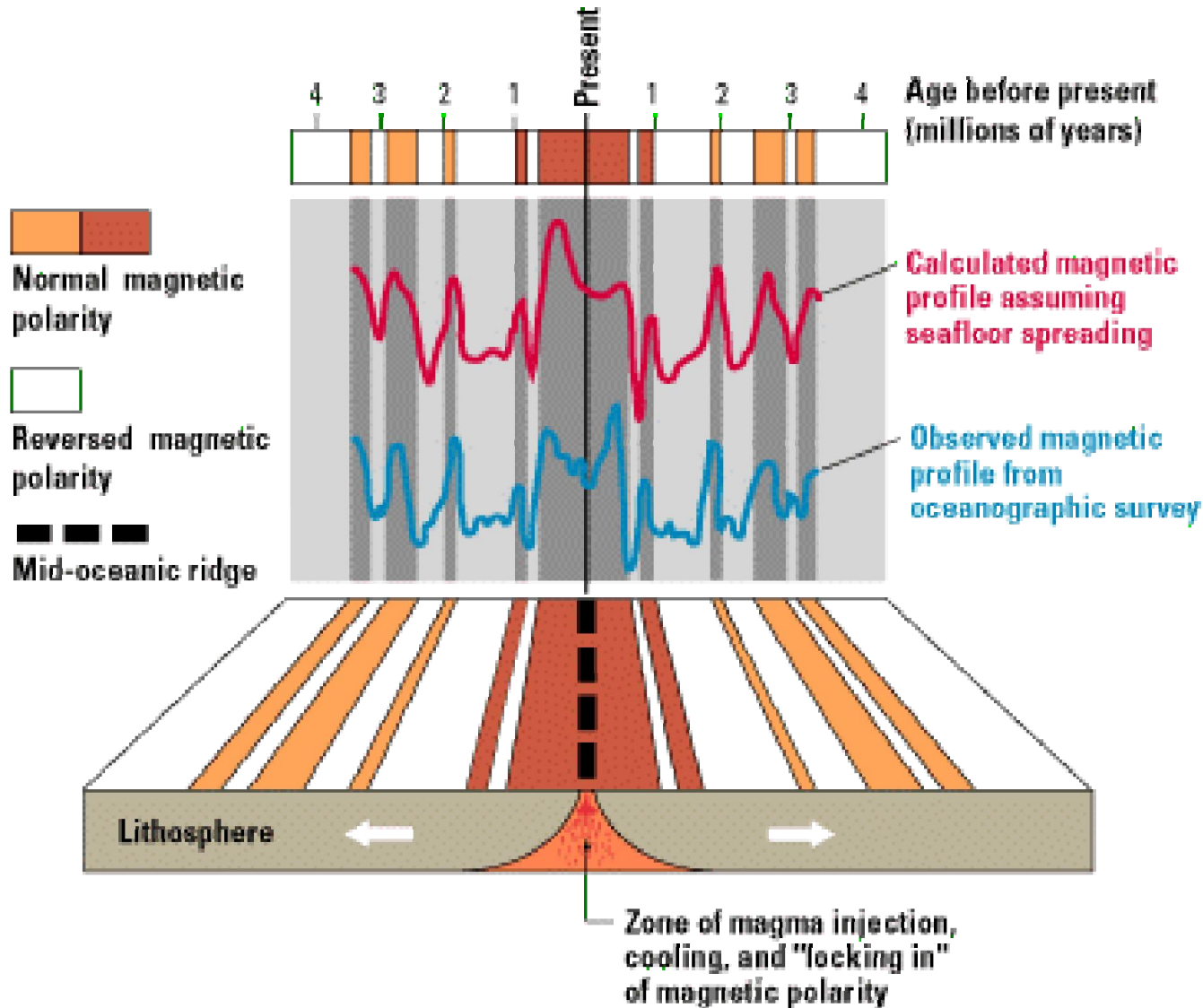


- Scientists took core samples and found that the youngest rock is near the spreading center and the oldest rock is the farthest away.
- Why??

Magnetism in Rocks:

- As hot magma cools it becomes solid rock.
- Iron-bearing minerals become fixed and magnetized.
- While the rock is still liquid, the iron minerals will orient themselves to point toward magnetic north.
- Scientists discovered that some rocks have reverse magnetism. That means that what is now Magnetic South was once Magnetic North.

-On the seafloor this is what was found:



- On each side of the spreading center, there was the same pattern of magnetism.
- The pattern was symmetrical!

Continental Drift: 120 million years into the future!

