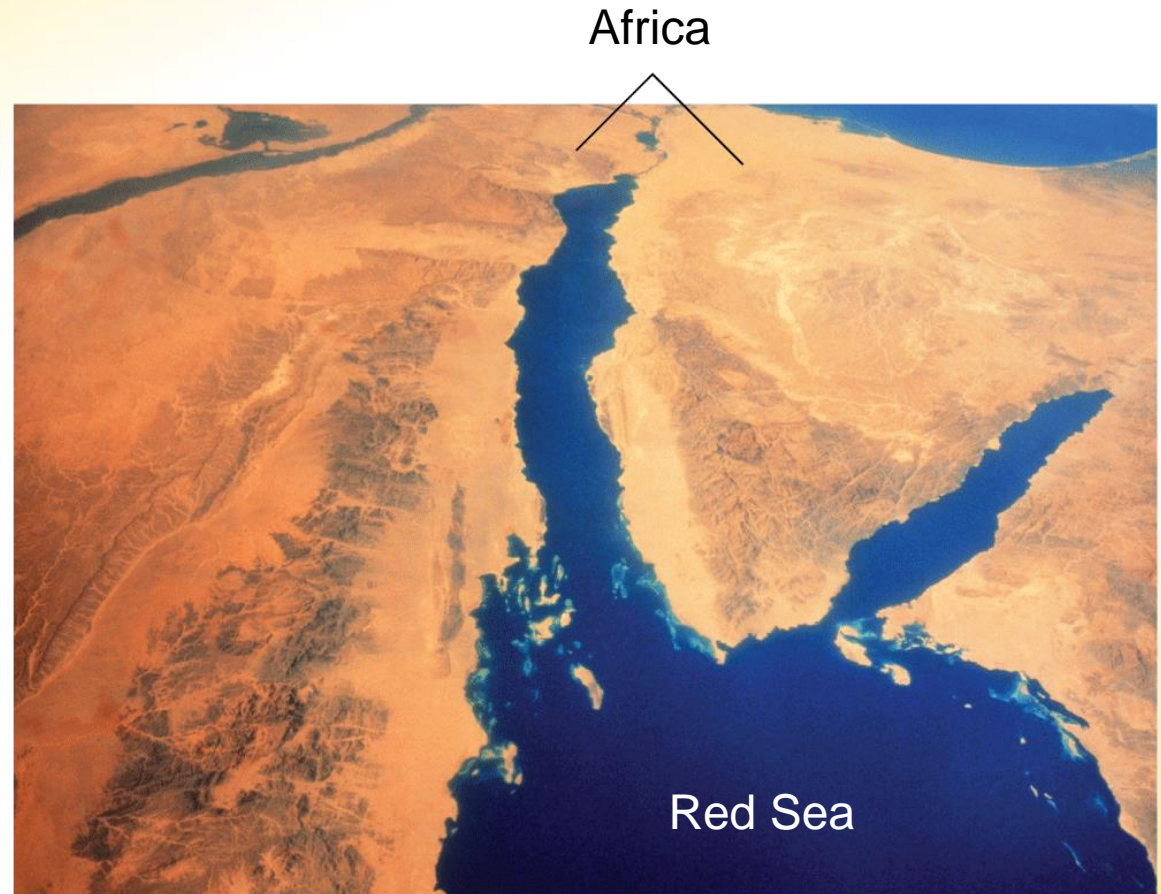


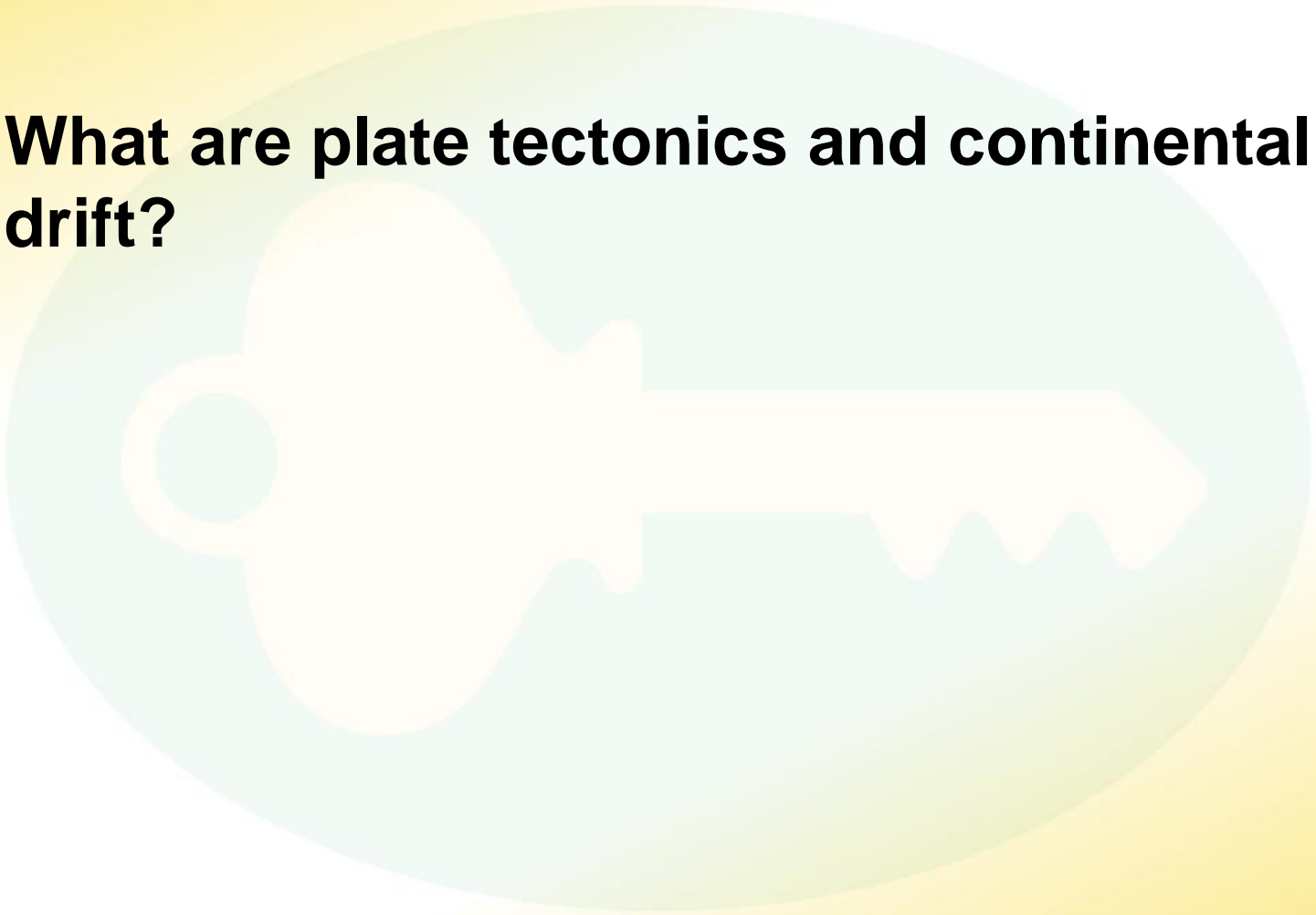
The Red Sea
between Africa and
the Arabian
peninsula in Asia -



Continental Drift



What are plate tectonics and continental drift?



Continental Drift

Plate tectonics is -

According to Wegener's hypothesis-

Continental Drift

In 1912, Alfred Wegener proposed a hypothesis of continental drift to explain these puzzling observations.

Wegener called -

Continental Drift

The continents -

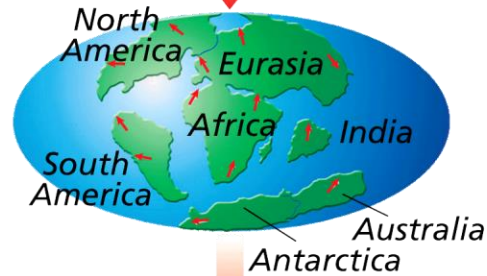
A 260 million years ago



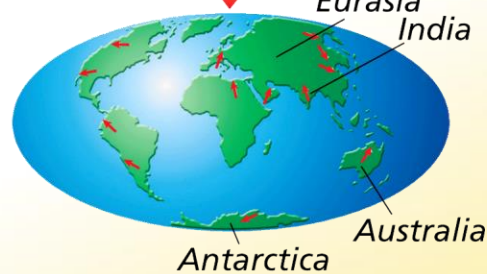
B 135 million years ago



C 65 million years ago



D Today



Sea-floor Spreading



What are the roles of sea-floor spreading and subduction in plate tectonics?

Sea-floor Spreading

Sea-floor spreading is -

As sea-floor spreading occurs-

Sea-floor Spreading

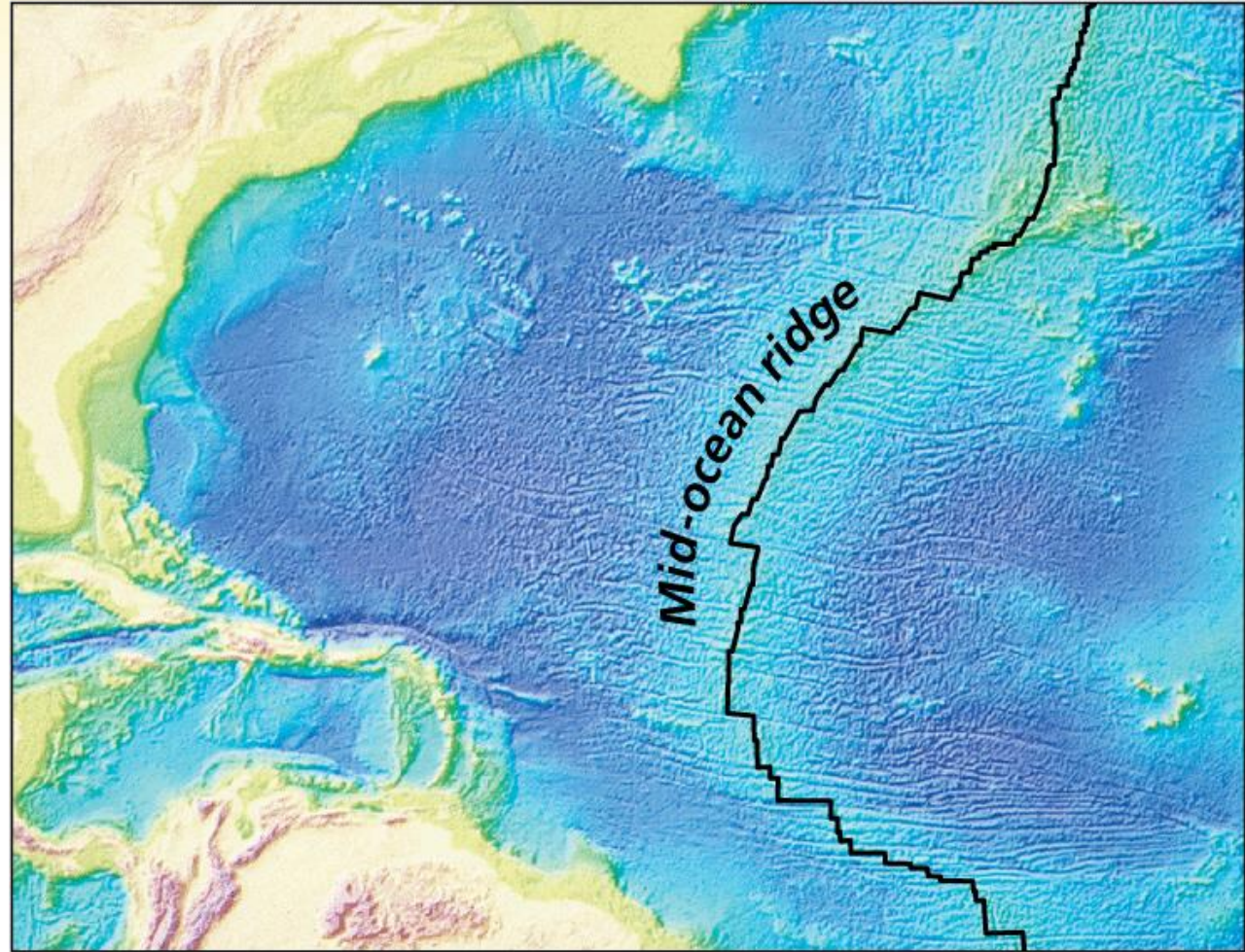
The Mid-Ocean Ridge

When scientists mapped the ocean floor-

Sea-floor Spreading

This false-color satellite image

-



Sea-floor Spreading

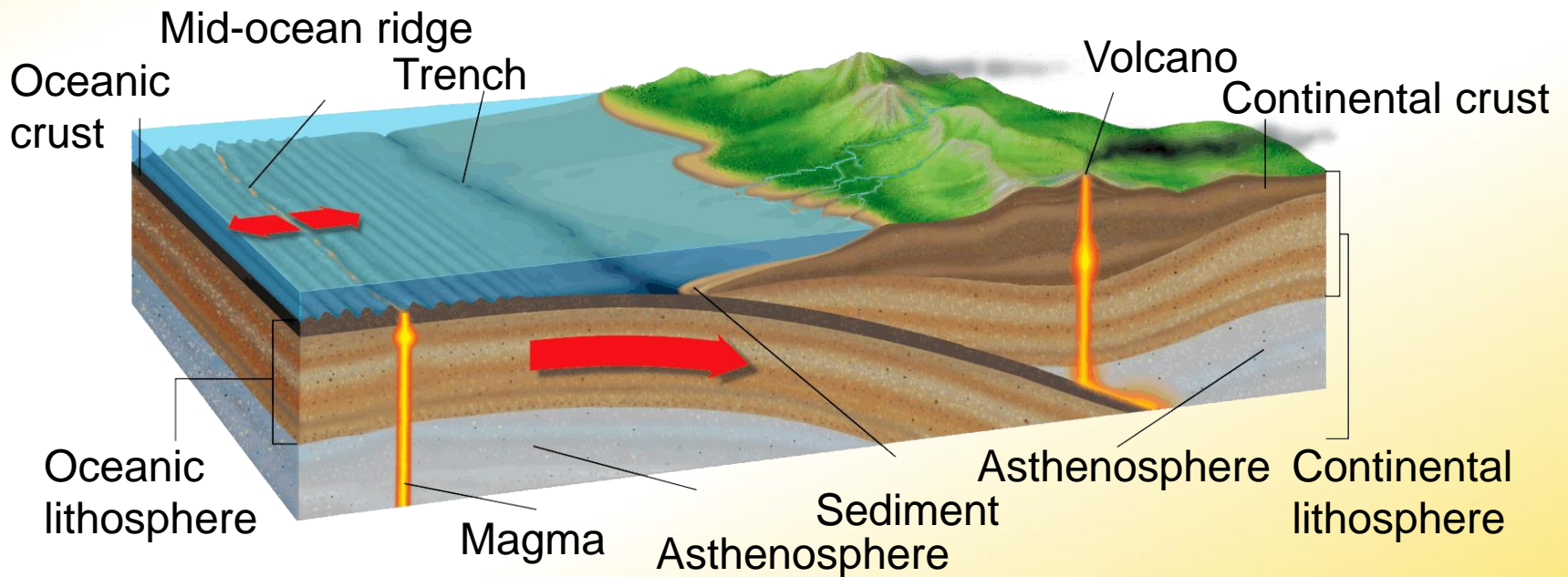
Formation of Oceanic Crust

Sea-floor spreading is -

- The mid-ocean ridge is -
- The parts of the ocean floor -
- Magma -

Sea-floor Spreading

During sea-floor spreading-



Sea-floor Spreading

Subduction of Oceanic Plates

As sea-floor spreading occurs, old oceanic plates sink into the mantle in the process of subduction.

Subduction zones are near the edges of oceanic plates.

As a plate sinks through a subduction zone-

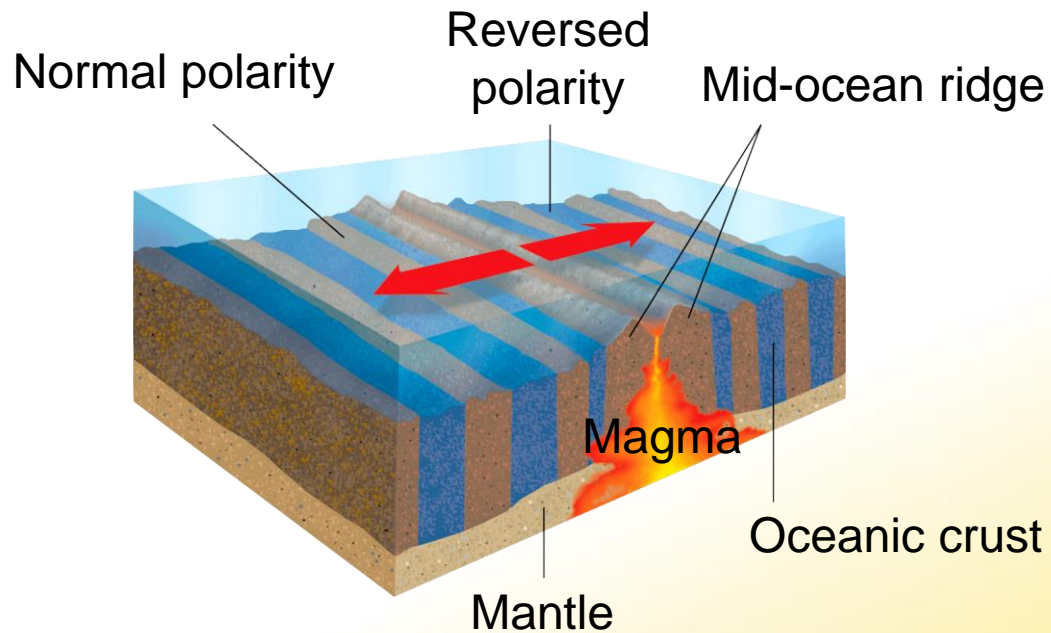
Sea-floor Spreading

Evidence for Sea-floor Spreading

Scientists discovered-

Sea-floor Spreading

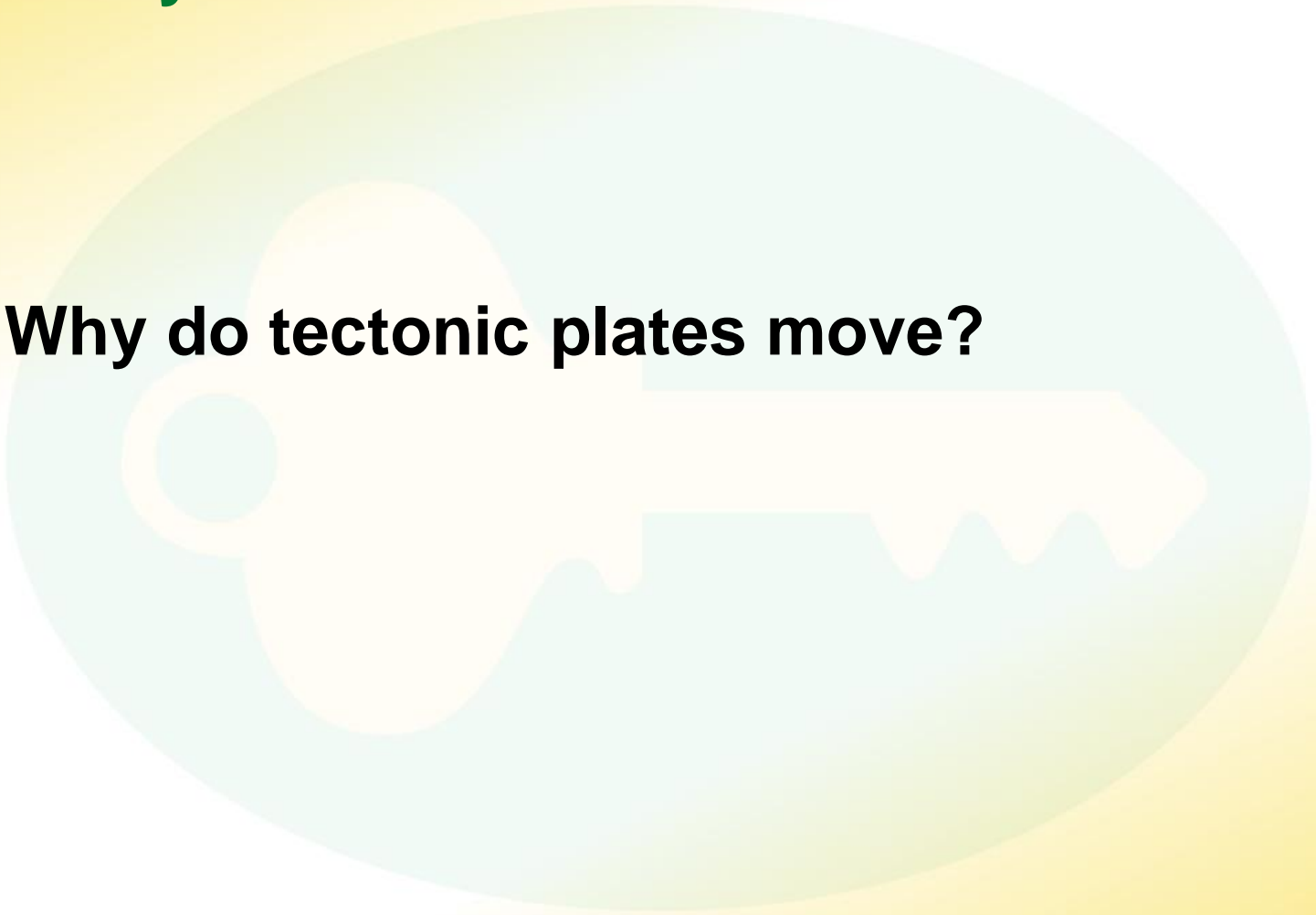
The pattern of magnetic stripes -



The Theory of Plate Tectonics



Why do tectonic plates move?



The Theory of Plate Tectonics

Heat flows from Earth's hot interior -

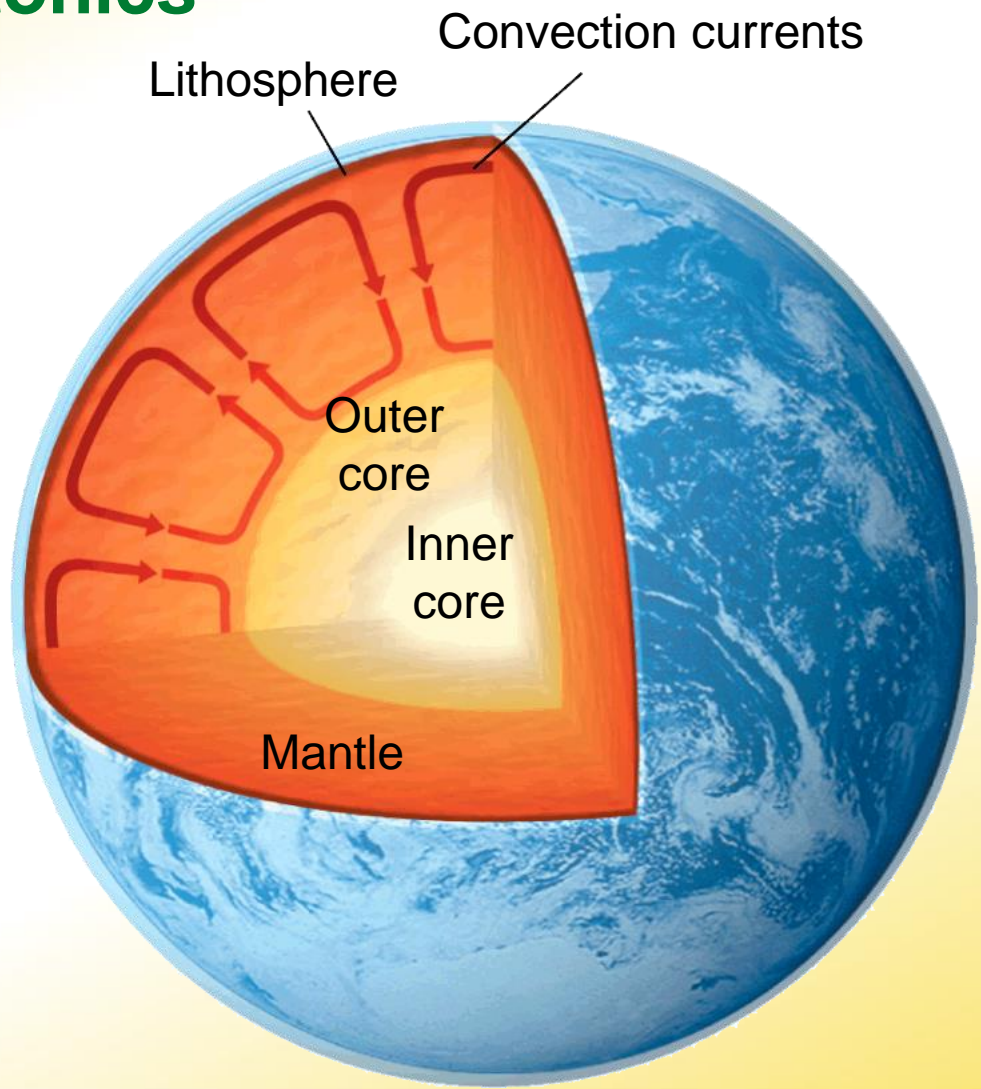


Plate Boundaries



What are the types of plate boundaries and what are their characteristics?

Plate Boundaries

The lithosphere is -

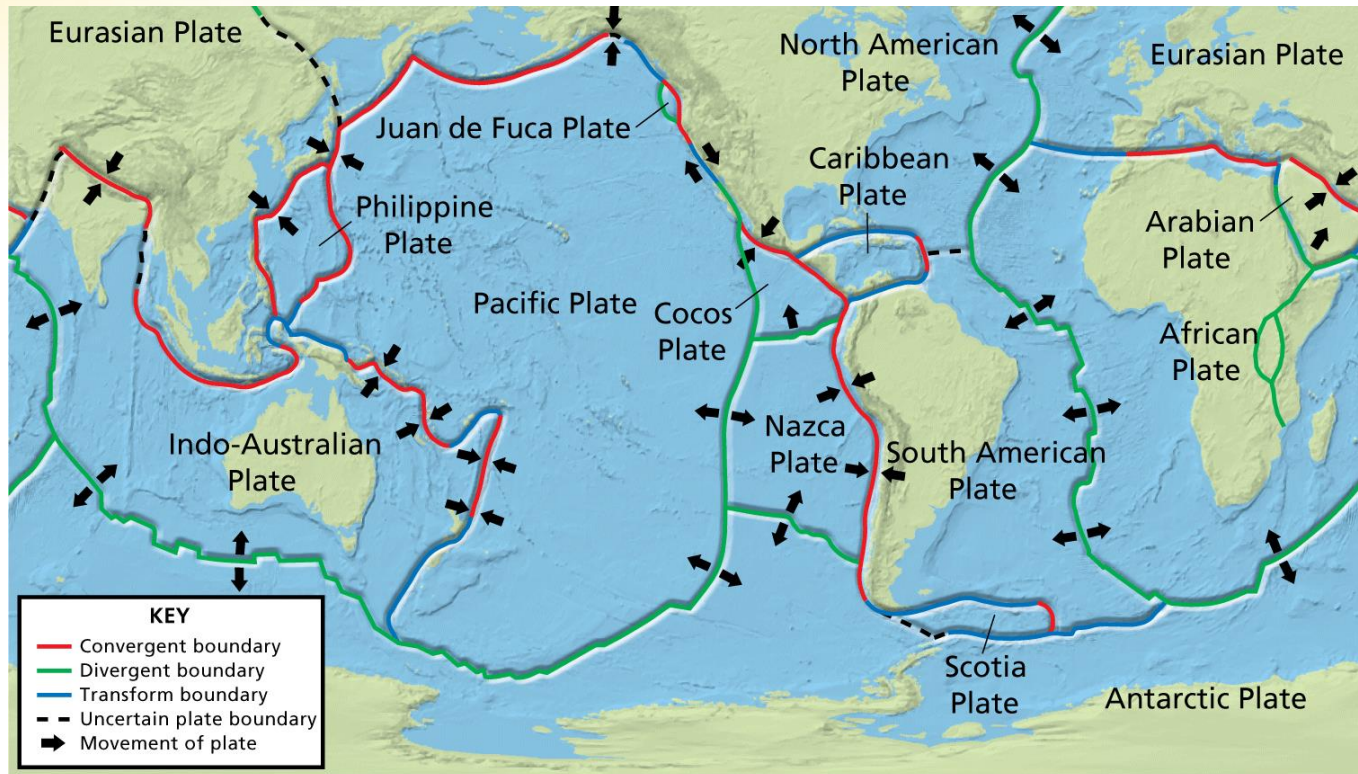


Plate Boundaries

The plates move very slowly, about 0.1 to 10 centimeters per year.

- Plates move away from each other along a **divergent boundary**. The mid-ocean ridge forms a divergent boundary. Divergent boundaries can also be found on land, for instance, in Africa.
- When plates move apart, magma rises to fill the gap and form new rock at the edge of each plate.

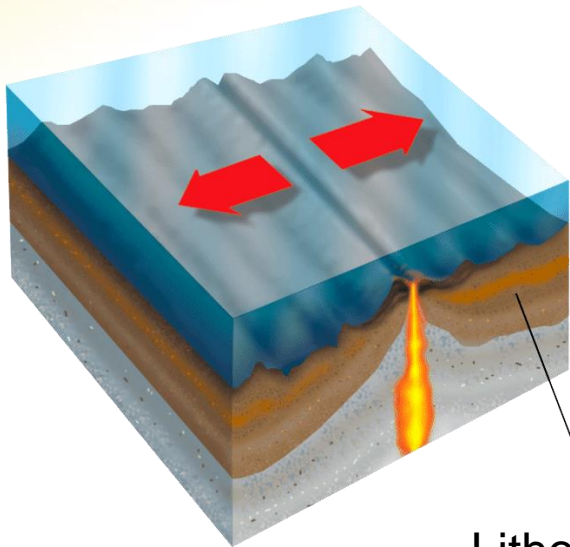
Plate Boundaries

- Plates come together, or collide-
- At a **transform boundary-**

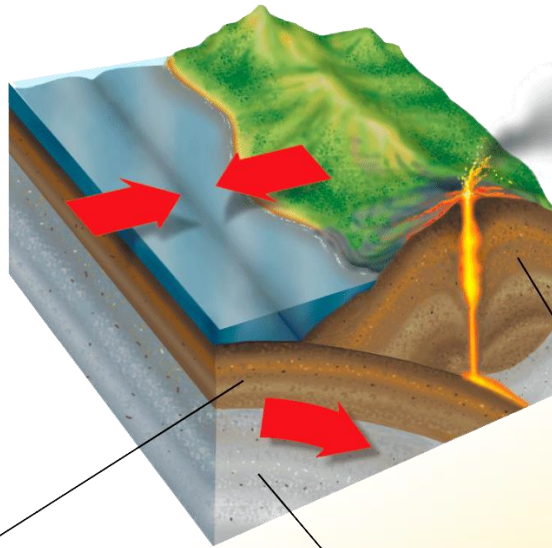
Plate Boundaries

Plates meet at three types of boundaries:

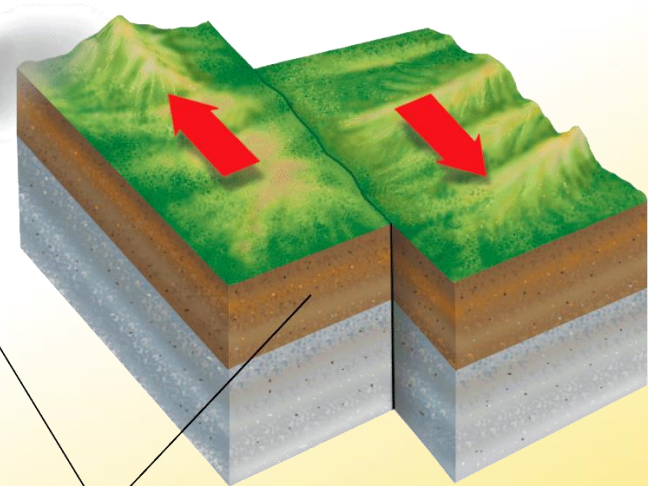
Divergent Boundary



Convergent Boundary



Transform Boundary



Lithosphere

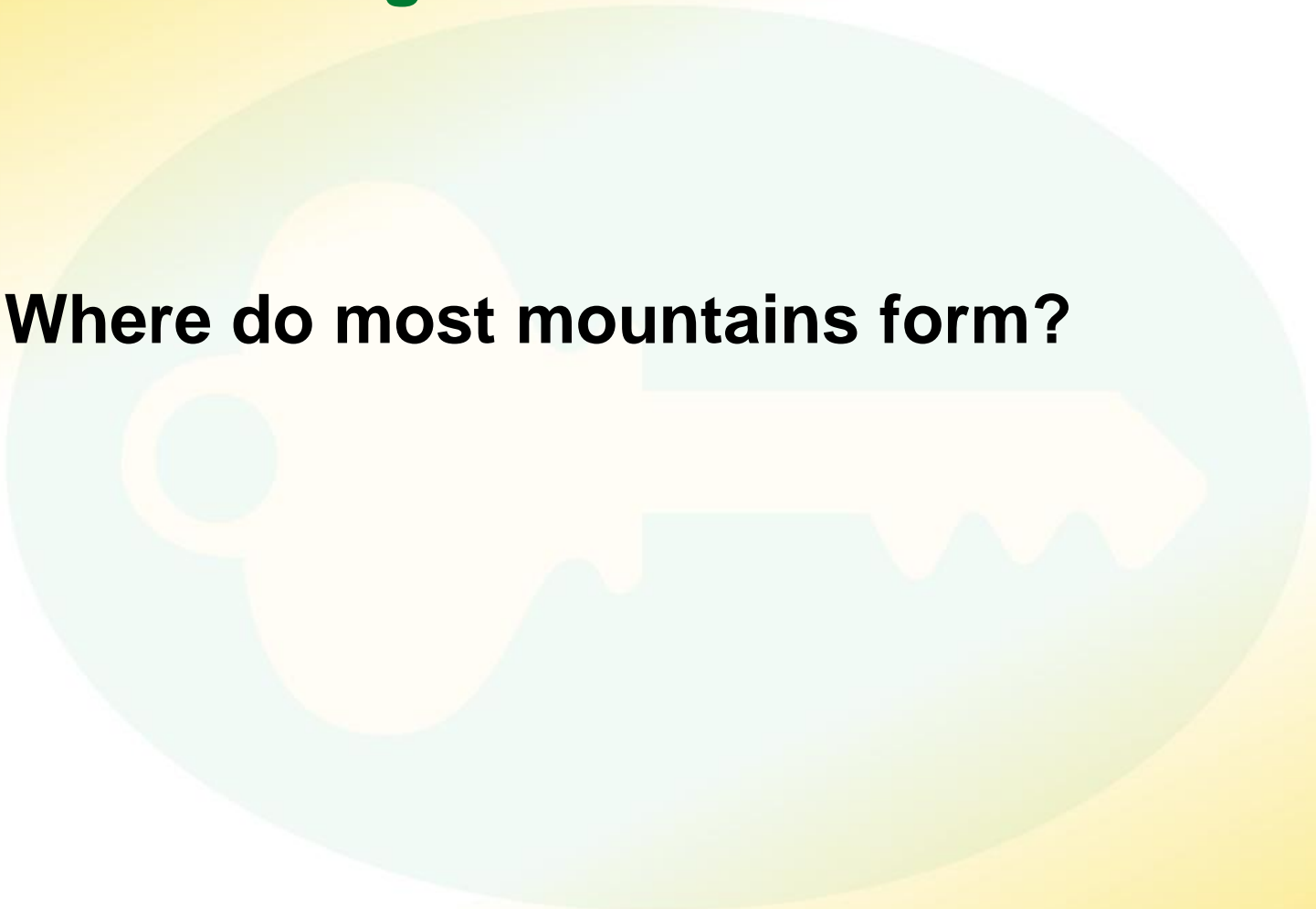
Asthenosphere

Lithosphere

Mountain Building



Where do most mountains form?



Mountain Building

Some mountains form when two plates -

Mountain Building

The Andes-



Assessment Questions

1. According to Wegener's hypothesis of continental drift, what is Pangaea?
 - a. Africa and South America before they drifted apart
 - b. a tectonic plate located in the Pacific Ocean
 - c. the process by which continents move
 - d. an ancient supercontinent formed 260 million years ago

Assessment Questions

2. What type of plate boundary causes mountain chains, such as the Himalayas, to form?
 - a. divergent
 - b. convection
 - c. convergent
 - d. transform

Assessment Questions

3. What causes Earth's plates to move?
- a. gravitational force between continents
 - b. magnetic forces in the lithosphere
 - c. global winds pushing continents
 - d. convection currents in Earth's mantle