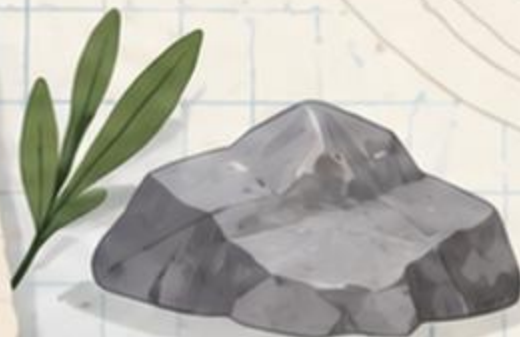
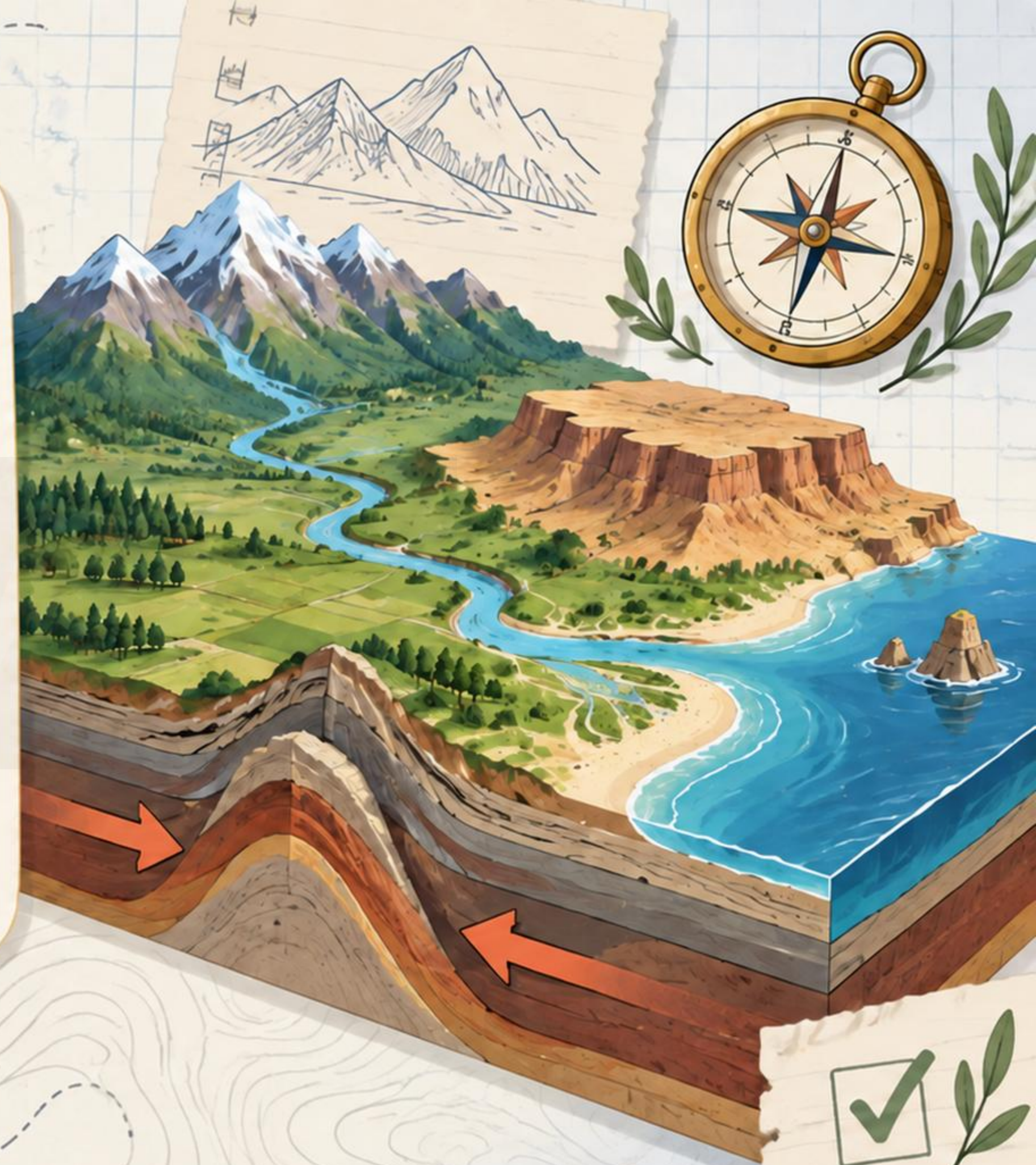


SOCIAL SCIENCE • CLASS 9

CHAPTER 2

Shaping of the Earth's Surface

CHAPTER NOTES



SHAPING OF THE EARTH'S SURFACE

The Earth's surface is constantly changing. Forces act from inside the Earth and on its surface.

LANDFORM: a natural feature on the Earth's surface.

Examples: mountains, valleys, plateaus, plains, deserts and coastal features.

INTERNAL FORCES (ENDOGENIC)

- Energy comes from inside the Earth.
- Move and deform the crust.
- Processes: plate movement, folding, faulting, earthquakes and volcanic eruptions.
- Mainly build or uplift major relief: mountains, valleys and ocean basins.

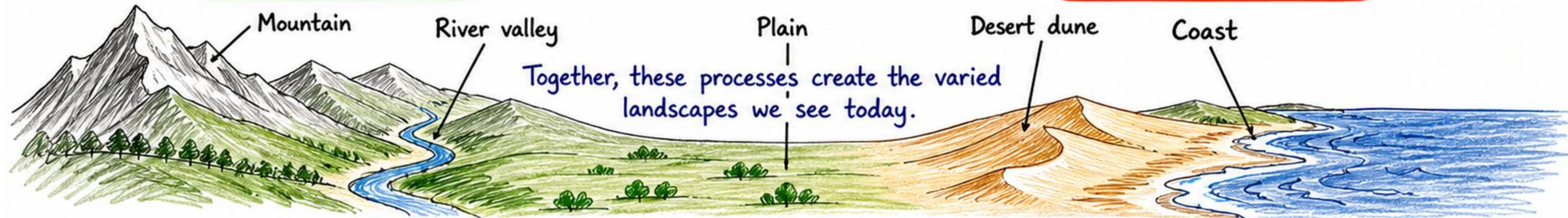
EXTERNAL FORCES (EXOGENIC)

- Act at or near the Earth's surface.
- Powered mainly by the Sun, gravity and moving water, wind or ice.
- Processes: weathering, erosion, transportation and deposition.
- Wear down high areas and fill low areas.

INTERNAL FORCES
build and uplift

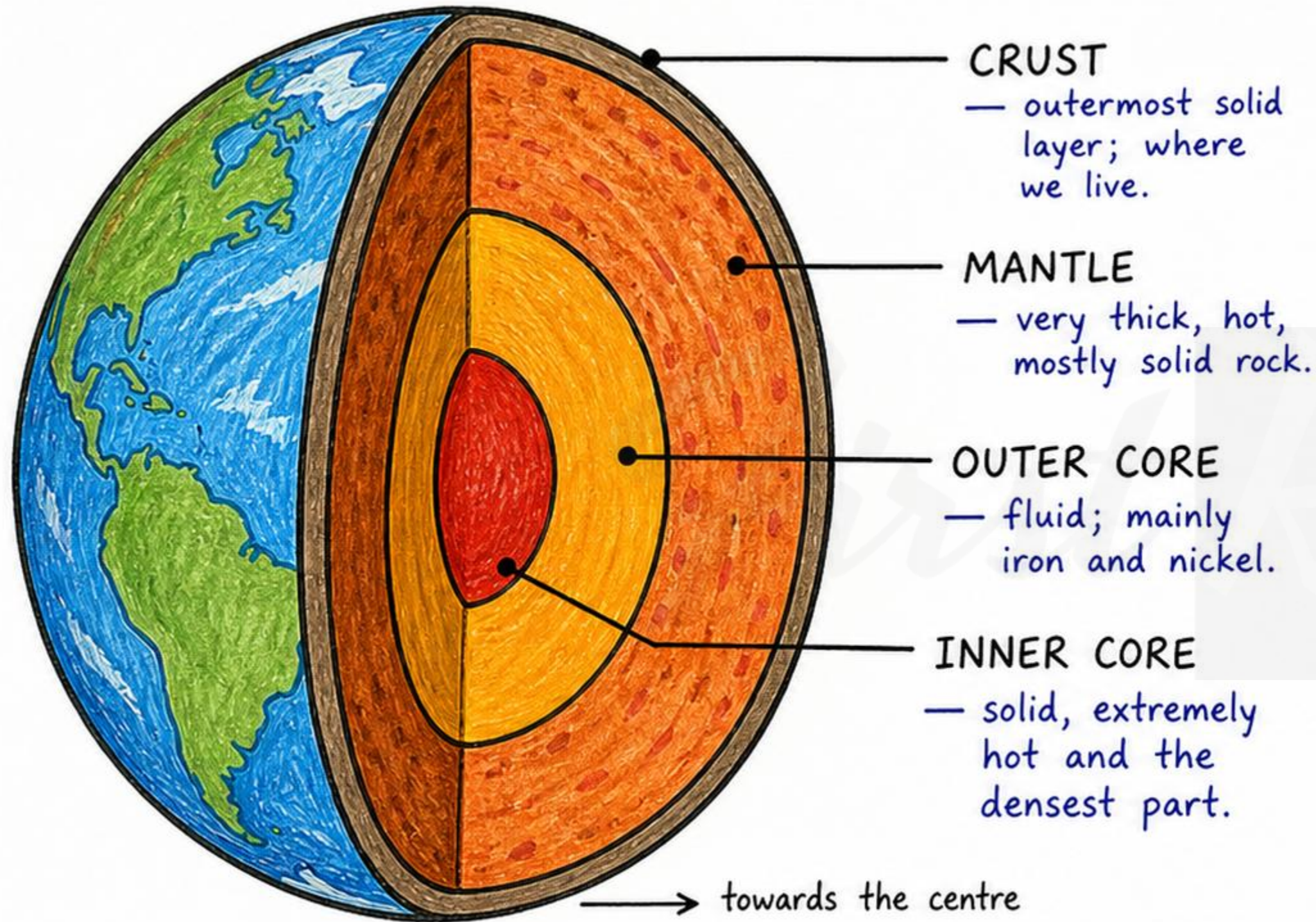
EARTH'S RELIEF

EXTERNAL FORCES
wear down and reshape



Landforms influence climate, resources, settlements, livelihoods and culture.

INSIDE THE EARTH



THREE MAIN LAYERS

1. Crust: about 30–40 km under continents and 5–7 km under oceans.
2. Mantle: about 2,900 km thick; lies below the crust.
3. Core: innermost, extremely hot and heavy; outer core is fluid, inner core is solid.

LITHOSPHERE

- Rigid outer layer.
- Crust + uppermost mantle.
- Broken into tectonic plates.
- Approximate thickness shown in the chapter: 100 km.

ASTHENOSPHERE

- Hot, weak and mobile layer below the lithosphere.
- Partially molten rock lets plates move.
- Approximate thickness shown in the chapter figure: 200 km.

Rigid tectonic plates



move slowly over



mobile asthenosphere

Approximate layer thicknesses in the chapter diagram:
Mantle 2,900 km | Outer core 2,200 km | Inner core 1,250 km
Earth radius shown $\approx$ 6,375 km

TECTONIC PLATES AND CONVECTION

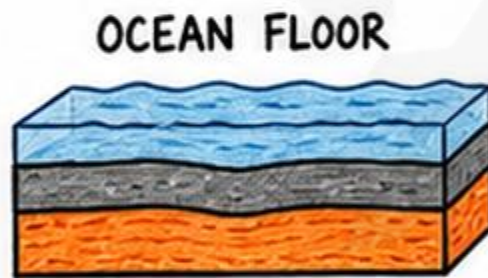
TECTONIC PLATES are massive slabs of solid lithosphere. They move very slowly over the asthenosphere—usually only a few centimetres per year.

THREE TYPES

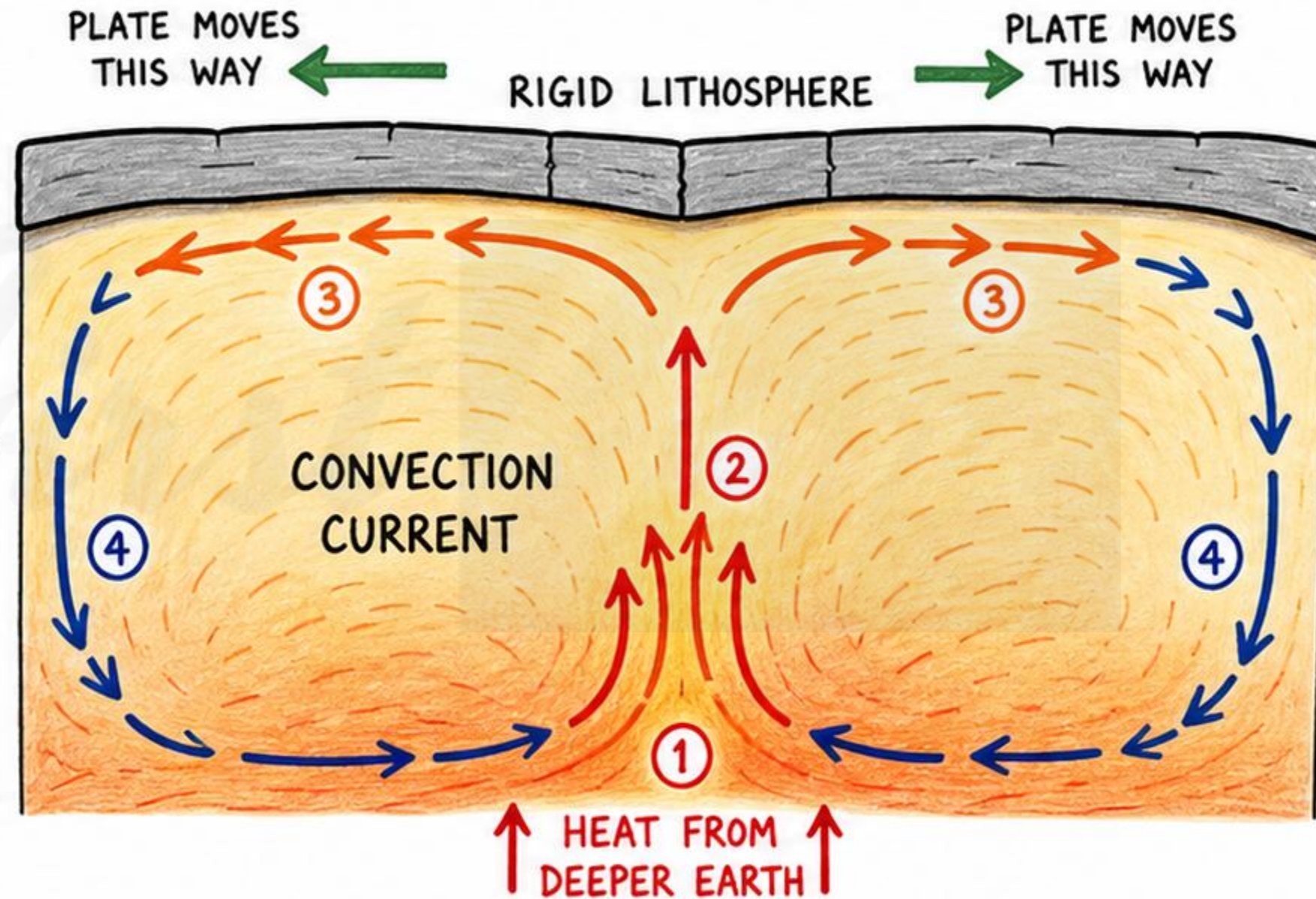
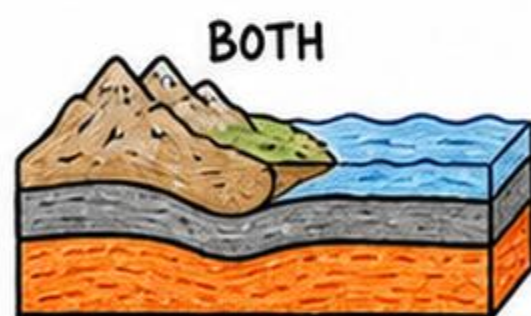
1. Continental plates — carry continents.



2. Oceanic plates — carry ocean floors.



3. Mixed plates — carry both continents and oceans.



① Heat from the Earth's interior warms mantle material.

② Hotter material rises.

③ It spreads below the lithosphere and helps move plates.

④ Cooler material sinks.

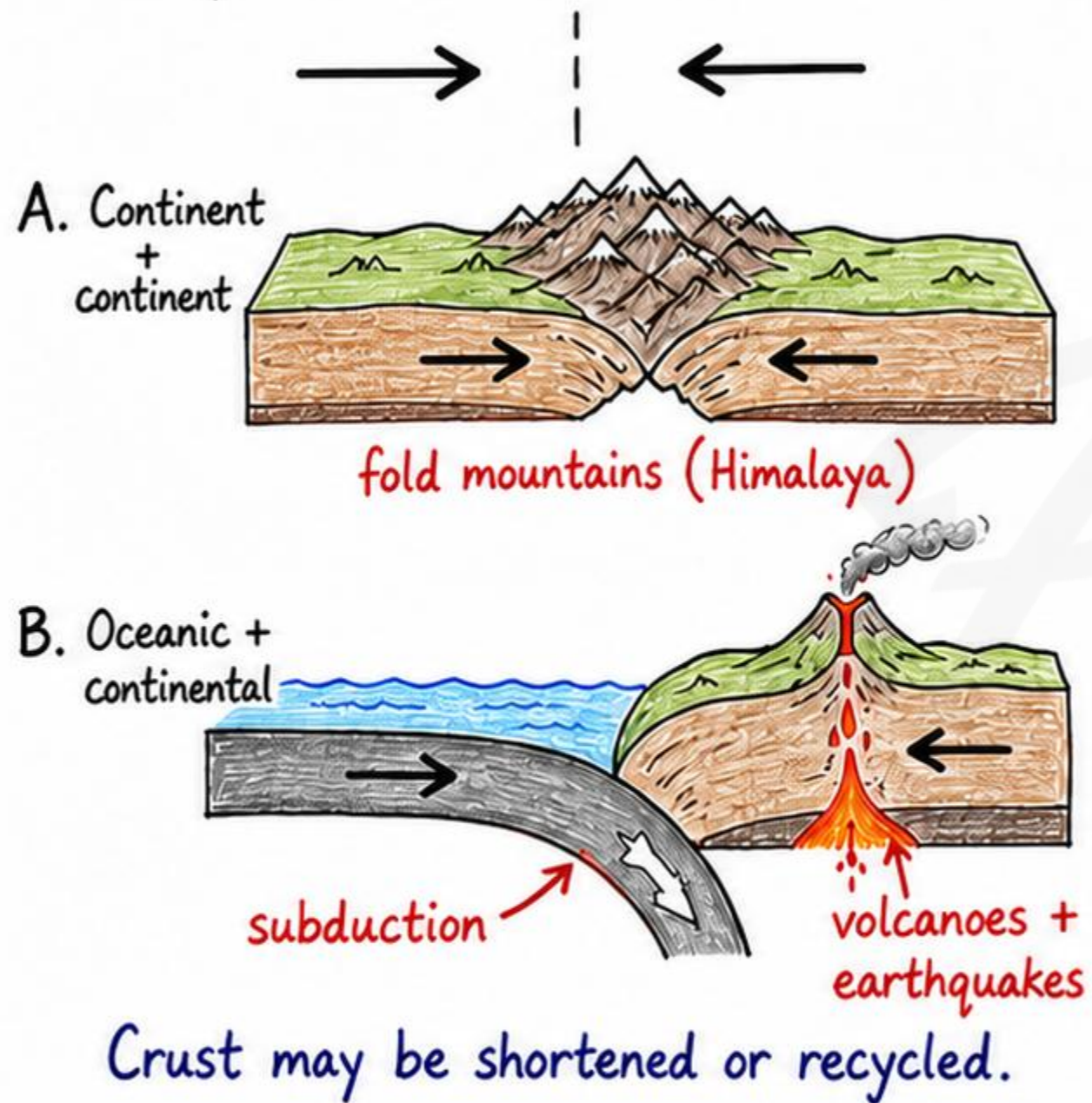
⑤ The cycle repeats.

MAJOR PLATES: Pacific, Eurasian, African, North American, South American, Indo-Australian and Antarctic.

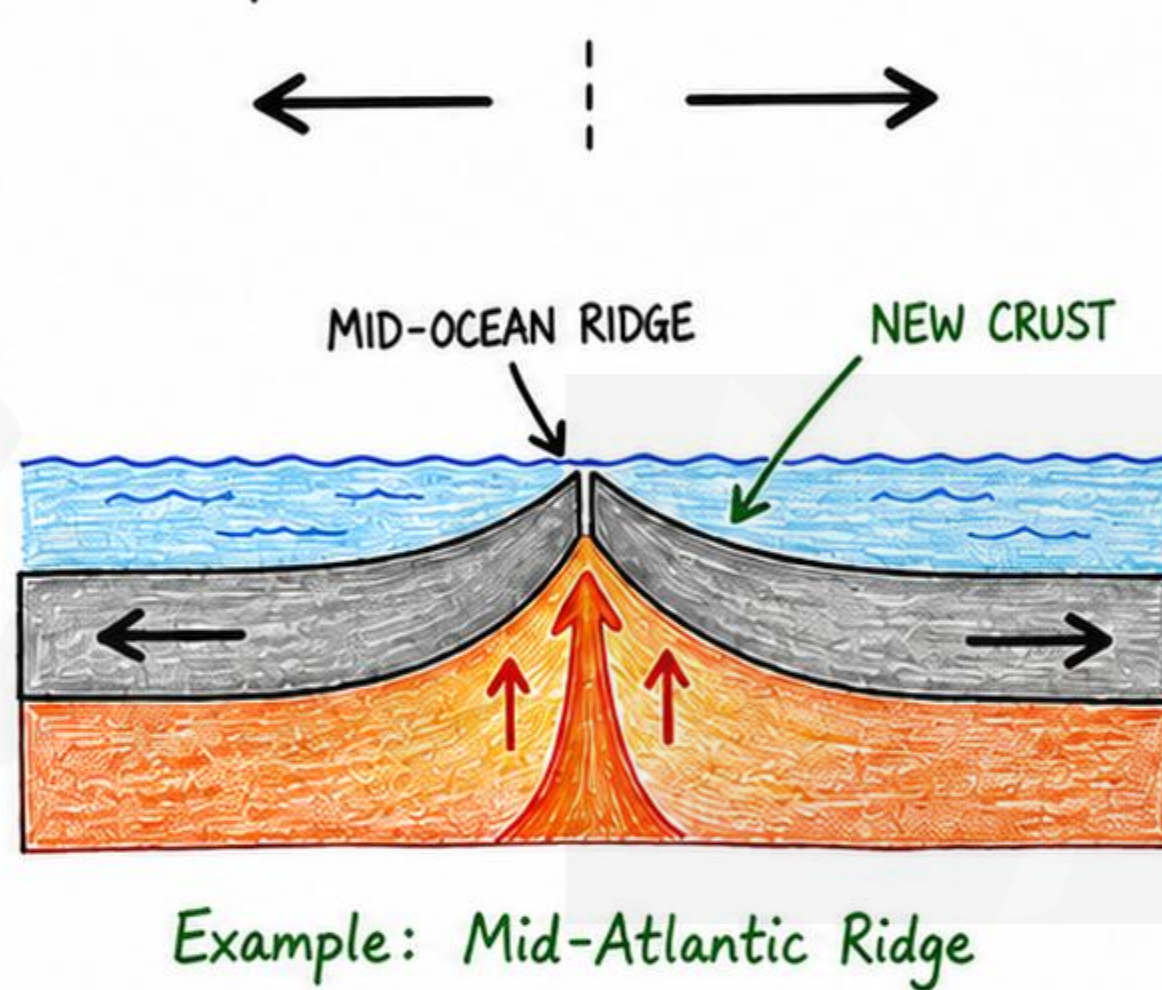
→ Plate motion is slow, but over millions of years it reshapes continents and ocean floors.

THREE TYPES OF PLATE BOUNDARIES

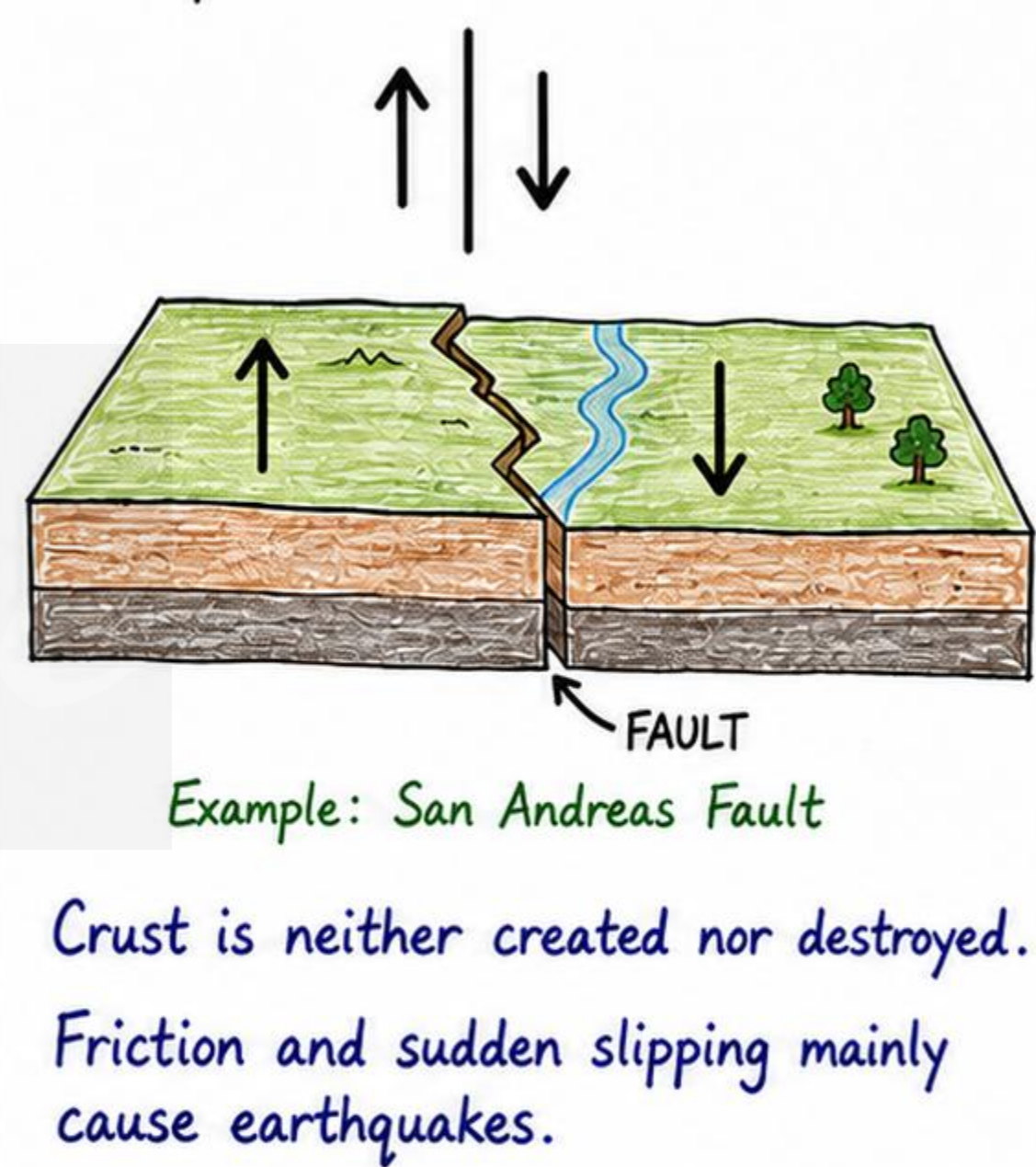
- ① **CONVERGENT** —
plates move **TOWARDS** each other



- ② **DIVERGENT** —
plates move **AWAY** from each other



- ③ **TRANSFORM** —
plates **SLIDE PAST** each other



Convergent → collision/subduction →
mountains, trenches, volcanoes,
earthquakes

Divergent → separation →
mid-ocean ridges
and new crust

Transform → sideways motion →
faults and earthquakes



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