

SOCIAL SCIENCE SIMPLIFIED

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MEMORY MAP

Shaping of the Earth's Surface

1. Structure of the Earth

- Crust: thin, solid, 30–40 km under continents, 5–7 km under oceans
- Mantle: thick, mostly solid, extends to 2900 km
- Core: inner (solid) + outer (liquid), iron & nickel
- Lithosphere: crust + upper mantle, rigid, broken into plates
- Asthenosphere: semi-molten, allows plate movement

2. Plate Tectonics

- Theory by W.J. Morgan
- Plates: continental, oceanic, mixed
- Convergent: collide → fold mountains, volcanoes
- Divergent: separate → mid-ocean ridges
- Transform: slide → earthquakes
- Ring of Fire: Pacific Ocean zone of quakes & volcanoes

3. Landforms

- Mountains, Plateaus, Plains
- Coastal: cliffs, caves, arches, stacks
- Glacial: U-shaped valleys, cirques, moraines
- Karst: caves, stalactites, stalagmites, sinkholes

4. Weathering

- Physical: temperature changes, frost, wind
- Chemical: reactions with water, air, acids
- Biological: roots, animals, microorganisms
- Breakdown only, no movement

5. Erosion

- Wearing away + movement of materials
- Agents: water, wind, glaciers, waves
- Effects: soil loss, land degradation, coastal retreat
- Human impact: affects farming, construction, tourism

6. Agents of Gradation

- Running water: valleys, meanders, deltas

- Glaciers: U-shaped valleys, moraines
- Wind: dunes, yardangs, deflation hollows
- Waves: cliffs, arches, stacks
- Groundwater: caves, sinkholes

7. Natural Disasters

- Earthquakes: plate movement
- Volcanoes: magma eruption
- Landslides: rain, quakes, deforestation
- Avalanches: snow instability
- Floods: river overflow, glacial melt

8. Human–Environment Connection

- Landforms shape settlement, agriculture, trade
- Rivers/plains → fertile civilizations
- Mountains → barriers & protectors
- Coasts → trade & cultural exchange
- Human actions (deforestation, mining) → increase disaster risk