

- 1 ☐ *Plate Tectonics*
 - ⊕ Movement of plates of the earth
 - ⊕ Causing continental drift, earthquakes, volcanoes!
- 2 ☐ *Earth's Composition*
 - ⊕ Crust- outermost layer of the earth.
 - ⊕ Thinnest layer 5 - 100 km
 - ⊕ Continental crust: granite (30 km thick)
- 3 ☐ *Oceanic Crust*
 - ⊕ Basalt compositions
 - ⊕ Thinner but denser than continental crust
 - ⊕ 5-8 km thick
- 4 ☐ *Mantle*
 - ⊕ Between crust & core
 - ⊕ Contains most of earth's mass - thick
 - ⊕ Best view is underwater volcanoes
 - ⊕ Olivine: magnesium and iron
- 5 ☐ *Core*
 - ⊕ From outer mantle to center of Earth
 - ⊕ Fe, Ni, possible O & S
- 6 ☐ *Structure of Earth*
 - ⊕ 5 main physical layers
 - ⊕ Lithosphere: Rock sphere
 - ⊕ Crust & upper mantle (plates)
 - Asthenosphere: "weak sphere"
 - Plates move on
- 7 ☐ *Mesosphere*
 - ⊕ Strong, lower mantle

- ✦ Extends to core
- ✦ Outer core: Liquid layer of core
- ✦ Inner core: Solid layer of core

8 ☐ *Tectonic Plates*

- ✦ Lithosphere is like a giant jigsaw puzzle floating on the asthenosphere.
- ✦ Different shapes & sizes
- ✦ Continental, oceanic crust or both (See p. 276 & Trans.)

9 ☐ *Tip of the Iceberg?*

- ✦ Viewed from side: p. 277
- ✦ Mountains on continental crust low compared to root!

10 ☐ *Earth's Interior*

- Earthquakes produce: seismic waves
- Travel faster the more dense the material
- Lithosphere: 7-8 km/s
- Asthenosphere: 7-11 km/s
- Outer Core: 7-10 km/s
- Inner core: 11-12 km/s

11 ☐ *Continental Drift/Sea Floor Spreading*

- ✦ Wegener: 1900's
- ✦ Similar fossils on both sides of the Atlantic
- ✦ Similar rock formations & climate patterns

12 ☐ *Pangea*

- ✦ Single land mass (all earth)
- ✦ Sea floor spreading
- ✦ Mid ocean ridges
- ✦ New ocean lithosphere created - old pulled apart

13 ☐ *Magnetic Reversals*

- ✦Magnetic poles switch
- ✦As lava cools at mid ocean ridges - magnetic particles align
- ✦Equally spaced- they align

14 ☐ *Plate Tectonics*

- ✦Earth's lithosphere is divided into plates that move on the asthenosphere
- ✦Possible Causes
 - ✦Ridge push, slab pull, convection (see p. 283)

15 ☐ *Plate Boundaries*

- ✦Convergent
 - ✦Move together
 - ✦Continent vs. Continent = crust buckles upward

16 ☐

Continent vs. Ocean = ocean sinks beneath continent = subduction

17 ☐ *Convergent boundaries*

- ✦Ocean vs. Ocean =
- ✦Subduction
- ✦Divergent Boundaries =
 - ✦Move apart
 - ✦Magma moves in to fill

18 ☐ *Transform Boundaries*

- ✦Plates slide past each other
- ✦Ex: boundary between Pacific plate and N. American plate (San Andreas fault)

19 ☐ *Deformation of Earth's Crust*

- ✦Rocks change shape due to stress
- ✦Compression: pushed together ex: Rockies & Cascades
- ✦Tension: Stretched apart

- 20 *Folding due to deformation*
 - ⊗ Syncline
 - Horizontal stress
 - ⊗ Anticline
 - ⊗ “ ”

- 21 *Folding Deformations*
 - ⊗ Monocline
 - ⊗ Vertical stress acts on rock

- 22 *Faulting*
 - ⊗ Break & slide
 - ⊗ Normal fault
 - ⊗ tension
 - ⊗ Footwall
 - ⊗ Hanging wall

- 23
 - ⊗ Reverse fault
 - ⊗ compression

- 24 *Strike-slip fault*
 - ⊗ Opposing plates brake & slide past each other
 - ⊗ Right & left lateral

- 25 *Mountain Building*
 - ⊗ Folded mountains converge and push upward
 - ⊗ Appalachians & Himalayans

- 26 *Volcanic mountains*
 - ⊗ Convergent boundaries with subduction zones
 - ⊗ Ex: Hawaii

- 27 *Fault-Block Mountain*
 - ⊗ Tension/
 - ⊗ divergent
 - ⊗ Rocks break in series of normal faults

⊕Ex: Sierra Nevadas