

Earth's Interior Notes 8-4

name _____ /59 pts

I. Earth as a system:

A) A Unique Planet

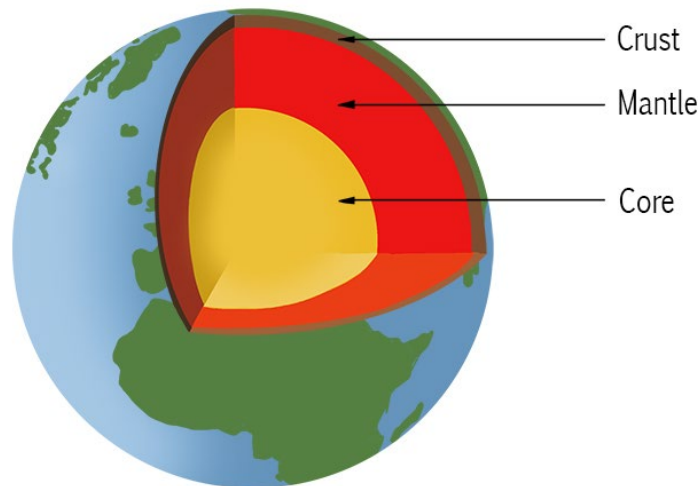
- 1) Only planet in solar system with _____ water
- 2) Large amount of _____ in atmosphere
- 3) Supports _____

B) Earth Basics

- 1) Formed 4.6 _____ years ago and is made mostly of _____
- 2) 70% of Earth's surface is a _____ ocean (5 major oceans that connect)
- 3) Oblate _____ = slightly flattened sphere with fatter equator
 - a) Pole to Pole _____ = 40,007 km
 - b) _____ circumference = 40,074 km
 - c) Average _____ = 12,756 km

C) Earth's interior (discovered by studying seismic waves)

- 1) Three _____ zones (sorted by what they are _____ of)



a) Crust = the _____, outermost zone of Earth (_____ % of Earth's mass)

- 1) _____ crust = 7 km thick
- 2) _____ crust = 8-75 km thick
- 3) composed of _____ minerals

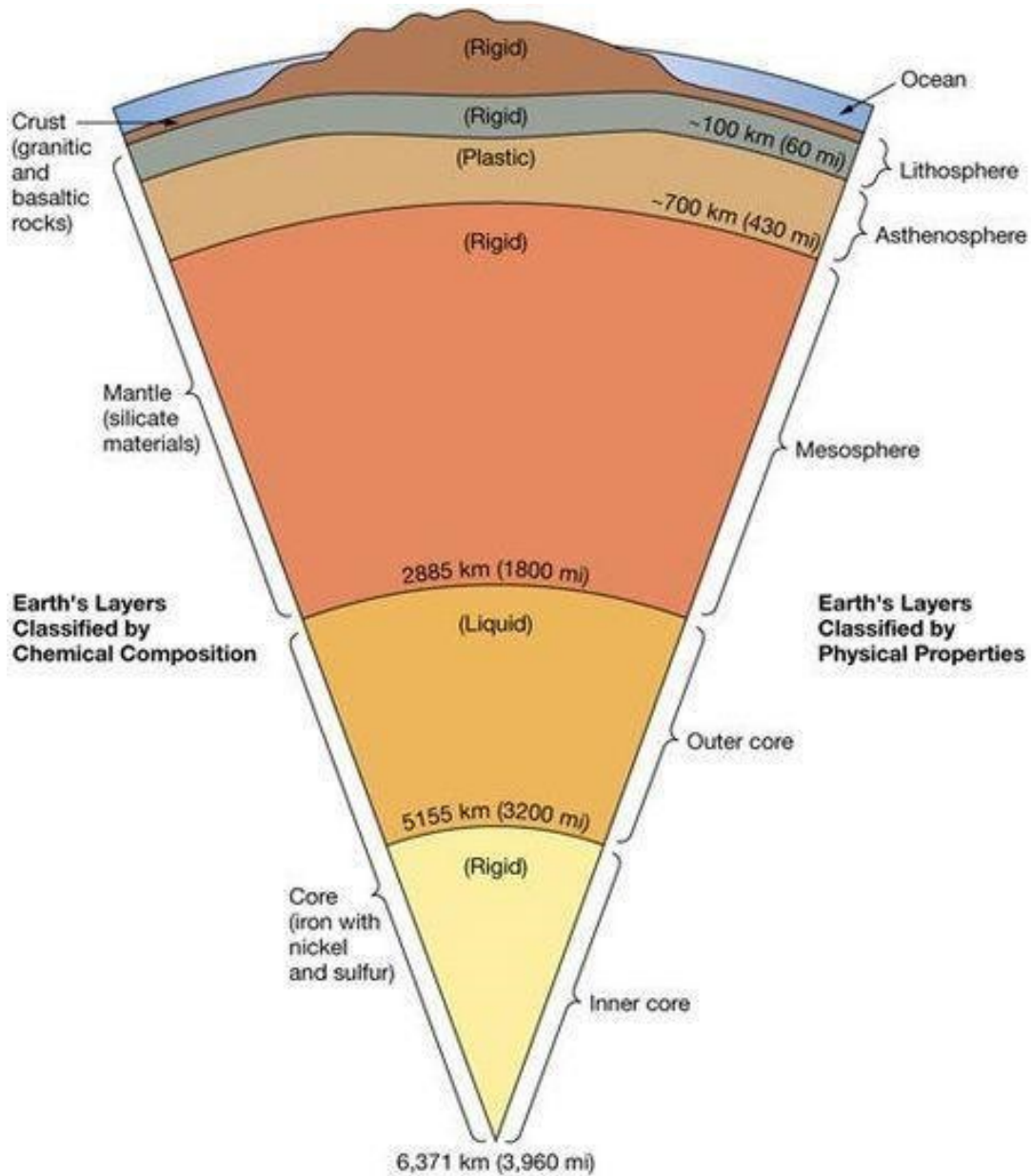
b) _____ = The layer below the crust (_____ % of Earth's mass)

- 1) 2890 km thick
- 2) greater _____ than crust
- 3) composed of iron and _____ silicates

c) Core = _____ of the Earth

- 1) _____ km radius sphere
- 2) composed mostly of _____ and _____

D) Five _____ zones of Earth (sorted by how _____ they are)



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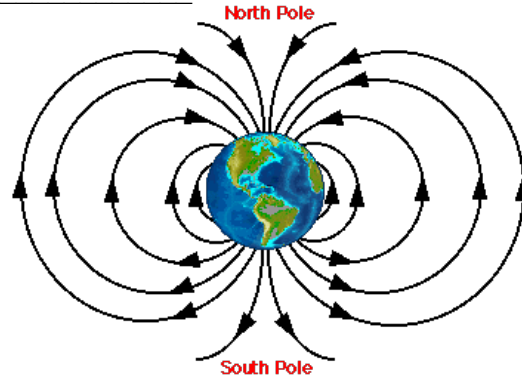
- 1) _____ = rigid upper mantle _____ to the crust (15-300 km thick)
- 2) _____ = Plastic layer below the lithosphere that _____ like silly putty due to _____ (200 km thick)
- 3) _____ Mantle = hot _____ rock layer below asthenosphere that flows just a little (2400 km thick)
- 4) _____ Core = Dense, _____ iron and _____ (2260 km thick)

5) Inner _____ = Very _____, solid _____ and nickel
(1220 km radius)

E) Earth as a _____ = Protects Earth's surface from _____ winds from the Sun

1) Has _____ and _____ geomagnetic poles that switch from time to time (called magnetic _____)

2) May be caused by _____ iron core spinning one direction and _____ iron outer core spinning the _____ direction.



F) Earth's Physical properties

1) Law of _____ = The force of attraction between any two _____

a) _____ - The larger the objects, the _____ the gravitation

b) _____ - the _____ two objects are, the greater the gravitation

c) planet earth attracts all objects towards it's _____, not "down"

2) Temperature

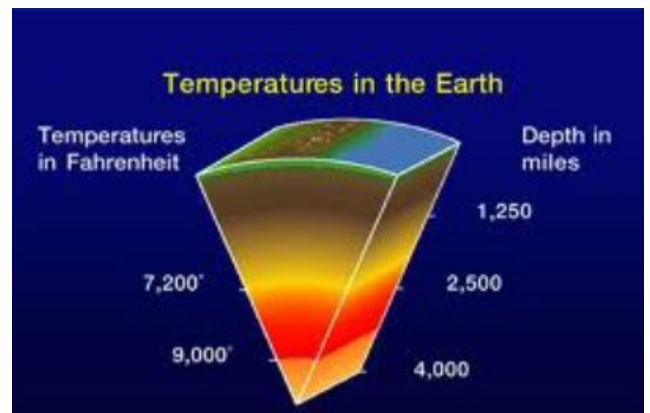
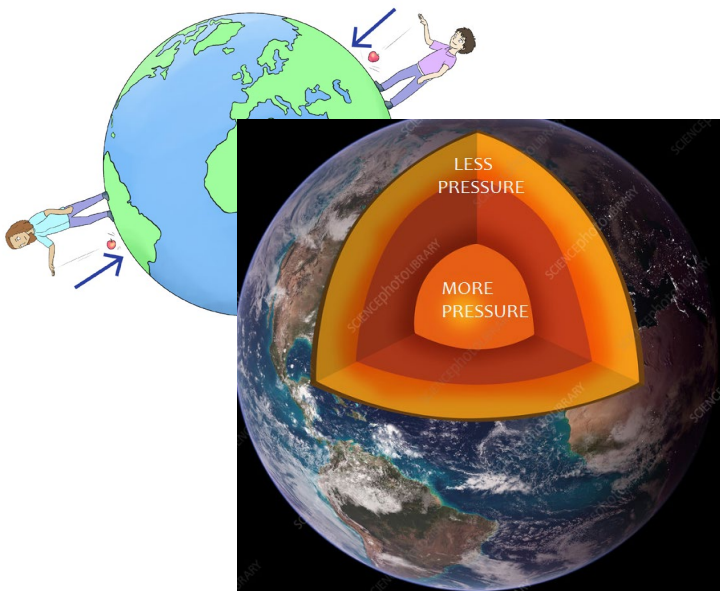
a) _____ the deeper you go

b) created by _____ of decaying elements in the _____

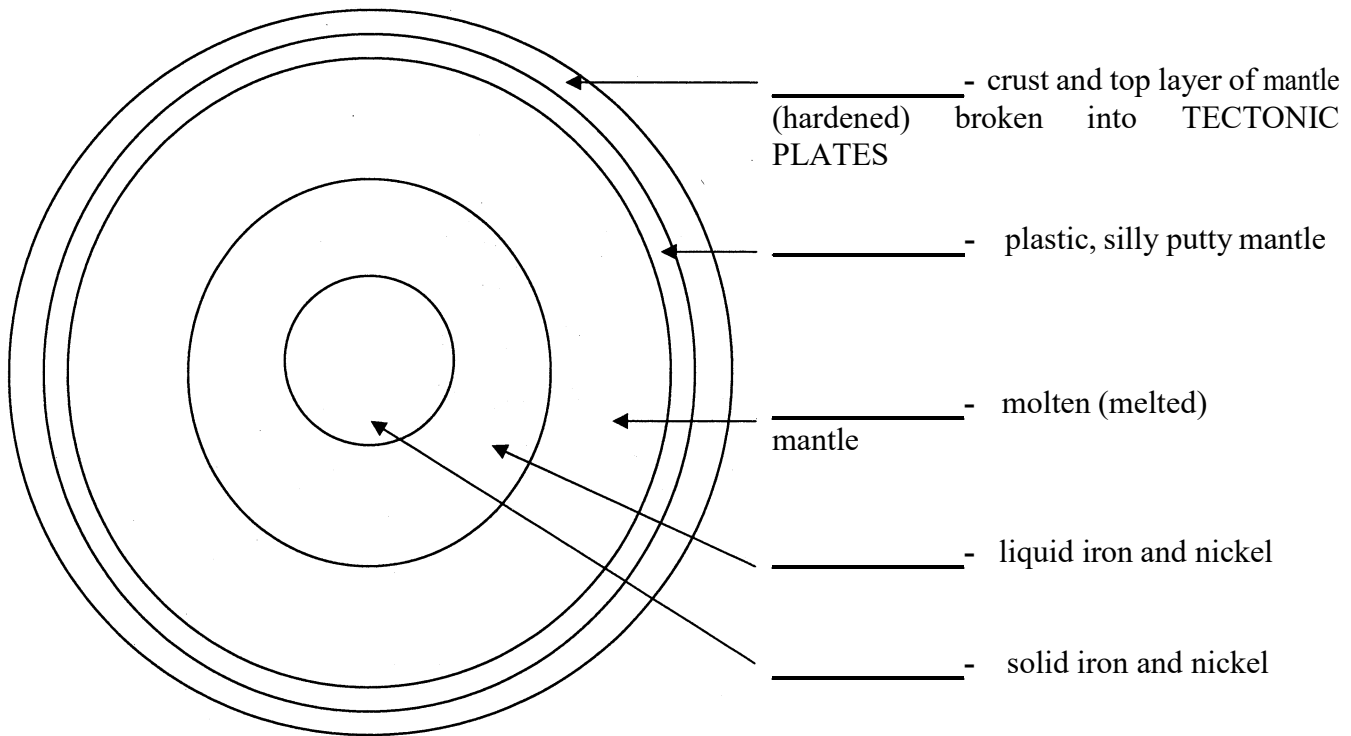
3) Pressure

a) increases the _____ you go

b) weight above the deeper _____ press down



A. Earth's Layers review



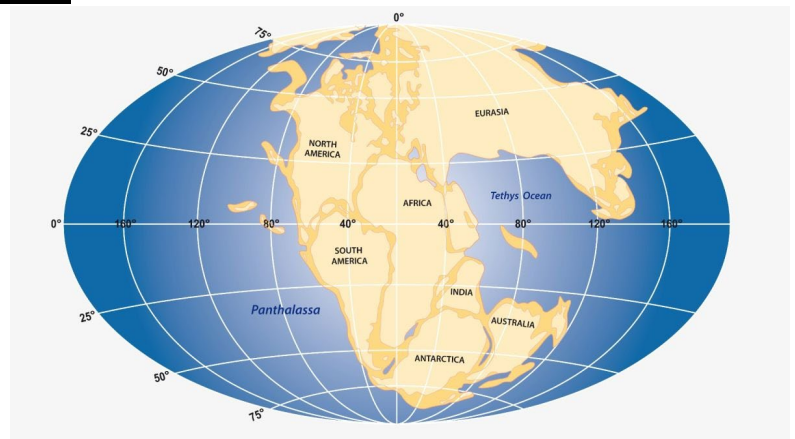
B. Continental drift- the hypothesis by Alfred Hugger that the continents once formed a single land mass, broke up, and drifted to their present locations

Evidence:

1. Continents fit together like a puzzle
2. Rock bands that start on one continent and continue on another
3. Fossils found where they could not normally exist (Glossopteris ferns on South America)
4. Similar glaciers and mountain ranges on different continents
5. Climate evidence where it is now warm

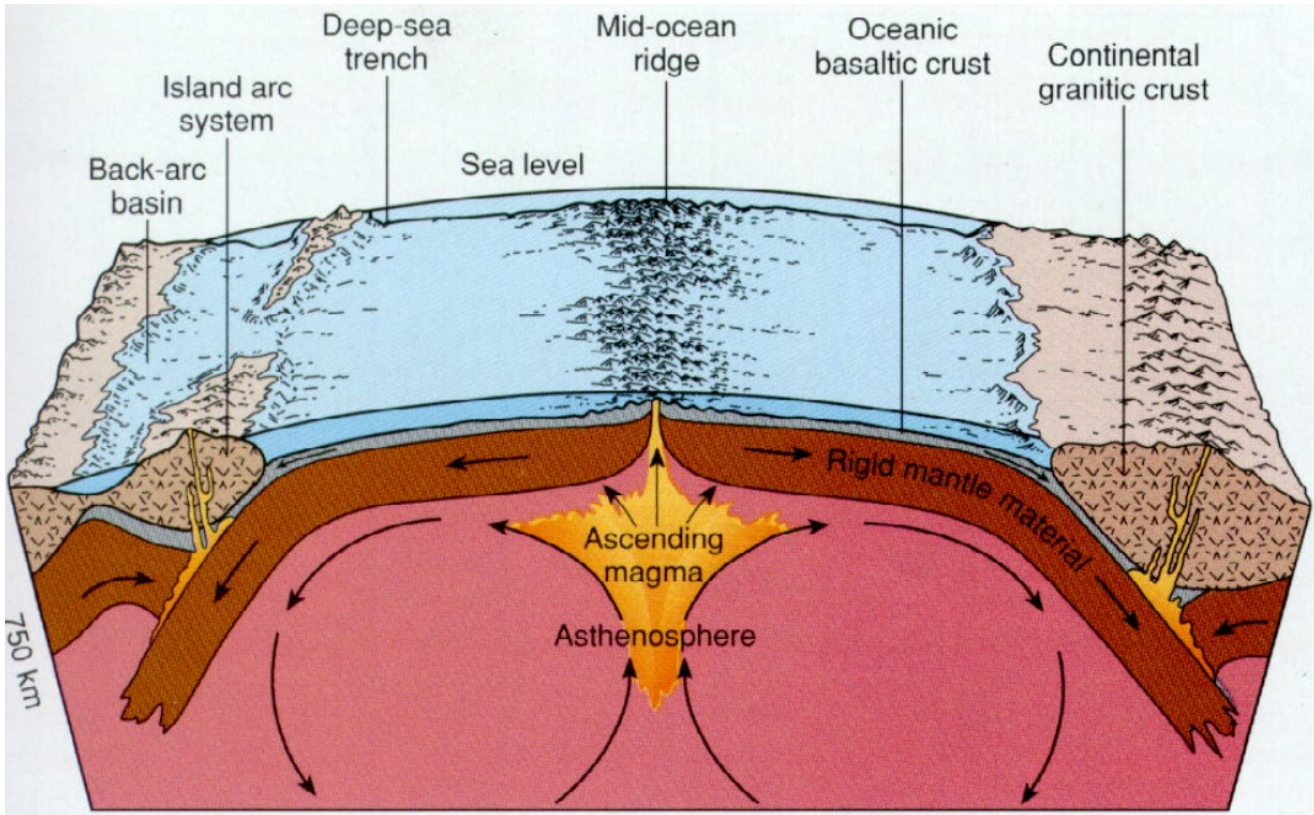
C. Breakup of Gondwana - "all earth" supercontinent

1. 250-300 mya
2. split into Laurasia and Gondwana 200 mya
3. Split into smaller continents 50 mya



A. **Sea floor** _____ - (1950's) found by _____ equipment. Process by which new oceanic _____ forms as _____ rises toward the surface and solidifies. When the sea floor spreads it forms a...

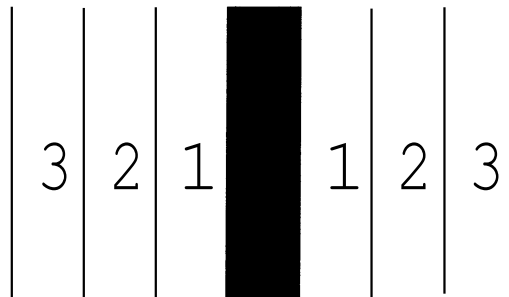
Mid _____ **ridge**- long chain of _____ mountains



Evidence that the sea floor is spreading:

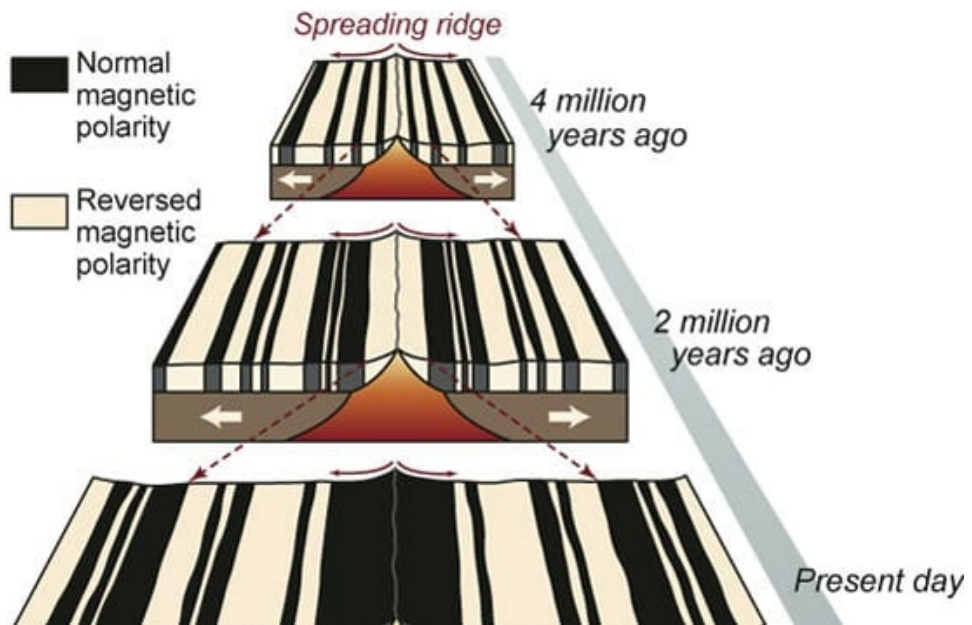
a) **Rock** _____ - Older rocks _____ away from mid ocean ridge and _____ next to ridge

1= youngest rocks
2= older rocks
3= oldest rocks



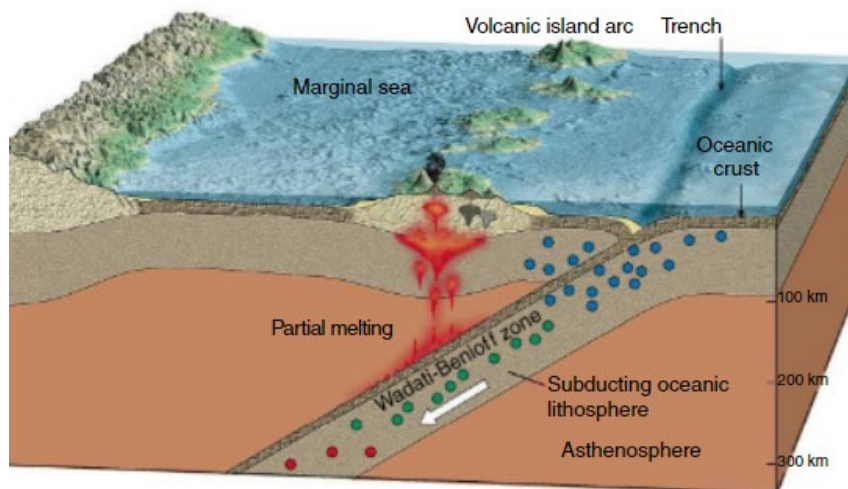
b) Magnetic record- formed when molten magma at mid ocean ridge cooled and _____ atoms _____ up with Earth's _____ field at the time

Newest rock lines up with today's North pole



c) _____ patterns

- 1) _____ earthquakes near a trench (deep v shape formed from 2 tectonic plates colliding)
- 2) _____ earthquakes farther from the trench
- 3) no _____ below 700 kilometers (the lithosphere has completely re-melted)



Key	
●	Shallow
●	Intermediate
●	Deep

FIGURE 13 Distribution of Earthquake Foci Note that intermediate- and deep-focus earthquakes occur only within the sinking slab of oceanic lithosphere.

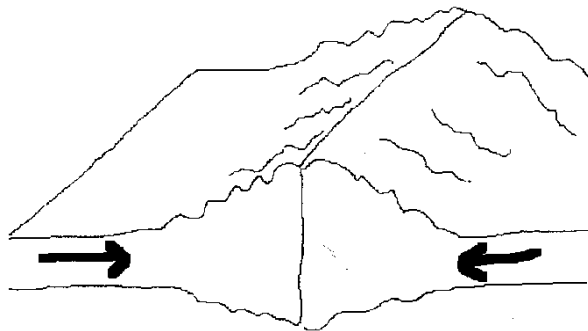
I. _____ plate- crust and upper _____ glued together

1. Also known as " _____ "
2. like an _____ broken into pieces and reassembled
3. " _____ " around and _____ into each other
4. Approximately _____ ?
5. plate movement makes _____, _____, _____, _____, _____ - _____, _____, and ocean _____

II. Plate _____ - a place where tectonic plates _____

1. _____ **boundaries**—boundaries that _____ together (3 types)

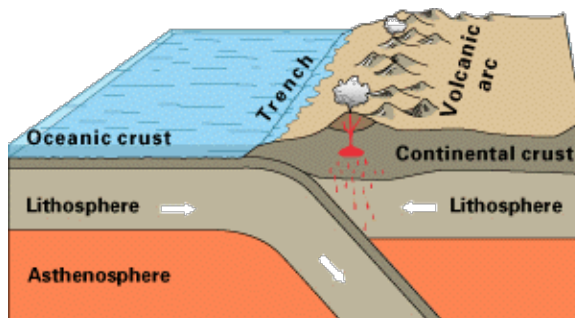
a) _____ with _____ -- causes the crust to buckle and thicken making _____



CONTINENTAL/ CONTINENTAL BOUNDARY

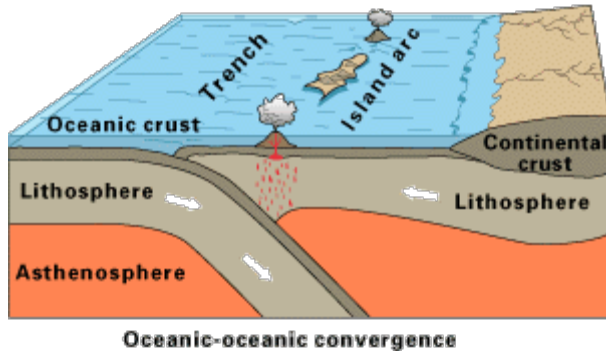
b) _____ with _____ -- denser oceanic crust dives underneath continental crust making _____ **mountains**

- (1) _____ zone-- the area where this boundary occurs
- (2) creates a V-shaped _____ (deep valley in the ocean)
- (3) crust is _____ when it gets _____ enough
- (4) _____ pushes through to make _____



Oceanic-continental convergence

c) _____ with _____ – one of the two oceanic crusts _____, creating _____ volcanoes and then **volcanic** _____



d) stress type= _____ (pressing together)

2. _____ **boundaries** -- two plates that are moving _____ from each other

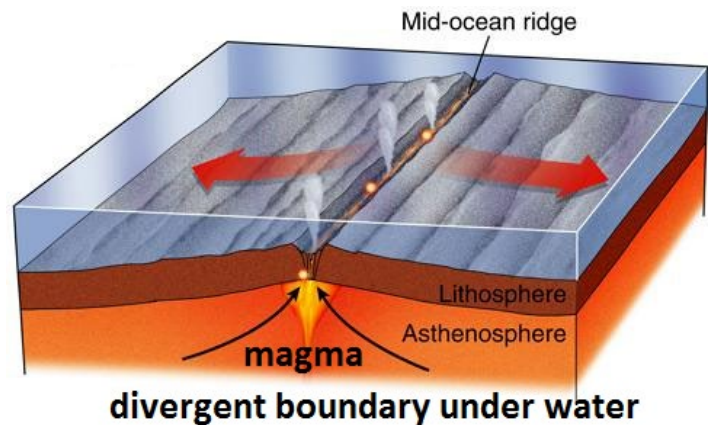
a) **sea spreading**—the idea that the ocean is _____ due to divergent boundaries

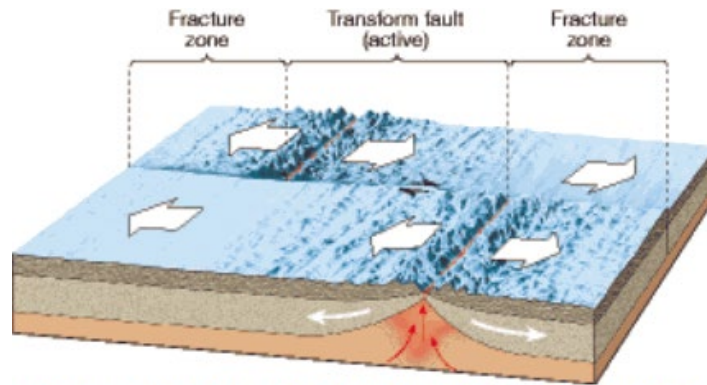
- seafloor _____ and _____ fills its place
- ridge is _____ because the rock is hot, _____, and thus less dense
- outer portions of plate are colder and therefore more _____ and sinking

b) **mid Ocean** _____ -- place where new _____ is forming

c) _____ **zone** -- deep _____ that form at a _____ boundary if on land

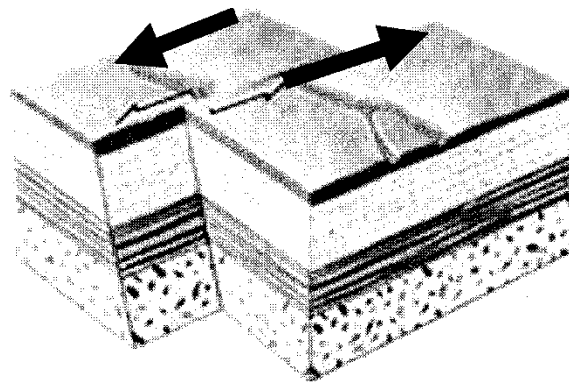
d) stress type= _____ (pulling apart)





mid ocean ridge offset by transform boundaries

3 _____ **boundary** -- place where two tectonic plates are _____
 _____ each other



III. THREE THEORIES FOR TECTONIC PLATE _____

1. _____ -- force of new crust formed at the ridge pushes on the plate
2. _____ -- one end of the plate is more dense and is pulled downward causing the rest of the plate to follow
3. _____ -- hot rock _____ and cool rock _____ creating a Circular, spinning motion

IV. HOW PLATES ARE TRACKED

1. _____ -- global positioning system-records the exact distance between the satellite and the ground and records changes

