

Geology IV

Name:

Date:

Block:

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|---|
| <ol style="list-style-type: none"> 1. Earthquakes 2. Volcanoes 3. Tsunamis |
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What have we covered so far?

Pangaea
tectonic plates

supercontinent
Plate tectonic Theory

spreading ridge
subduction

1. Alfred Wegener proposed that, millions of years ago, all the continents were joined as a _____, which was given the name _____.
2. The surface of the Earth is broken into large, rigid, movable _____ that move over a layer of partly molten rock.
3. The _____ is the unifying theory of geology.
4. In the _____, scientists found that as distance increases from the centre of the ridge, the rocks are older.
5. _____ occurs when plates of different density converge.

Earthquakes

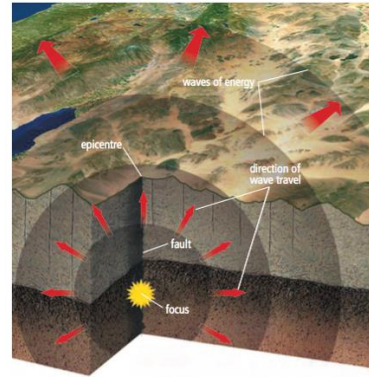
- It takes a tremendous amount of _____ to move _____.
- _____ is built up between tectonic plates as _____ move beneath them.
- When the plates can no longer resist the _____, there is an _____ - a massive release of _____ that shakes the crust.
- Although earthquakes can occur anywhere on Earth, _____% occur at tectonic plate boundaries.
- About _____% of earthquakes occur in a ring bordering the _____.



Describing Earthquakes

- It is very difficult to accurately predict the _____, _____, and _____, of a particular earthquake.
- The _____ has greatly helped scientists to understand where and how often earthquakes occur.
- This understanding has led to improved designs for _____ and has helped make it safer to live in British Columbia and other places where earthquakes occur.

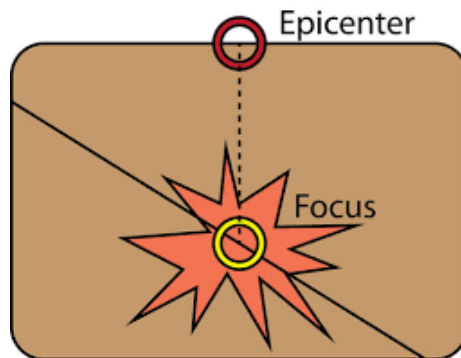
- The _____ (plural _____) is the location inside Earth where an earthquake starts.
- Energy _____ begins at the focus.
- The _____ is the point on the Earth's surface _____ the focus.



- Earthquakes occur at different depths depending on the _____ involved and the depth of the focus.
- Deep focus
 -
 -
 -
- Shallow focus
 -
 -
 -
 -

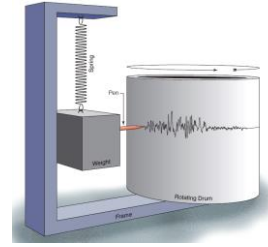
The diagram below indicates an intermediate focus.

Draw and label where a deep focus and shallow focus would be.

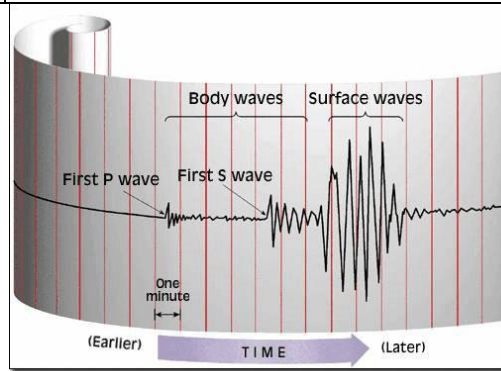


Types of Earthquake Waves

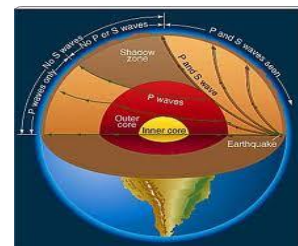
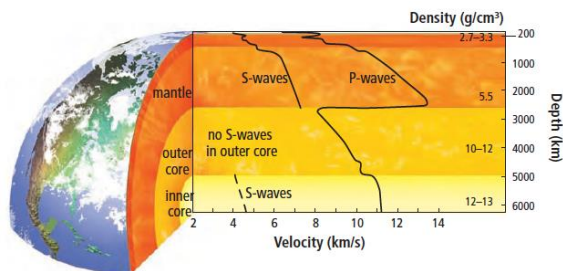
- Geologists cannot explore Earth's interior directly
- Energy released by an earthquake produces _____ known as _____.
- _____ is the study of these waves.
- _____ are used to measure seismic wave energy.



Seismic Wave	Abbreviation	Description	Motion
		• • •	
		• • •	
		• • •	



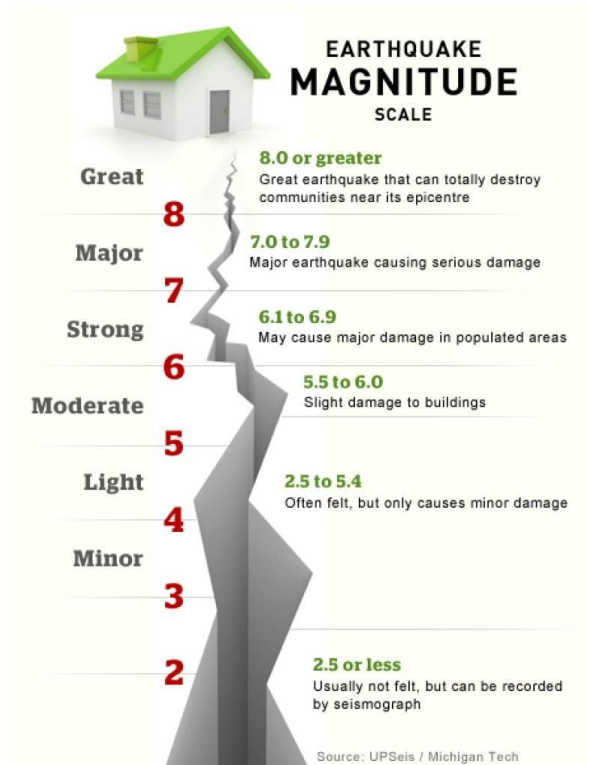
- Comparing how _____ and _____ waves travel through the Earth can tell us if the Earth is _____ or _____.



Measuring Earthquakes

- Earthquakes are measured based on the _____.
- Developed in the 1930's, it is based on a _____ scale.
- Each level is _____ times stronger than the previous level.

4 → 5 → 6 → 7 → 8



Tracking Earthquakes:

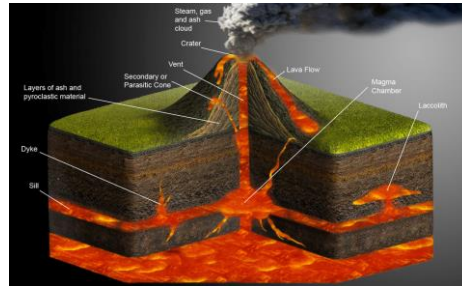
1. Go to: <http://www.emsc-csem.org/>
2. Plot 10 on your map with a magnitude greater than 4:



Volcanoes



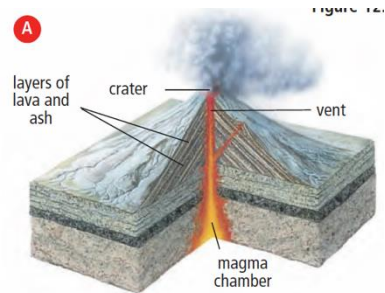
- A volcano is a _____ in the _____ of the _____.
- _____, _____ and _____ escape from the _____ chamber below the surface



- The movement of _____ produces three types of volcanoes:
 -
 -
 -

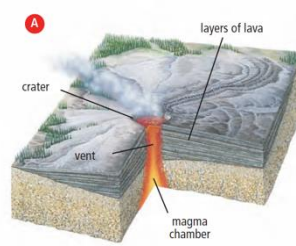
1. Composite Volcanoes

- A large, _____ mountain belching _____, _____ and _____.
- _____ shape results from repeated eruptions of _____ and _____.
- Usually found near _____.
- Ex.



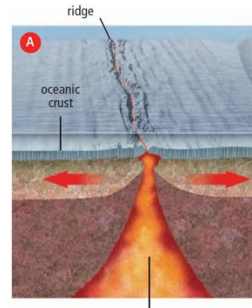
2. Shield Volcanoes

- _____ volcanoes on Earth
- Do not occur at plate boundaries but instead form over _____ - a _____ part of the crust where _____ breaks through.
- _____ explosive than composite volcanoes.
- Ex.



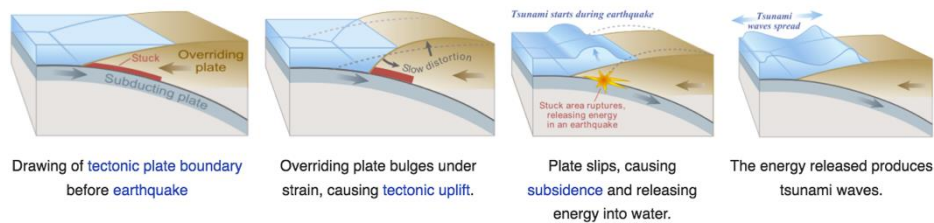
3. Rift Eruptions

- _____ erupts through _____ cracks in the crust.
- Not usually explosive or violent but can release enormous amounts of _____.
- Common along the _____.

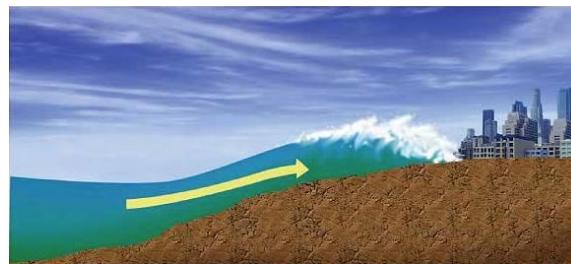


Tsunamis

- A tsunami is a series of _____ in a body of water.
- Generated when the _____ and abruptly _____.



- Tsunamis do not resemble normal sea waves because their _____ is far _____.
- _____

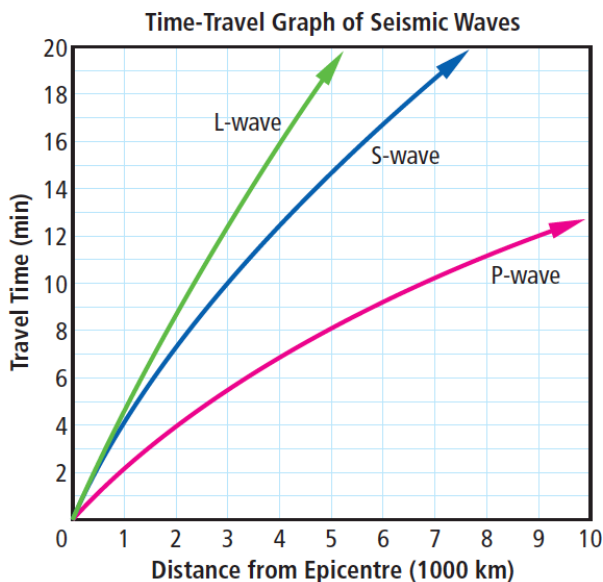


Summary Questions:

1. What is the difference between a focus and an epicenter of an earthquake?
2. What scale is often used to measure the magnitude of an earthquake?
3. How many times more powerful is an 8.0 earthquake compared to a 7.0 earthquake?
4. How many times more powerful is an 8.0 earthquake compared to a 6.0 earthquake?
5. Fill in the following table:

Wave:	Descriptors:	Vocabulary
P		A. Compression wave B. Arrives second C. Transverse wave
S		D. Travels through all layers of Earth E. Does not travel through outer core F. Last to arrive
L		G. Travels along Earth's surface H. Arrives first I. Motion is a rolling action

6. Use the graph below to answer the questions that follow.



- a) How long does it take a P-wave to travel 4000 km?
- b) How long does it take an S-wave to travel 4000 km?
- c) How far does an L-wave travel in 12 min?

