Name:

Tectonics NOTES

OBJECTIVES

Correctly define: Asthenosphere, convergent, divergent, epicenter, focus, strata, p-waves, s-waves, tectonics, tsunami

Explain that most earthquakes and volcanoes are located at or near plate boundaries.

EARTHQUAKES:

Demonstrate how to find the epicenter of an earthquake based on data from three seismographs.

Calculate the difference in arrival times between p- and s-waves.

Calculate the distance from the epicenter of an earthquake based on the arrival times of p- and s-waves.

Calculate the distance from the epicenter of an earthquake based on the difference in arrival time of p- and s-waves.

Explain how Earth's interior properties can be inferred from seismic data.

Explain how damage could be minimized in the event of an earthquake.

Explain the concept of the Richter scale.

PLATE TECTONICS:

Explain the difference between plate tectonics and continental drift.

Give three observations which support continental drift.

Identify that oceanic crust is thinner and denser than continental crust.

Identify the key rock types that compose the oceanic and continental crusts.

Name the three types of plate boundaries and give an example for each.

Explain the relative age of oceanic crust in relation to its distance from a rift.

Identify that convection cells and radioactive decay are the driving forces behind plate movement.

Vocabulary

Asthenosphere: _____

_____

Convergent: _____

_____

Divergent: _____

_____

Epicenter: _____

_____

Focus: _____

_____

P-waves: _____

_____

S-waves: _____

_____

Strata: _____

_____

Tectonics: _____

_____

Tsunami: _____

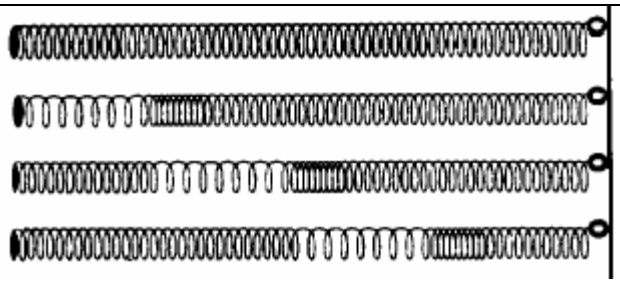
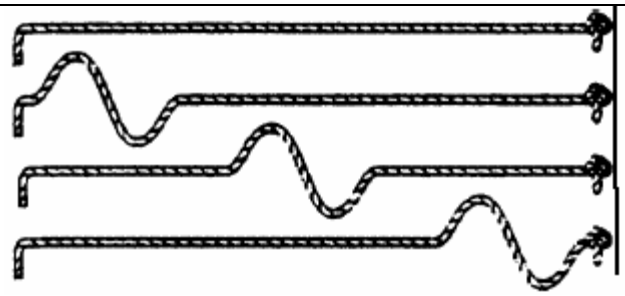
_____

Key Concepts & Questions

- **What is the driving force behind crustal movement?**

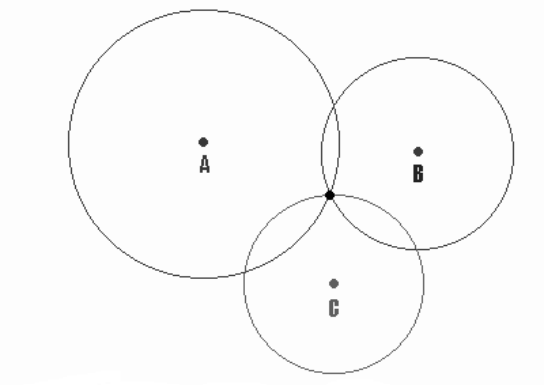
- **What provides the energy for this force?**

- **What are the different types of earthquake waves? And how do they travel?**

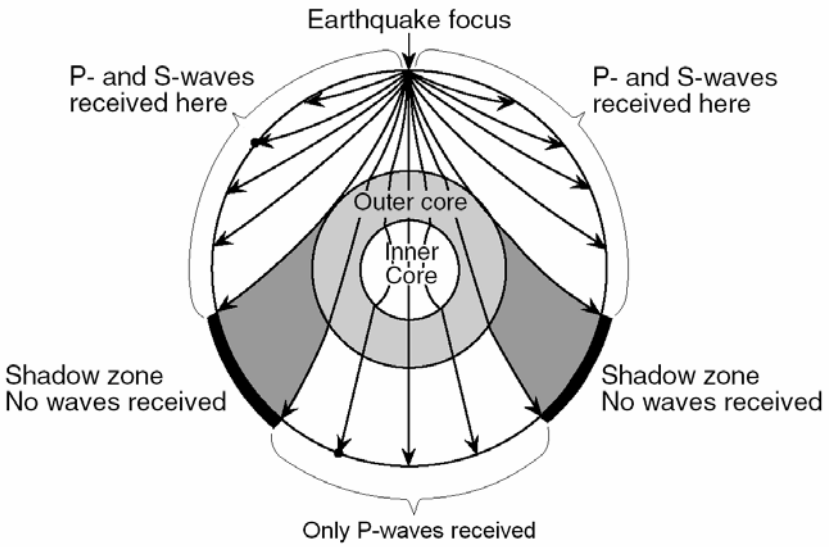
Also called:	**Also called:**
	
Can Travel Through	**Can Travel Through**

- **Where can most earthquake epicenters and volcanoes be found?**

- **To find an earthquake's epicenter a seismologist must have data from at least how many locations?**



➢ **How can scientists infer the properties of Earth's interior?**



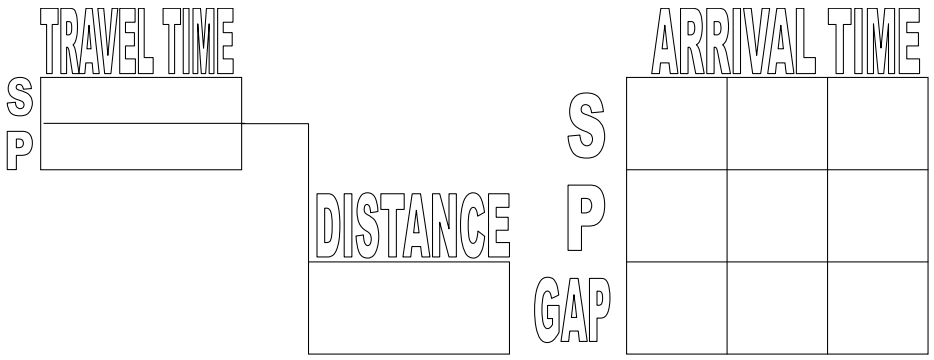
➢ **How do scientists know that Earth's inner core is solid?**

Earthquakes

- **What can people do to protect themselves during an earthquake?**

- **What is the Richter scale and how is it used?**

What it is	How it is used



Be able to answer these types of questions:

1. If a p-wave arrives five minutes before the s-wave arrives, how many kilometers from the epicenter is a location?

2. If a p-wave arrives at 12:10:00 and the s-wave arrives at 12:16:20, how many kilometers from the epicenter is a location?

3. An earthquake epicenter is 2600 kilometers from a location. If the p-wave arrives at 9:00:20, what time will the s-wave arrive?

4. An earthquake epicenter is 5200 kilometers from a location. If the s-wave arrives at 1:20:20, what time did the p-wave arrive?

5. If a p-wave arrives 6 mins after an earthquake occurs, how many kilometers is the location from the epicenter? How long after the p-wave arrives will the s-wave arrive?

Plate Tectonics

- **What is the Theory of Continental Drift? What evidence supports this theory?**

The Theory	The Evidence

- **What is the Theory of Plate Tectonics? What evidence supports this theory?**

The Theory	The Evidence

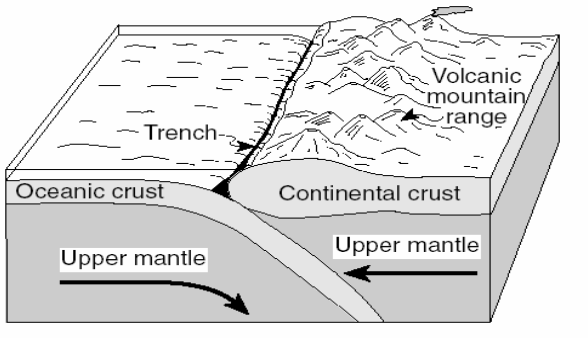
- **How do oceanic and continental crust compare with regard to thickness and density?**

	continental	oceanic
density		
thickness		

- **What are the primary rocks which make up the continental and oceanic crusts?**

continental crust	oceanic crust
Low-density, light-colored, coarse-grained, felsic, igneous rock	**High density, dark-colored, fine-grained, mafic, igneous rock**

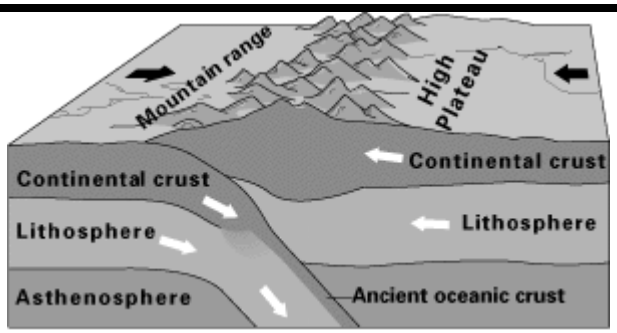
- **What are these types of plate boundaries? What are the key characteristics for each?**
- **Give an example where each can be found in the world.**



Type:

Key Characteristics::

Example:



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Key Characteristics::

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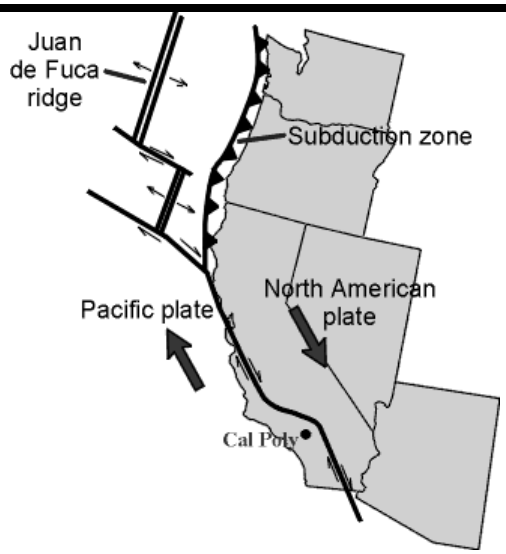

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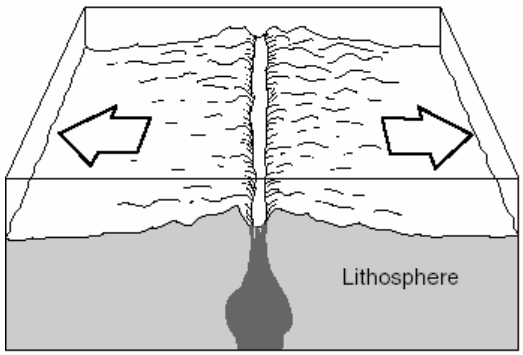
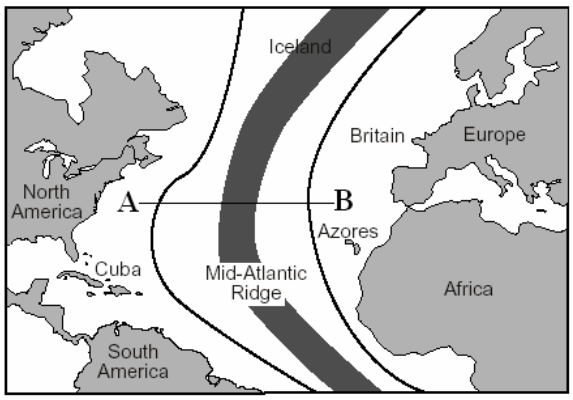


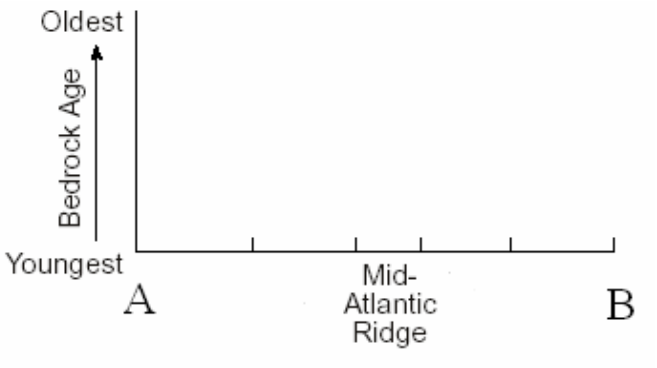
Type:

Key Characteristics:

Example:

➢ **What happens to the age of oceanic crust as distance increases from a ridge?**





➢ **Explain how magnetic data can be used to show that oceanic crust is diverging at ridges. Use the diagram below to help explain your answer.**