

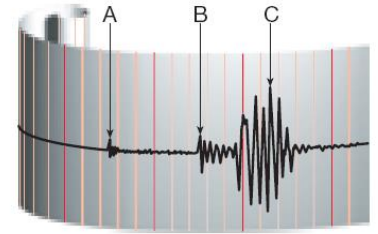
Ch 8: Study Guide

Vocabulary

earthquake, p. 218; focus, p. 218; epicenter, p. 219; fault, p. 219; elastic rebound hypothesis, p. 220; aftershock, p. 221; foreshock, p. 221; seismograph, p. 222; seismogram, p. 222; surface wave, p. 223; P wave, p. 223; S wave, p. 223; moment magnitude, p. 227; liquefaction, p. 230; tsunami, p. 230

Understanding Concepts

Use the diagram below to answer Questions 1 and 2.



1. The diagram shows a typical recording of an earthquake. What is the record called?
2. Identify the waves recorded at A, B, and C on the diagram.
3. Does all motion along large faults occur in the form of destructive earthquakes?
4. What type of seismic wave causes the greatest destruction to buildings?
5. In addition to the damage caused directly by seismic vibrations, list three other types of destructive events that can be triggered by earthquakes.
6. Describe the composition and physical properties of the crust.
7. List the major differences between P waves and S waves.
8. What are two factors that can determine the amount of destruction that results from an earthquake?

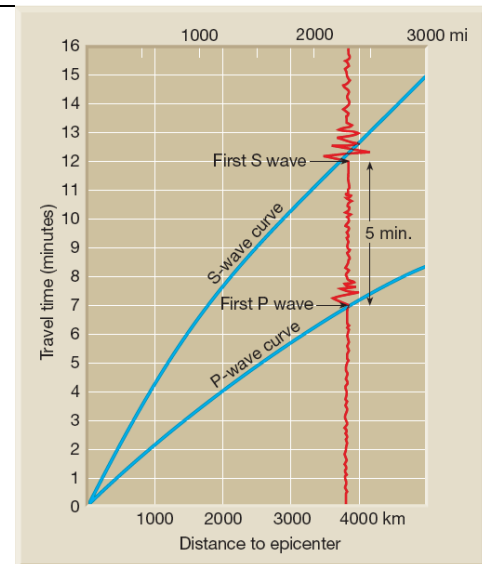
Critical Thinking

9. **Applying Concepts** Give two reasons why an earthquake with a moderate magnitude might cause more extensive damage than an earthquake with a high magnitude.
10. **Comparing and Contrasting** How are the moment magnitude scale and the Richter scale different?
11. **Inferring** How did scientists determine the structure and composition of Earth's interior?

Analyzing Data

Use the diagram below to answer Questions 12–14.

12. **Using Graphs** Determine the distance between an earthquake and seismic station if the first S wave arrives three minutes after the first P wave.
13. **Using Graphs** If a seismic station is 2500 kilometers from the earthquake epicenter, approximately when will the first P wave be received? When will the first S wave be received?
14. What is the difference in the travel times of the first P wave and the first S wave if the seismic station is 1000 kilometers from the earthquake epicenter?



Concepts in Action

15. **Applying Concepts** Why is the moment magnitude the most commonly used scale by scientists for measuring earthquakes?
16. **Classifying** In what major earthquake zone would an earthquake in Indonesia be located?
17. **Hypothesizing** You are on a large ocean research ship. You have generated seismic waves by causing an explosion on a platform towed behind the ship. What seismic waves will be recorded by a seismograph located on the ocean floor beneath the ship? Explain your answer.

Ch 10: Study Guide

Vocabulary

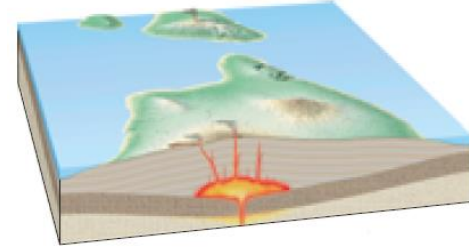
viscosity, p. 281; vent, p. 281; pyroclastic material, p. 283; volcano, p. 283; crater, p. 283; shield volcano, p. 284; cinder cone, p. 284; composite cone, p. 285; caldera, p. 287; pluton, p. 289; sill, p. 289; laccolith, p. 290; dike, p. 290; batholith, p. 290; geothermal gradient, p. 291;

Understanding Concepts

- Describe the Ring of Fire.
- The Hawaiian Islands and Yellowstone National Park are associated with which of the three zones of volcanism?
- What is the chain of volcanoes called that forms at a convergent boundary between a subducting oceanic plate and a continental plate? What type of volcano commonly forms?
- Explain how most magma is theorized to originate.

Use the diagram below to answer Questions 5 and 6

- Identify the type of volcano shown in the diagram.
- What types of eruptions are commonly associated with this type of volcano?
- How do hot spots form?
- How are pyroclastic materials classified?
- What is viscosity and how does it affect volcanic eruptions?
- Give an example of each of the three types of volcanoes.
- How do dikes form?



Critical Thinking

- Inferring** Why is a volcano fed by a highly viscous magma likely to be a greater threat to people than a volcano fed by very fluid magma?
- Drawing Conclusions** Why are cinder cones usually small?

Analyzing Data

Use the data table below to answer Questions 14–15.

- Interpreting Data** What volcanic eruption listed in the data table produced the most pyroclastic material?
- Calculating** The volume of material ejected by the eruption of Tambora in 1815 was how many times larger than the volume of material ejected in 1883 by the eruption of Krakatau?

Notable Volcanic Eruptions			
Volcano	Date	Volume Ejected	Height of Plume
Toba	74,000 years ago	2800 km ³	50–80 km
Vesuvius	A.D. 79	4 km ³	32 km
Tambora	1815	150 km ³	44 km
Krakatau	1883	21 km ³	36 km
Mount St. Helens	1980	1 km ³	19 km
Mount Pinatubo	1991	5 km ³	35 km

Concepts in Action

- Hypothesizing** Large volcanic eruptions eject large amounts of gas, dust, and ash into the atmosphere. This volcanic material can affect the world's climate by blocking incoming solar radiation. An eruption from what type of volcano is most likely to cause global climate changes? Explain your answer.
- Classifying** On the side of a composite cone you see a large area where there are no trees and the ground surface looks disturbed. What possible volcanic feature or event could have caused this?
- Applying Concepts** Would you be safer from a violent, explosive eruption while vacationing in Arizona near a cinder cone or while skiing in the Andes Mountains of South America? Explain.