Name: _____

Earth Structure's Volcanoes and Earth Quake Assessment
Original Version

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Stress that pushes a mass of rock in two opposite directions is called
a. shearing.
b. tension.
c. compression.
d. deformation.

____ 2. Which of the following can cause damage days or months after a large earthquake?
a. the arrival of surface waves
b. convection
c. a tsunami
d. an aftershock

____ 3. The point beneath Earth's surface where rock breaks under stress and triggers an earthquake is called the
a. syncline.
b. footwall.
c. epicenter.
d. focus.

____ 4. Compared to P waves and S waves, surface waves move
a. faster.
b. slower.
c. at the same rate.
d. farther from the epicenter.

____ 5. In which location would you **most likely** find volcanoes?
a. far from plate boundaries
b. along transform boundaries
c. where two continental plates collide
d. along mid-ocean ridges and where a plate is subducted

____ 6. Before lava reaches the surface, the molten material is called
a. rock.
b. magma.
c. volcanic ash.
d. liquid fire.

____ 7. The main factor that accounts for the difference between quiet and explosive volcanic eruptions is
a. the size of the volcano's magma chamber.
b. the iron content of the magma.
c. the age of the volcano.

d. the silica content of the magma.

____ 8. The main hazard from a quiet volcanic eruption is
a. volcanic gases.
b. lava flows.
c. geysers.
d. pyroclastic flows.

____ 9. What provides the force that causes magma to erupt to the surface?
a. the silica in the magma
b. dissolved gases trapped in the magma
c. gravity in the lithosphere
d. the density of the magma

____ 10. If geologists detect many small earthquakes in the area near a volcano, what can they infer about the volcano?
a. It is dormant.
b. It is probably about to erupt.
c. It is extinct.
d. It is a good source of geothermal energy.

____ 11. The huge hole left by the collapse of a volcanic mountain is called a
a. lava plateau.
b. caldera.
c. cinder cone.
d. shield volcano.

Modified True/False
Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

____ 12. The squeezing together of rocks by stress is called shearing. _____

____ 13. When an earthquake occurs, S waves are the first seismic waves to arrive at a given location. _____

____ 14. A pyroclastic flow typically occurs during a(n) quiet eruption. _____

____ 15. A(n) dormant volcano is erupting or may erupt in the near future. _____

Completion
Complete each statement.

16. The stress force that pulls on the crust where two plates are moving apart is called _____.

17. The seismic waves that travel along Earth's surface and produce the most severe ground movements are called _____.

18. Vibrations that move through the ground carrying the energy released during an earthquake are called _____.

19. The earliest scale for measuring the magnitude of an earthquake is called the _____ scale.

20. A seismograph uses a _____ to record the drum's vibrations.

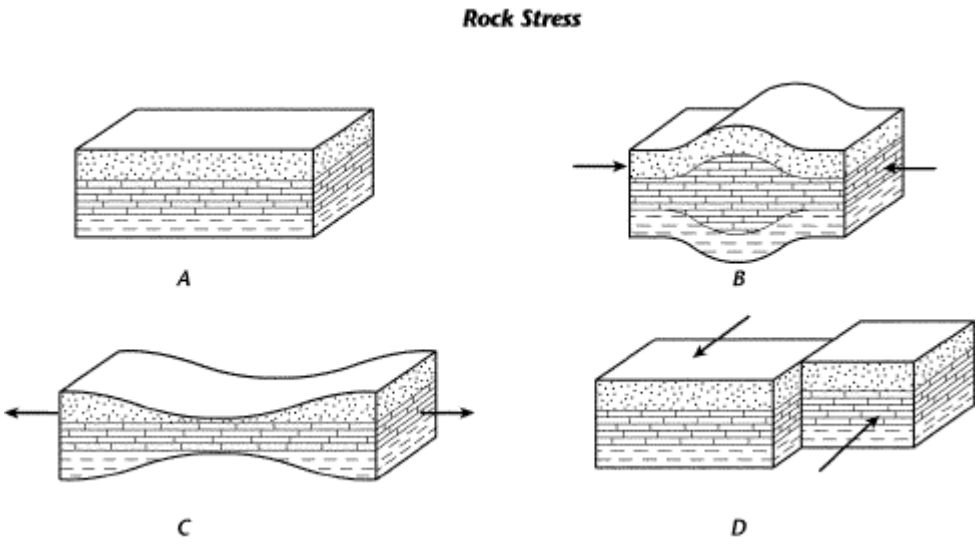
21. A major volcanic belt known as the _____ circles the Pacific Ocean.

22. A string of islands known as a(n) _____ can form from the collision of two oceanic plates.

23. Molten material that leaves a volcano's vent is called _____.

24. A huge hole, or _____, is left when the roof of a volcanic mountain's magma chamber collapses.

Short Answer

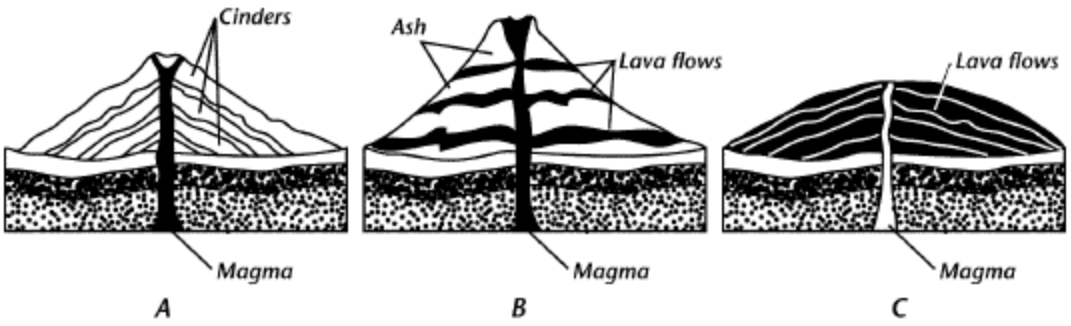


25. Contrast the plate movements that cause the stresses in diagrams B and C.

26. Compare diagram B to diagram A. How is diagram B different?

27. What caused the rock layers to take on the shape shown in diagram C?

Types of Volcanoes



28. Name the type of volcano illustrated in diagram A and describe how it forms.

29. Name the type of volcano illustrated in diagram B and describe how it forms.

30. Name the type of volcano illustrated in diagram C and describe how it forms.

31. What kind of eruption—quiet, explosive, or both at different times—would you expect from each volcano shown?

32. If the magma chamber beneath volcano B empties and then collapses, what kind of feature will form? Explain.

Essay- YOU WILL BE DOWNGRADED IF YOU DO NOT ANSWER IN COMPLETE SENTENCES

33. Explain how geologists use seismic waves to locate an earthquake's epicenter. (3 POINTS)

34. Describe how a seismograph works. (4 POINTS)

35. What kind of eruption is likely to occur in a volcano having magma that is low in silica? Explain your answer. (2 POINTS)

Earth Structure's Volcanoes and Earth Quake Assessment
Answer Section

MULTIPLE CHOICE

1. ANS: A PTS: 1 DIF: L1
OBJ: Explain how stress in the crust changes Earth's surface. STA: E.8.2
TOP: f_ch02_001 BLM: knowledge
2. ANS: D PTS: 1 DIF: L2 OBJ: Explain how seismographs work.
STA: E.8.2 TOP: f_ch02_013 BLM: comprehension
3. ANS: D PTS: 1 DIF: L1
OBJ: Describe how the energy of an earthquake travels through Earth.
STA: E.8.2 TOP: f_ch02_007 BLM: knowledge
4. ANS: B PTS: 1 DIF: L1
OBJ: Describe how the energy of an earthquake travels through Earth.
STA: E.8.2 TOP: f_ch02_010 BLM: knowledge
5. ANS: D PTS: 1 DIF: L2
OBJ: Identify where volcanic regions and hot spot volcanoes are found on Earth's surface, and why they are found there. STA: E.8.2 TOP: PH_EN_SC_SX_2007_UB01a_28
BLM: comprehension
6. ANS: B PTS: 1 DIF: L2
OBJ: Identify where volcanic regions and hot spot volcanoes are found on Earth's surface, and why they are found there. STA: E.8.2 TOP: f_ch03_019 BLM: comprehension
7. ANS: D PTS: 1 DIF: L2
OBJ: Explain what happens when a volcano erupts and the two different types of eruptions that can occur.
STA: E.8.2 TOP: PH_EN_SC_SX_2007_UB01a_63 BLM: comprehension
8. ANS: B PTS: 1 DIF: L2
OBJ: Explain what happens when a volcano erupts and the two different types of eruptions that can occur.
STA: E.8.2 TOP: f_ch03_010 BLM: application
9. ANS: B PTS: 1 DIF: L2
OBJ: Explain what happens when a volcano erupts and the two different types of eruptions that can occur.
STA: E.8.2 TOP: f_ch03_029 BLM: comprehension
10. ANS: B PTS: 1 DIF: L2
OBJ: Describe the stages of volcanic activity. STA: E.8.2
TOP: f_ch03_024 BLM: application
11. ANS: B PTS: 1 DIF: L1
OBJ: List the landforms that lava and ash create. STA: E.8.2
TOP: f_ch03_023 BLM: knowledge

MODIFIED TRUE/FALSE

12. ANS: F, compression

PTS: 1 DIF: L1 OBJ: Explain how stress in the crust changes Earth's surface.
STA: E.8.2 TOP: f_ch02_032 BLM: knowledge
13. ANS: F, P waves

PTS: 1 DIF: L1
OBJ: Describe how the energy of an earthquake travels through Earth.
STA: E.8.2 TOP: f_ch02_037 BLM: knowledge
14. ANS: F, explosive

PTS: 1 DIF: L1
OBJ: Explain what happens when a volcano erupts and the two different types of eruptions that can occur.
STA: E.8.2 TOP: f_ch03_036 BLM: knowledge
15. ANS: F, active

PTS: 1 DIF: L1 OBJ: Describe the stages of volcanic activity.
STA: E.8.2 TOP: f_ch03_037 BLM: knowledge

COMPLETION

16. ANS: tension

PTS: 1 DIF: L2 OBJ: Explain how stress in the crust changes Earth's surface.
STA: E.8.2 TOP: f_ch02_047 BLM: comprehension
17. ANS: surface waves

PTS: 1 DIF: L2
OBJ: Describe how the energy of an earthquake travels through Earth.
STA: E.8.2 TOP: f_ch02_050 BLM: comprehension
18. ANS: seismic waves

PTS: 1 DIF: L2
OBJ: Describe how the energy of an earthquake travels through Earth.
STA: E.8.2 TOP: f_ch02_051 BLM: comprehension
19. ANS: Richter

PTS: 1 DIF: L2
OBJ: Identify the scales used to measure the strength of an earthquake.
STA: E.8.2 TOP: f_ch02_052 BLM: comprehension
20. ANS: pen

PTS: 1 DIF: L2 OBJ: Explain how seismographs work.
STA: E.8.2 TOP: PH_EN_SC_MGS_2010_X_55553
BLM: comprehension
21. ANS: Ring of Fire

PTS: 1 DIF: L1
OBJ: Identify where volcanic regions and hot spot volcanoes are found on Earth's surface, and why they are found there. STA: E.8.2 TOP: f_ch03_046 BLM: knowledge
22. ANS: island arc

PTS: 1 DIF: L2
OBJ: Identify where volcanic regions and hot spot volcanoes are found on Earth's surface, and why they are

found there. STA: E.8.2 TOP: f_ch03_053 BLM: comprehension
23. ANS: lava

PTS: 1 DIF: L2
OBJ: Identify where volcanic regions and hot spot volcanoes are found on Earth's surface, and why they are found there. STA: E.8.2 TOP: f_ch03_055 BLM: comprehension
24. ANS: caldera

PTS: 1 DIF: L1 OBJ: List the landforms that lava and ash create.
STA: E.8.2 TOP: f_ch03_045 BLM: knowledge

SHORT ANSWER

25. ANS:
The compression in diagram B occurs when one plate pushes against another. The tension in diagram C occurs when two plates move apart.

PTS: 1 DIF: L2 OBJ: Explain how stress in the crust changes Earth's surface.
STA: E.8.2 TOP: f_ch02_064 BLM: analysis
26. ANS:
Diagram B shows how compression affects rock layers, causing the layers to bulge in the center.

PTS: 1 DIF: L2 OBJ: Explain how stress in the crust changes Earth's surface.
STA: E.8.2 TOP: f_ch02_066 BLM: analysis
27. ANS:
tension

PTS: 1 DIF: L2 OBJ: Explain how stress in the crust changes Earth's surface.
STA: E.8.2 TOP: f_ch02_063 BLM: analysis
28. ANS:
Diagram A shows a cinder cone volcano. It forms when cinders erupt again and again, piling up around the vent to form a steep, cone-shaped hill.

PTS: 1 DIF: L2 OBJ: List the landforms that lava and ash create.
STA: E.8.2 TOP: f_ch03_061 BLM: analysis
29. ANS:
Diagram B shows a composite volcano. It forms when lava flows alternate with explosive eruptions of ash, cinder, and bombs.

PTS: 1 DIF: L2 OBJ: List the landforms that lava and ash create.
STA: E.8.2 TOP: f_ch03_062 BLM: analysis
30. ANS:
Diagram C shows a shield volcano. It forms when repeated lava flows build up a broad, gently sloping mountain.

PTS: 1 DIF: L2 OBJ: List the landforms that lava and ash create.
STA: E.8.2 TOP: f_ch03_063 BLM: analysis
31. ANS:
A: explosive; B: both at different times; C: quiet

PTS: 1 DIF: L2 OBJ: List the landforms that lava and ash create.
STA: E.8.2 TOP: f_ch03_065 BLM: analysis
32. ANS:
The top of the volcano will sink down, leaving a large hole, or caldera. A caldera forms as the roof of a volcano’s empty magma chamber collapses.

PTS: 1 DIF: L2 OBJ: List the landforms that lava and ash create.
STA: E.8.2 TOP: f_ch03_066 BLM: analysis

ESSAY

33. ANS:
Geologists determine the distances of three seismograph stations from the epicenter. For each station, they draw a circle on a map, using the distance to the epicenter as the radius of the circle. The point where all 3 circles intersect is the epicenter.

PTS: 1 DIF: L2
OBJ: Explain how scientists locate the epicenter of an earthquake.
STA: E.8.2 TOP: PH_EN_SC_MGS_2010_X_55552
BLM: comprehension
34. ANS:
A seismograph records the vibrations of the Earth. A weight is attached to the frame by a spring or wire. A pen connected to the weight rests on a drum that can rotate. As the drum rotates, the pen draws a straight line on paper wrapped around the drum. When there are seismic waves during an earthquake, the pen draws jagged lines.

PTS: 1 DIF: L2 OBJ: Explain how seismographs work.
STA: E.8.2 TOP: PH_EN_SC_MGS_2010_X_55555
BLM: comprehension
35. ANS:
The volcano is likely to have a quiet eruption. Lava that is low in silica is thin and runny, so it flows easily and oozes quietly from the vent.

PTS: 1 DIF: L3
OBJ: Explain what happens when a volcano erupts and the two different types of eruptions that can occur.
STA: E.8.2 TOP: f_ch03_076 BLM: application