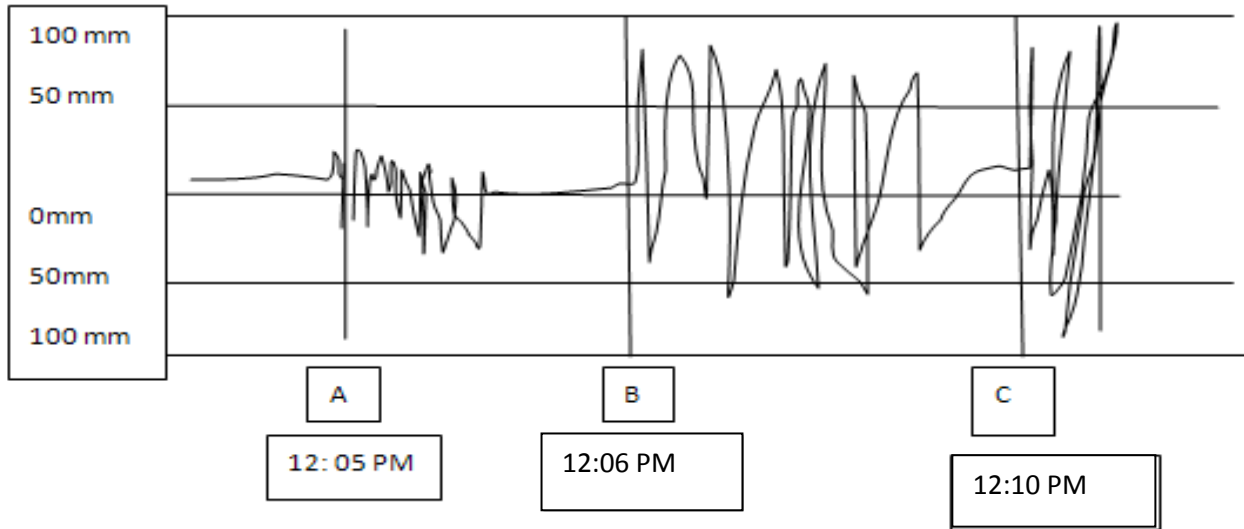


Dynamic Planet Earthquakes and Volcanoes test



1. Location A on the seismogram is the arrival of the _____ Waves.
2. Location C on the seismogram is the arrival of the _____ Waves
3. Judging by the upward first motion at location A we can determine that the first motion registered at this seismic station was _____.
4. Using the provided Richter nomogram and S-P wave time travel graph, complete the following table.

S-P wave interval	
Maximum amplitude of S waves (mm)	
Distance to epicenter (km)	
Magnitude (Richter)	

5. If this seismic station was located in San Francisco, which of the following areas could not hold the epicenter.

- A. Idaho
- B. Colorado
- C. Arizona
- D. Utah

6. If an Earthquake is only felt by people on upper floors and in favorable Places it has a mercalli value of _____.

- A. 0
- B. I
- C. II
- D. III

7. If an earthquake of Richter magnitude 5 were to strike in the Atlantic Ocean 300 miles west of Kellenberg(on Long Island, the chief danger to most of long island would be_____.

- A. S wave damage
- B. Liquefaction
- C. Tsunami
- D. Both B and C.

8. Explain your answer to question 7.

9. The Mercalli scale was invented in_____.

- A. 1895
- B. 1902
- C. 1907
- D. 1952

10. Rayleigh waves are _____.

- A. Transverse
- B. Longitudinal
- C. Surface Waves

What is the Density (g/cm^3) of the...

11. Continental Crust

12. Oceanic Crust

13. Upper mantle

14. Lower mantle

15. Outer Core

16. Inner Core

Is the given fault Tensional, Shear, or compressional?

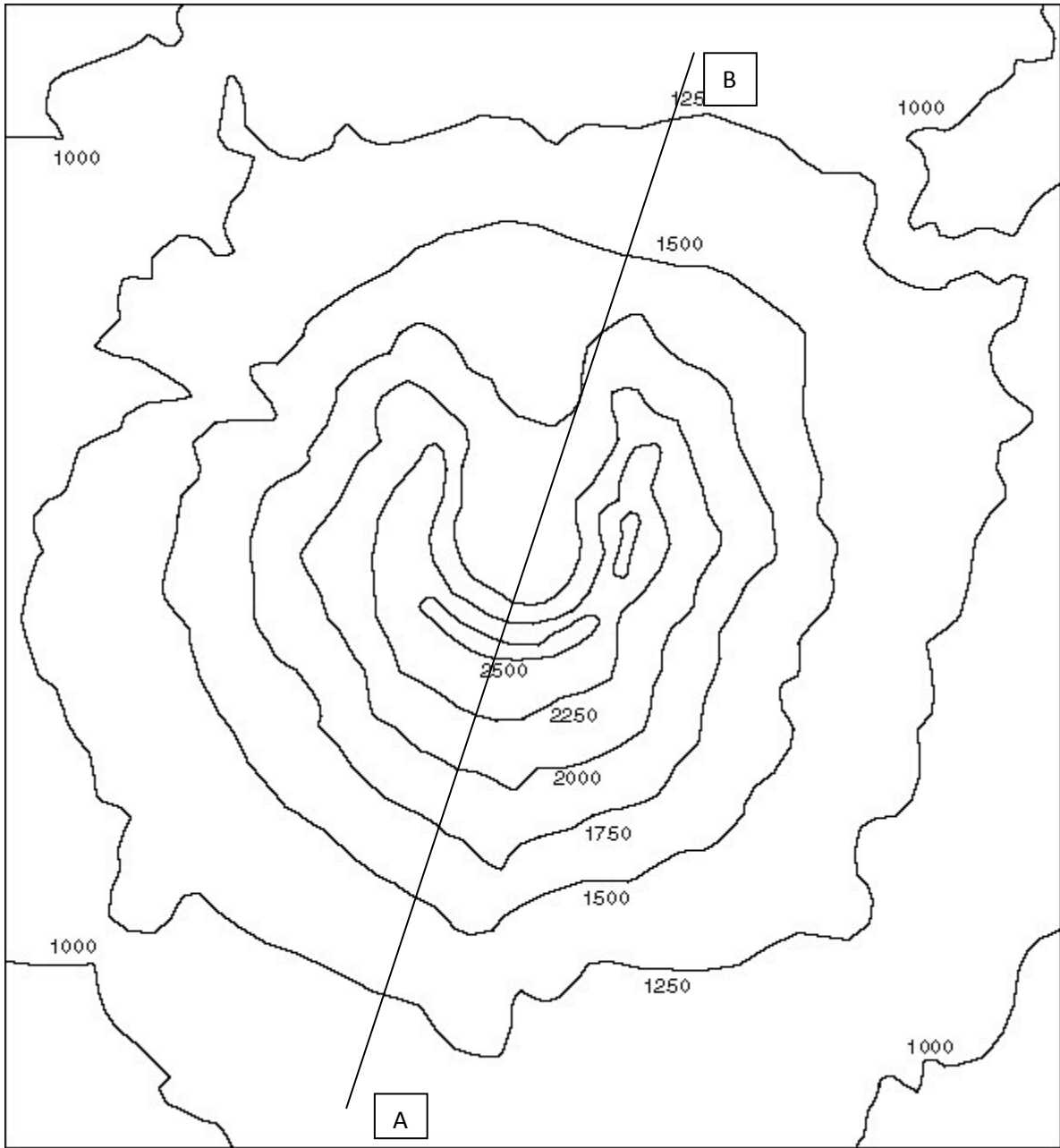
17. Normal

18. Reverse

19. Thrust

20. Strike Slip

The three step method to survive an earthquake is ____ (21) ____, ____ (22) ____, ____ (23) ____.



24. Draw a profile from A to B.

25. The "hole" on the top side of the peak was due to _____?

26. What mountain is this?

Volcanic Petrology Matching column.

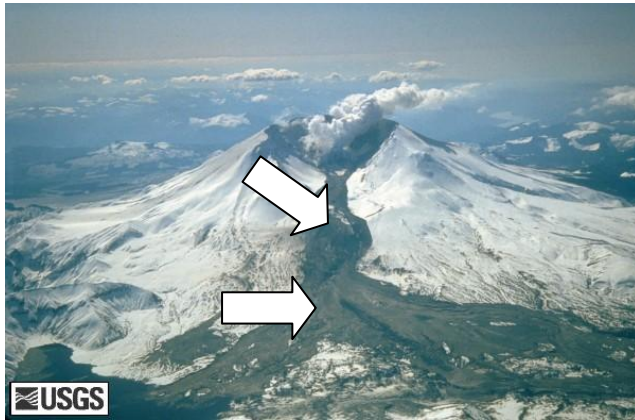
Match the term to its description. Terms may be used multiple times or not at all.

- | | | | |
|--------------|---------------|---------------------|--------------|
| A. Ash | F. Basalt | K. Ignimbrites | P. Aphanitic |
| B. Porphyry | G. Vesicular | L. Dacite | |
| C. Lapilli | H. Rhyolite | M. Amygdaloidal | |
| D. Andesitic | I. Blocks | N. Pyroclastic Rock | |
| E. Bombs | J. Phaneritic | O. Tephra | |

27. Pyroclastic fragments greater than 64mm that solidify as teardrop shapes in mid air
28. Pyroclastic fragments greater than 64 mm that solidify in angular shapes inside a volcano
29. Magma Type with the greatest amount of silica content.
30. Fine Grained pyroclastic fragments less than 2 mm that consist of mainly volcanic glass fragments
31. When vesicular basalt is filled by calcite or quartz.
32. Magma type that forms ocean crust.
33. Magma type intermediate in silica content between Andesite and Rhyolite
34. General Term for rock formed from the accumulation of tephra.
35. Texture of Rock that has visible and too small to be visible crystals.
36. Texture of Obsidian
37. Texture of rock that has only large crystals
38. Rocks with small air pockets.
39. Magma type of Diorite
40. Deposit of a pumice rich pyroclastic flow.
41. Magma type of Gabbro.
42. Magma Type of Granite.
43. Magma type in Hawaii.
44. Rock Texture of Pumice
45. Rock Texture with a matrix and Phenocrysts

Identify the Volcanic Landform/feature in the picture. Also identify the specific landform and its location

46 Identify the feature type that has arrows pointing to it, but the landform as a whole



47.



48.



Volcanic Multiple Choice

49. Which rock is the fine-grained equivalent of granite?

- A. Andesite B. Komatite C. Rhyolite D. Obsidian

50. Which is a black volcanic glass that forms during under water eruptions that is formed of many small fragments?

- A. Obsidian B. Hyaloclastite C. Ignimbrite D. Dacite

51. What is the remnants after a volcano has eroded, leaving the dried column of magma of the conduit?

- A. Dike B. Sill C. Volcanic Neck D. Parasitic cone

52. The eruption of this Volcano in 1991 caused a global temperature drop of almost 1 degree Fahrenheit.

- A. Mt. Pinatubo B. Mt. St. Helens C. Krakatau D. Katmai

53. What causes the submarine volcanism at $21^{\circ}18'41''\text{N}$ $157^{\circ}47'47''\text{W}$?

- A. Subduction B. Hot Spot C. Rifting D. Transform Fault

54. When a mud pot is very colorful, Vulcanists call it a _____.

- A. Geyser B. Hot Spot C. Paint Pot D. Paint Bowl

55. Also known as Phreatomagmatic eruptions, these eruptions occur when basaltic, or rarely andesitic, magma contacts shallow surface water.

- A. Strombolian B. Plinian C. Pyroclastic D. Surtseyan

56. Label the Volcano on the answer sheet.

57. Draw a seismogram of an earthquake that occurred 500 km away from the station and has a magnitude of 4.5 on the richter scale

58. Calculate the speed of a Tsunami that in 30 meter deep water on a planet where acceleration due to gravity is 10m/s^2 .

59. Draw a cross sectional diagram of A subduction boundary. Label as many features as you can.

60. A minor earthquake is going to occur in your general area in 2 weeks. What could to do to minimize the damage to your house and family? What would you do to prevent a major earthquake from damaging your house in the future?

Dynamic Planet Test

Answer Sheet

Exploring the World of Science

1. _____

18. _____

2. _____

19. _____

3. _____

20. _____

4. _____

21. _____

S-P interval	
Max Amp of S waves	mm
Distance to epicenter	km
Magnitude (Richter)	

22. _____

5. _____

23. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

24. Include a scale on the left hand side

25. _____

46. _____

53. ___

26. _____

54. ___

27. ___

38. ___

55. ___

28. ___

39. ___

47. _____

29. ___

40. ___

30. ___

41. ___

31. ___

42. ___

48. _____

32. ___

43. ___

33. ___

44. ___

34. ___

45. ___

49. ___

35. ___

50. ___

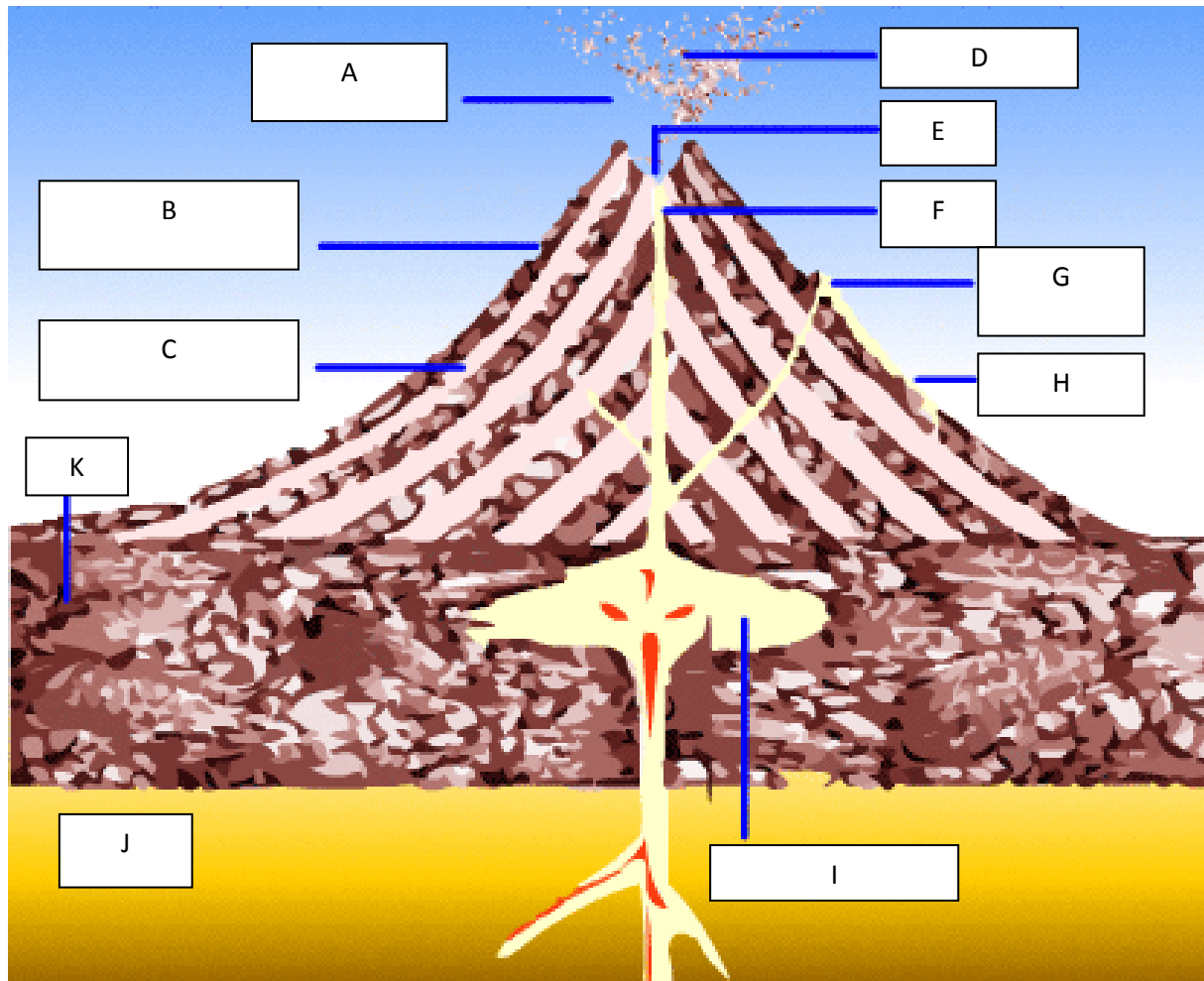
36. ___

51. ___

37. ___

52. ___

56.



- A.
- B.
- C.
- D.
- E.
- F.
- G.
- H.
- I.
- J.
- K.

57.

58.

59.

60.



1. ___P/ Primary___

2. ___L/ Love___

3. ___Compressional_

4.

18. ___Compression_

19. ___Compression___

20. ___Shear___

21. ___Duck___

S-P interval	1min
Max Amp of S waves	82 +/- mm
Distance to epicenter	600 km
Magnitude (Richter)	

5. _B_

6. _C_

7. _B_

8. Since Long Island has vast aquifers its soil can liquefact.

9. _B_

10. _C_

11. ___2.7___

12. ___3.0___

13. ___4.3 +/- 0.5___

14. ___6.0 +/- 0.5___

15. ___10___

16. ___13___

17. _Tension___

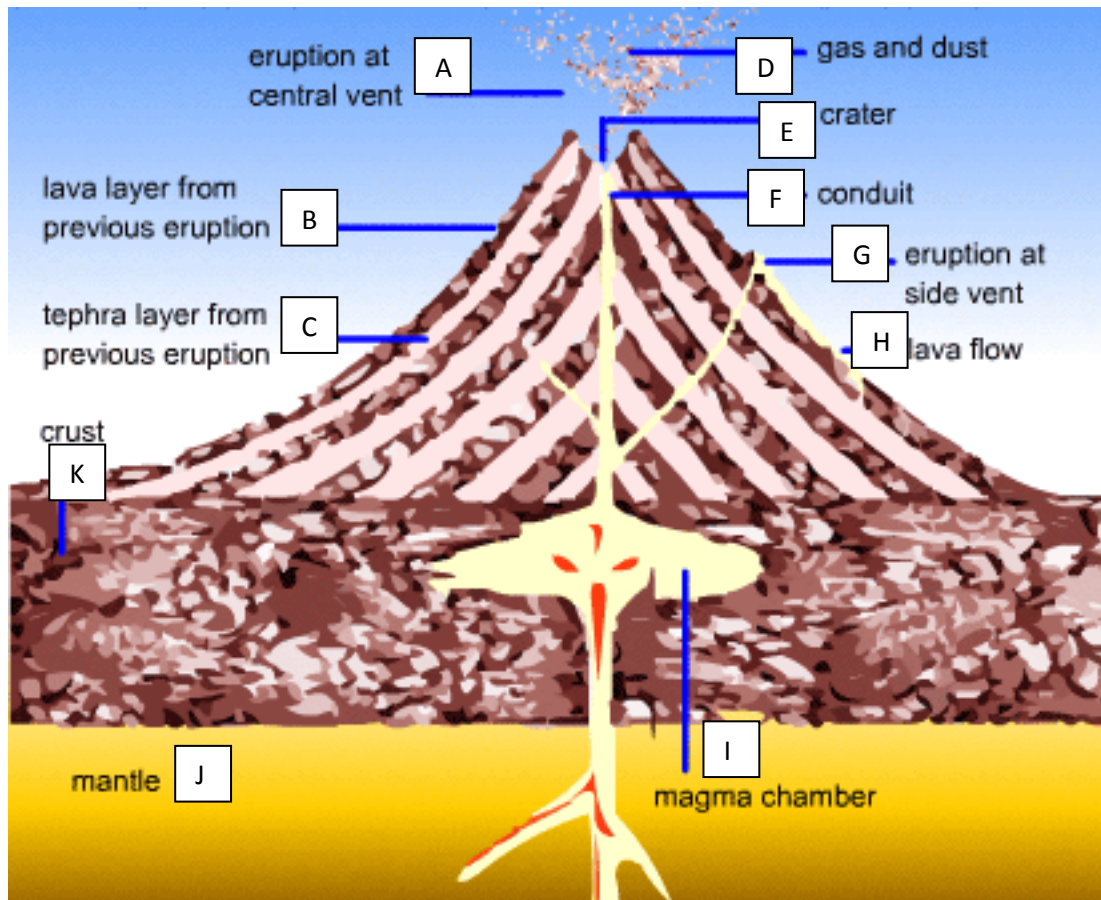
22. ___Cover___

23. ___Hold___

24. Include a scale on the left hand side

- | | | | |
|--|------------------------|---------------------------------------|-------------|
| 25. ___ Pyroclastic Flow/ Volcanic Explosion _____ | 46. ___ Lahar ___ | 53. ___ B _ | |
| 26 ___ Mt. St. Helens ___ | ___ Mt. St. Helens ___ | 54. ___ C _ | |
| 27. ___ E ___ | 28. ___ G ___ | ___ Washington ___ | 55. ___ D _ |
| 28. ___ I ___ | 39. ___ D ___ | 47. ___ Crater Lake/ Caldera ___ | |
| 29. ___ H ___ | 40. ___ K ___ | ___ Crater Lake ___ | |
| 30. ___ A ___ | 41. ___ F ___ | ___ Oregon/ Crater Lake Nat. Park ___ | |
| 31. ___ M ___ | 42. ___ H ___ | 48. ___ Batholith ___ | |
| 32. ___ F ___ | 43. ___ F ___ | ___ Half-Dome ___ | |
| 33. ___ L ___ | 44. ___ G ___ | ___ Yosemite Nat. Park ___ | |
| 34. ___ N ___ | 45. ___ B ___ | 49. ___ C _ | |
| 35. ___ B ___ | | 50. ___ B _ | |
| 36. ___ P ___ | | 51. ___ C _ | |
| 37. ___ J ___ | | 52. ___ A _ | |

56. Either the answers on the diagram or the ones on the bottom



A. Central Vent

B. Lava layer

C. Ash Layer

D. Pyroclastic Flow

E. Crater/ Caldera

F. Conduit

G. Side Vent

H. Lava Flow

I. Magma Chamber

J. Mantle/ Aesthenosphere

K. Crust/ Lithosphere

57.

58. $v = \sqrt{g * d}$

$$v = \sqrt{10\text{m/s}^2 * 30 \text{ m}}$$

$$v = \sqrt{300\text{m}^2/\text{s}^2}$$

$$v = 17\text{m/s}$$

59.

60. Part I: Drop, Cover, Hold. Clear Shelves of glass, china, and heavy objects, other correct answers.

Part II: Make sure your building conforms to the building code in earthquake dense areas. Fix any and all weak structures. Other correct answers.