

**ES104 Video Review Questions****Earth's Volcanoes - Documentary****NAME** \_\_\_\_\_Youtube Video (44 minutes)     <https://www.youtube.com/watch?v=JjuaBj394hQ>

ES104 Lab Take-Home Assignment – Due by class time Monday July 15. Watch the Youtube Video and answer the following review questions.

1. What is the ring of fire? Where is it located?
2. How many lives have been lost over the last 200 years in the ring of fire?
3. What percentage of volcanoes are located at the ring of fire?
4. What ocean basin is the ring of fire located in?
5. List the eastern, northern and western boundaries of the ring of fire.
6. List three volcanoes with the most significant historic eruptions along the ring of fire in the last 150 years.
7. Which state in the U.S. contains the most volcanoes?
8. What is a stratovolcano? List the shape and characteristics of stratovolcanoes?
9. What is the significance of volcano Augustine? Where is it located?
10. What do blocky lava flows indicate about the type of volcanic eruptions?
11. How do Augustine lava flows compare to Hawaiian lava flows?
12. What determines the viscosity of lava flows?
13. True or False: the more silica in a lava, the more runny or smooth flowing it is?

14. Why are stratovolcanoes the most dangerous on the planet?
15. Describe the type of eruptions associated with sticky, viscous, gas-rich magma?
16. True or False: low viscosity magma with low gas levels result in quiescent eruptions.
17. Define and describe pyroclastic flows? How are they formed and why are they dangerous?
18. What does the presence of hornblende mineral crystals in Augustine lavas tell geologists about the earth's interior.
19. True or False: deep inside the Earth, water causes rocks to melt under high pressure.
20. How does water deep inside the earth's magma get there? Where does it come from?
21. Where is Mt. Lassen located?
22. Define and describe the term "fumarole"
23. True or False: gas exhausted from volcanoes around the ring of fire contain Carbon 12 from living organisms?
24. True or False: ocean phytoplankton are transported to magma chambers deep inside the earth via plate tectonics.
25. True or False: limestone fizzes when dropped with hydrochloric acid.
26. Draw a cross-sectional sketch of subduction process in plate tectonics.
27. How does the seafloor and seawater end up deep inside the earth, inside magma chambers?
28. How deep is magma located below the Earth's surface (range in miles below surface?)
29. What percentage of global earthquakes occur in association with the ring of fire?
30. Where was North America's largest earthquake ever recorded? What year?

31. What do elevated beach lines with boulder debris in Alaska indicate about earthquake activity?
32. What is a “megathrust” earthquake, and how do they form?
33. Why are megathrust earthquakes dangerous in coastal areas?
34. True or False: the 1964 Alaskan earthquake did not form a tsunami.
35. How many earthquakes per month occur in Alaska on average?
36. What geologic hazards are associated with the ring of fire?
37. What type of plate boundaries are located along the ring of fire?
38. How is sonar used to map the seafloor in tectonically active areas.
39. What is a tectonic “trench” on the seafloor? What type of plate boundaries are they located on? How deep below sea level do trenches extend?
40. How is GPS technology used to detect tectonic deformation at the Earth’s surface?
41. True or False: 100’s of GPS units are distributed across the western U.S. to detect plate motion?
42. How fast and in what direction is North America moving, as measured by GPS instruments?
43. How important is sea water in the process of volcanic arc development in the ring of fire? Why is water necessary to create volcanic arcs?
44. What is a black smoker? Where are they located? What temperatures are they associated with? How do they form?
45. What types of plate boundaries are black smokers associated with?
46. For how long has subduction been operating beneath Alaska?
47. True or False: subduction creates the volcanoes associated with the Ring of Fire?
48. True or False: subduction creates megathrust earthquakes and tsunamis along the ring of Fire?
49. True or False: Oregon lies along a subduction zone in the ring of fire?
50. True or False: the Cascade Mountains are volcanoes associated with subduction along the ring of fire?
51. True or False: subduction is dangerous.
52. Describe the geologic hazards associated with living in Western Oregon? What types of geologic disasters might occur in our lifetimes living in Oregon?