

## *Around Yellowstone Question and Answer Sheet*

1. What was the name of the small wooden boat used by the Hayden expedition to map Yellowstone Lake? (“the Annie”)
2. What earthquake occurred near midnight on August 17, 1959, resulting in the deaths of 28 people, and spurring interest in the geology of the Yellowstone area? ( the Hebgen Lake Earthquake)
3. What is a hotspot? (an area on the surface of the Earth that shows signs of long-lived volcanic activity)
4. Scientists think that the North American plate is moving over a stationary hotspot leaving behind a line of ancient volcanoes that extends from where to where? (the Oregon-Nevada-Idaho border and Yellowstone National Park)
5. What scientific idea theorizes that the upper mantle and crust of the Earth are composed of large pieces that slowly move about due to convection currents deeper in the planet’s interior? (plate tectonics)
6. How many gigantic caldera-forming volcanic eruptions have occurred in Yellowstone during the last two million years? (three)
7. What great geyser of Yellowstone has not had a major eruption for more than 100 years and is believed to have destroyed its own plumbing system during a series of hydrothermal explosions? (Excelsior Geyser)
8. What three geologic forces present potential hazards in the Yellowstone area? (volcanism, earthquakes, and explosive hydrothermal activity)
9. The Global Positioning System is being used in Yellowstone to survey what kind of changes in the Earth’s crust? (vertical and horizontal movement)
10. How do the pressure and motion of the underlying heat, magma, and fluids change the floor of the Yellowstone caldera (by making it rise and fall)

11. Researchers have made many discoveries on the floor of Yellowstone Lake. Name three. (spires, ancient shorelines, bacteria, thermal features, and a submerged dome)
12. What is sonar? (A system that uses transmitted and reflected sound waves to detect objects under the water)
12. Describe a hydrothermal explosion. (hot water in a geyser and hot spring suddenly flashes to steam, breaks the overlying rocks, and throws them into the air)
14. Where did the largest known hydrothermal explosion in the world occur? (Mary Bay on the northern shore of Yellowstone Lake)
15. Old Faithful Geyser's plumbing system is lined by what kind of deposits? (silica)
16. Where in Yellowstone did investigators from the Carnegie Institute drill a test well in 1930? (Norris Geyser Basin)
17. What instrument is used to detect and measure earthquakes? (a seismograph)
18. Name the three different stages of an earthquake. (foreshocks, mainshock, and aftershocks)
19. What is an earthquake swarm? (many earthquakes that occur within a short span of time in the same area)
20. When measuring an earthquake, each level of magnitude indicates an increase in size by how much? (a factor of 10)
21. Why are there few reports of major earthquake activity in Yellowstone even though thousands of quakes occur in and around the park each year? (Because most of the earthquakes are too small to be felt)
22. What method is used by geologists to map Yellowstone's magma chamber? (tomography)

23. What national research program is using the entire United States as a laboratory to explore movements of the Earth's crust and monitor how these shifts affect volcanic and earthquake activity on a continental scale? ([Earthscope](#))
  
24. What is the main component of the spires on the floor of Yellowstone Lake? ([diatoms](#))