# NOVA: Earthquake! Video Questions

***Instructions****: Please answer the following questions completely in your journal using complete sentences.*

1. What is the name of the fault that passes through the mountains by Santa Cruz, CA? How long did the shaking last in downtown Santa Cruz?
2. What did the antenna in Corolitos discover had preceded the earthquake?
3. What two types of motion were observed in the Lisbon earthquake of 1755?
4. How does a seismograph work?
5. What is the difference between a primary (p) wave and a secondary (s) wave?
6. How can p and s waves be used to determine the epicenter of an earthquake?
7. How long did the 1906 San Francisco Earthquake last? How long did the resulting fires burn?

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7. How long did the 1906 San Francisco Earthquake last? How long did the resulting fires burn?
8. How long was the rupture caused by the 1906 earthquake?
9. How did Gilbert describe a fault, and what happens during an earthquake?
10. What determines the magnitude of the earthquake on the Richter scale?
11. What was the difference between the 1975 Haicheng earthquake and the 1976 Tangshan earthquake?
12. What are some of the problems with researching and predicting earthquakes?
13. What is a fault scar?
14. What three faults are located near the Bay Area?
15. Describe the seismic activity in the Bay Area leading up to the 1906 and the 1989 earthquakes.
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20. What are some of the problems with researching and predicting earthquakes?
21. What is a fault scar?
22. What three faults are located near the Bay Area?
23. Describe the seismic activity in the Bay Area leading up to the 1906 and the 1989 earthquakes.

# NOVA: Earthquake! Video Questions ANSWER KEY

***Instructions****: Please answer the following questions completely in your journal using complete sentences.*

1. What is the name of the fault that passes through the mountains by Santa Cruz, CA? How long did the shaking last in downtown Santa Cruz?

The San Andreas Fault; the shaking lasted 20 seconds

1. What did the antenna in Corolitos discover had preceded the earthquake?

Low frequency radio waves; Scientists believe the squeezing of the earth may have produced them.

1. What two types of motion were observed in the Lisbon earthquake of 1755?

First was a tremulous vibration, then a wave-like undulation.

1. How does a seismograph work?

A heavy pendulum remains stationary because of its inertia—even as the earth (and the paper beneath the pendulum) shakes.

1. What is the difference between a primary (p) wave and a secondary (s) wave?

The p wave moves through the earth like sound waves (compressing ahead, expanding behind.)

The s wave is slower and has a lateral shearing component, which is particularly damaging to buildings.

1. How can p and s waves be used to determine the epicenter of an earthquake?

Because p and s waves travel at different speeds, the time between their arrivals can be used to calculate the distance from the epicenter. Data from three observation points can be used to triangulate the epicenter.

1. How long did the 1906 San Francisco Earthquake last? How long did the resulting fires burn?

The earthquake lasted about a minute. The fires burned for three days before running out of fuel.

1. How long was the rupture caused by the 1906 earthquake?

290 miles

1. How did Gilbert describe a fault, and what happens during an earthquake?

A fault is a crack in the earth’s crust caused by strain by movement deep below. Each side is held in place by friction until enough energy builds up to overcome it. The release is so swift it causes seismic waves.

1. What determines the magnitude of the earthquake on the Richter scale?

The amplitude of the largest wave recorded on the seismograph.

1. What was the difference between the 1975 Haicheng earthquake and the 1976 Tangshan earthquake?

The 1975 Haicheng earthquake had a lot of magnitude 5 precursors that allowed the Chinese government to issue warnings and evacuate towns before the earthquake struck. The 1976 Tangshan earthquake had no foreshocks to give advanced warning.

1. What are some of the problems with researching and predicting earthquakes?

There are multiple kinds of earthquakes, so what works to predict one may not predict another. Earthquakes work on a geologic timescale—in order to gather enough data, we need to observe hundreds of earthquakes, which takes a long time.

1. What is a fault scar?

A break in layers of sediment caused by previous earthquakes

1. What three faults are located near the Bay Area?

San Andreas, Hayward, and Calaveras

1. Describe the seismic activity in the Bay Area leading up to the 1906 and the 1989 earthquakes.

In the years immediately preceding large earthquakes, there was a lot of activity on the three faults in the area.