



8th Grade – Science: Plate Tectonics & Earthquakes

8th grade Science Standards:

<http://www.cde.ca.gov/ci/sc/cf/documents/scienceframework.pdf>

MS-ESS1- 4.

Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

MS-ESS3- 4.

Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Learning Objectives (LO):

Plate tectonics accounts for important features of Earth's surface and major geologic events. As a basis for understanding this concept: a. Students know evidence of plate tectonics is derived from the fit of the continents; the location of earthquakes, volcanoes, and midocean ridges; and the distribution of fossils, rock types, and ancient climatic zones.

Napa Valley Unified School District's "4Cs": (Critical Thinking, Collaboration, Communication, and Creativity)

Lesson Plan 1: Shake, Rattle, and Roll

(IBL / PBL) KQED Project Quest: Shake-Rattle-&-Roll

Guiding Questions (GQ):

How can we use the Physics of Earthquakes and Engineering practices to determine the Epicenter of an Earthquake? How did plate tectonics shape the Napa Valley?



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Entry Event: Earthquake drill

Day 1: Return to class, login to the internet and Go to [ww2.kqed.org/ quest](http://ww2.kqed.org/quest). Go to collections-earthquakes. Watch video- The Hayward Fault: Overdue for disaster. Then login into Echo (or Google Classroom) - Quest journal entry 1 (QJE 1) and answer the question. Why do scientists believe that the Hayward fault is overdue for an earthquake? Then add the answers of the questions in Earthquakes 101 to your QJE 1. Stop at epicenter.

Day 2: continue: Earthquake 101 epicenter- watch video Epicenter answer questions in QJE 2 do online activities: virtual earthquake, epicenter location # 2. Stop at Magnitude.

Day 3: Magnitude: watch video Perspective, answer the preliminary questions before watching: The 4 types of Seismic Waves. Answer after viewing questions.

Day 5: Go to quest earthquake 101 virtual earthquake complete online Geology Laboratory Investigation: [Virtual Earthquake:](http://www.sciencecourseware.org/VirtualEarthquake/VQuakeExecute.html)
<http://www.sciencecourseware.org/VirtualEarthquake/VQuakeExecute.html>

Day 6: Go to [Quest: Earthquake Map:](http://ww2.kqed.org/lowdown/2014/08/25/interactive-earthquake-map-get-to-know-your-neighborhood-fault-lines/)
<http://ww2.kqed.org/lowdown/2014/08/25/interactive-earthquake-map-get-to-know-your-neighborhood-fault-lines/> to research Napa Valley earthquake and answer the question how does plate tectonics shape the Napa Valley.

Day 7: Go to [Quest: climate Watch:](http://www.kqed.org/news/science/climatewatch/about.jsp)
<http://www.kqed.org/news/science/climatewatch/about.jsp> and research how California and Napa County are conserving water.