

## Earthquake! USGS & Google Earth

A multimedia introduction to Plate Tectonics & Earth movement

Introduce students to plate tectonics with the multimedia elements in the Google Earth tours created by the United States Geological Survey. Students explore, analyze and create scenarios as they learn about seismic activity both past and present in the San Francisco Bay Area and around the world.

### Start with USGS Earthquake Hazards Program in Google Earth

[http://earthquake.usgs.gov/research/data/google\\_earth.php](http://earthquake.usgs.gov/research/data/google_earth.php)  
<http://earth.google.com/>

Set up a series of questions to start the initial exploration of the USGS Google Earth tours.

Sample Sites and Questions:

USGS Real Time Data

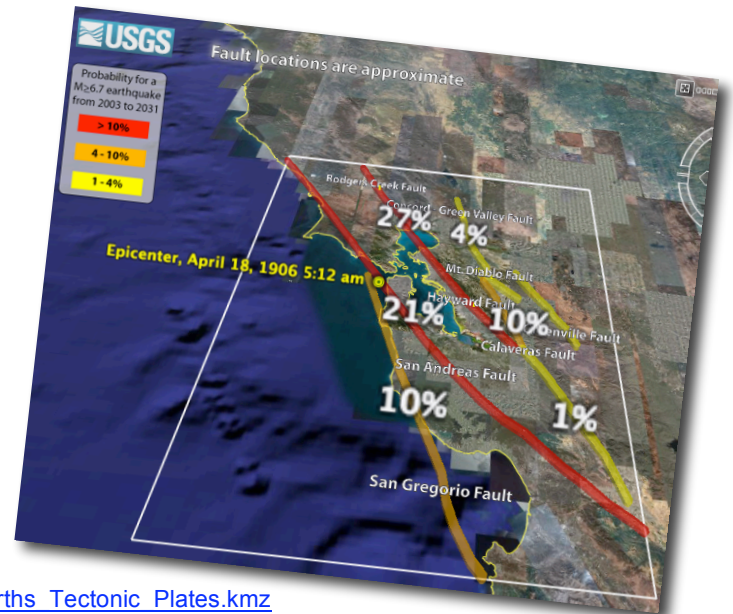
<http://earthquake.usgs.gov/eqcenter/catalogs/eqs7day-age.kmz>

- In the last seven days locate the largest and smallest earthquake in California.
- How many EQs within the last day?
- How many EQs within the last hour?
- How many EQs within the last week?
- Did you feel them?

Earth Tectonic Plates

[http://earthquake.usgs.gov/regional/nca/virtualtour/kml/Earths\\_Tectonic\\_Plates.kmz](http://earthquake.usgs.gov/regional/nca/virtualtour/kml/Earths_Tectonic_Plates.kmz)

- Why are some plate boundaries undefined?
- What is plate subduction?

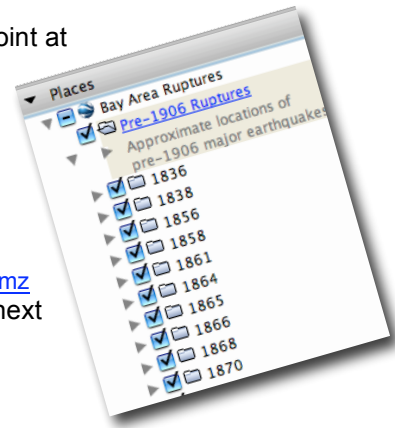


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1906 Distribution of Slip and 1906 Northern Rupture Tour

<http://earthquake.usgs.gov/regional/nca/virtualtour/kml/1906RuptureTour.kmz>

- Does the amount of time it took for the earthquake to reach a point at the surface relate to the amount the earth moved at that location?
- Why do you think that the earth moved so much in some locations?



Bay Area EQ Probability

<http://earthquake.usgs.gov/regional/nca/virtualtour/kml/BayAreaEQProbability.kmz>

- What faults have the highest probability of releasing within the next 30 years.
- Do you think scientists are accurate at predicting earthquakes? Explain.

San Andreas & Bay Area Faults

<http://earthquake.usgs.gov/regional/nca/virtualtour/kml/SanAndreasBayAreaFaults.kmz>

- How many faults are in the Bay Area?
- Locate other faults in California.

## Collaborate & Create - Docs & Spreadsheets & Google Earth

<http://www.google.com/google-d-s/b1.html>

<http://earth.google.com/>

Set up a collaborative Google Docs & Spreadsheet where students can record their findings on faults, or volcanic activity. Have students create their own Google Earth tour that explains plate boundaries and the impact of the Ring of Fire.

Other Resources:

A Virtual Tour of the 1906 Earthquake in Google Earth

<http://earthquake.usgs.gov/regional/nca/virtualtour/>



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Lesson idea for 5<sup>th</sup> & 6<sup>th</sup> grade science