

## Exploring Plate Tectonics and Landforms – Part 2

Before you begin using this module, you will need to know about using a Web-based GIS viewer. You can do this by watching the tutorial video and working through the hands-on tutorial. The tutorial video, student activity, and Web-based GIS Tutorial Viewer can be found at <http://gis.lanecc.edu> → “Modules” tab → “Tutorial” link. The activity works best with a high speed Internet connection. **Complete** Exploring Plate Tectonics and Landforms- Part 1 before beginning this activity.

**Prior Skills:** You will need to know how to turn layers on and off, use the ID tool and, zoom in and out of the map, toggle from layers to the legend, and perform a search (Boolean) query.

**Objectives:** You will be able to develop and test several hypotheses to understand the relationship between earthquake magnitude, location and depth and their impact on human life and property.

**Remember,** computer steps are indicated by a ► symbol and questions you need to answer are numbered.

Record your answers on a separate sheet of paper.

- Go to the Plate Tectonics website <http://arcgis.lanecc.edu/website/tectonics>

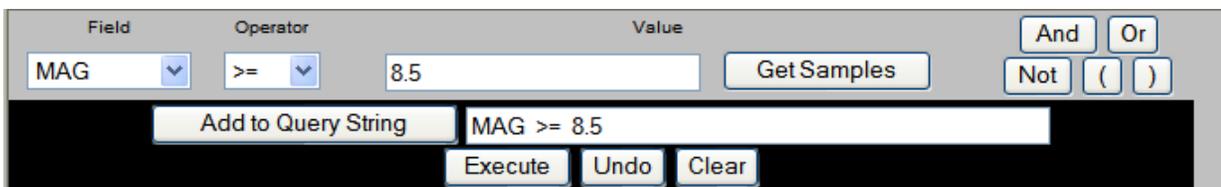
In this lesson you will explore causes of the variability in earthquake magnitude. There are 3172 earthquake records in this data. They represent significant earthquakes from 2150n B.C. to present day.

- Make Quake **Visible** and **Active** → **Refresh** the map

Deaths from earthquakes in this data set range from 0 to 1,100,000.

1. Write down your expectations of the relationship between an 8.5 or greater earthquake, and damage in dollars, death, and homes.

- Click on the **Query** tool  and set up your fist query to select all the earthquakes that have a magnitude greater than or equal to 8.5.



- Select **Add to Query String** → **Execute**.

2. Describe the spatial occurrence for Magnitude  $\geq 8.5$  earthquakes?

Below the map is a list of the earthquakes that fit your query

3. How many are there? You will need to select “[More Records](#)” to view them all.

▶ Scroll through the table and examine the death, damage, and home data.

**Damage** – 1 (less than \$1 million), 2 (\$1 - \$5 million), 3 (\$5 – \$24 million), 4 (\$25 million and over)

**Home** - # damaged – 1 (1 to 50), 2 (51 to 100), 3 (101 to 1000), 4 (1001 or more)

4. Does it meet your prediction you made on the previous page?

5. If it doesn't, what might be the reason?

6. Look at the attributes and develop a **hypothesis** about why these places resulted in such high deaths? Be ready to discuss your findings and hypothesis.

7. *Run several queries to help evaluate and test your hypothesis. Record the query statements and their results.*

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