**5E Template- Science**

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| **Name: Lisa Warstler** | | **Date: July 21, 2011** |
| **Content Area: Earth Science** | **Grade Level(s): 9th** | **Topic(s): Earthquakes** |

**Standards (SOL)**

SOL ES.1c scales, diagrams, maps, charts, graphs, tables, and profiles are constructed and interpreted.

SOL ES 9c Identify tectonic processes (subduction, rifting, and sea floor spreading and continental collision)

**Objectives (UKD’s)**

The specific area from the SOL’s the students will be learning about is how earthquakes happen, how their strength is determined and the locations of these types of disasters. This lesson plan may take more than one day.

**Materials & Resources** Computer Lab, Map showing Tectonic Plates, recent earthquakes information, plate movement directions, map, and table. Popsicle sticks, glue, string, and clay.

**Safety Considerations** No safety considerations are needed for this lesson.

**Engage – Time Estimate \_\_\_15 minutes**

Have the students fill in the three questions on the front of the What I Know about\_\_\_\_\_\_\_\_\_\_\_\_\_f orm. We will discuss what they know and talk about plate tectonics and how they work. The different types and the force they must have to cause an earthquake that we on the surface of the earth can feel.

**Explore – Time Estimate\_\_\_\_\_\_40 minutes**

The next part of the lesson the students will have labs setting up and they will get into groups of 3 or 4. Each group will have a table with popsicle sticks, glue, string and clay on it. The students will use these items to see if they can build a structure that will hold up to an earthquake. We would use an item that we can find in the since room that would vibrate fairly well and it will do this four 30 seconds. Then we will see if any of the structures will hold up to the vibration. The students will use the scientific method to figure out the information and what they think will make their structure hold up to a massive vibration. After the groups finish their own structures and chart and graph how long each figure lasted. We will discuss the how hard they think the structures could be shook at specific vibrations and hold up and what people in areas that have many earthquakes make structures that hold up to earthquakes, and why other structures fail. Another discussion will entail what is the reasoning behind some buildings that appear to be built well fall, but are near the focus point of the earthquake.

**Explain -- Time Estimate \_\_\_20 minutes**

To make sure the students understand the information of earthquakes I will make a similar discussion page(Evidence of Plate Movement by Mr Kaznosky) that they may do in their group, but all students in the group must agree on the answers. The groups will change around and everyone will discuss the answers with another group. (Dan Mulligan) They will correct an answer if they think they are incorrect, but do not have too. They will need to leave their orginal answer. They will go back to their group and go over the answers again to see if they think the information from the other group sounds better than the original answer they came up with. After this I will take them up and we will go over the answers and have discussion.

**Extend -- Time Estimate \_\_\_10 minutes**

This may be used in many ways to extend this. We can use it to plot actual earthquakes and their strengths. It can be used to help with latitude and longitude. They can plot real earthquakes by latitude and longitude. This also extends to charts, graphs and maps and learning the country as well as they use more world maps to plot information.

**Evaluate -- Time Estimate \_\_\_30 minutes**

A few weeks later have the students explain plate tectonics and have them chart, graph, and plot information on real earthquakes on their own and turn these in, if there are any problems we will get the students together in a small group and work with them on the information they do not understand. (If there are several questions missed on the same information.

**Plans for Diversity**

I did not explain how our co-taught is set up. We help all that need help with anything that they need help with. Our students vary in so may ways that it is hard to pinpoint one thing they may not be able to do or understand. This is the reason that we as a team to not concentrate on the one student, but on the whole class. We may take a small group to do testing or papers or go over information that have a diversity of people in it including regular education classes. Some of the students can work in groups fine. They will also come and ask for help if they have a really hard time doing a paper, project or reading or understanding directions. They come to me or my co-teacher. The problem they have outside of science, may not affect them in science. They may in co-taught classes for all four cores. We try to treat them the same as all of the others unless they need extra help. Learning from each other helps in so many ways. Sometimes when I cannot explain something to them in a way they can understand another student might be able to do this easier. Just because we are special educators does not mean we have to jump in all of the time. Sometimes with students it is important to stand back and watch. This is why I have not written specific accommodations for specific disabilities. This goes for all of my lesson plans I have written. We help were help is needed and step back and watch as the students in many cases help each other.

**Connections**

This is a unit that fits in with geology and the formation of rocks in the earth and with the volcanoes, plate movement, how it affects the earth and how it did help to form the earth. This hits many different areas including weathering and erosion, latitude and longitude with the Ring of Fire, and why there are so many earthquakes in the area called the Ring of Fire. It also has to do with the ocean floor and what building processes have happen in this area too. This is an important part of science in many ways.