THE CHILDREN'S MUSEUM AT LA HABRA
301 South Euclid St., La Habra CA 90631 (562) 383-4236 Fax (562) 383-4485 www. lhcm.org

Where Earthquakes Occur

Overview: Where do earthquakes occur and how do they affect buildings and our homes?

Processes/Skills:

- Observing
- Examining
- Comparing
- Classifying
- Describing
- Analyzing
- Cooperating

Recommended For: Grade K-3

Time Required: 40 minutes

Materials Required:

- Let's Learn About Earthquakes worksheet
- photograph of the fence and printout of map of recent earthquakes (see link in Resources section)
- Earthquakes by Ellen J. Prager
- spaghetti
- marshmallow

Connecting to the Standards

- Language Arts

o R.L. 7. Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.

o S.L. 1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

o S.L. 2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

o S.L. 3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

- Science

o 2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Activity Objectives

- The learners will (TLW) identify different places where earthquakes happen most often.

- TLW will compare pictures of the effects of earthquakes.

- TLW will observe what happens to buildings during an earthquake and build their own model.

- TLW will identify that earthquakes happen every day.

Main Activity, Step-by-Step Procedure

1. The teacher will show the photograph of a fence offset by 8.5 ft. during the 1906 earthquake in Marin Country, CA.

2. Ask the students what they think happened to the fence. Tell the students that an earthquake caused the fence to be offset.

3. Hand out the Earthquakes anticipation guide worksheet to each student and have the students record the “before” column. The students can answer these questions independently or as a class.

4. Show the students the USGS map of the latest earthquakes in the world in the last 7 days and discuss the earthquakes happening around the world. Students should recognize from the map that earthquakes happen in or around the Pacific Ocean.

5. Read Earthquake by Ellen J. Prager aloud.

6. Show page 17 of Earthquakes and model how to use the map key to identify the red and green dots on the map.

7. Reread pages 22 and 23 about buildings and homes designed to withstand an earthquake.

8. Pass out 15-20 spaghetti strands and a handful of marshmallows to a group of students or pairs. Have the groups or pairs build a structure two stories high by connecting the spaghetti with marshmallows.

9. Once the students are done with their structure, set the structure on the table and shake the table to see if their structure will withstand an earthquake.

10. Have the students fill out the “after” column of the Earthquake anticipation guide worksheet. The students can complete sentences “I used to think…but now I know...” using the worksheet as a guide.

Discussion Questions:

1. Have you experienced an earthquake before? How does it feel like?

2. Can you name some places where earthquakes happen?

3. Is our location in the earthquake zone?

4. For the spaghetti structures, how can we make the structure stronger? Why did your structure withstand or not withstand an earthquake?

Assessment

1. Students are able to fill in the “after” column of the earthquake anticipation guide.

2. Students are able to discuss how their existing knowledge on earthquakes have changed after the lesson.

3. Students are able to model new learning by completing “I used to think… but now I know…” statements.

Resources

Lesson plan source: 2011. Where Earthquakes Occur. Science & Children. 49: 21

Photograph of Fence Offset by 1906 Earthquake :

http://earthquake.usgs.gov/regional/nca/1906/18april/images/fenceoffset_big.html

Step-by-step Instructions for Using the Rapid Earthquake Viewer by IRIS:

www.iris.edu/hq/files/publications/brochures_onepagers/doc/REV_Insert.pdf

The Rapid Earthquake Viewer by IRIS (Incorporated Research Institutions for Seismology)

http://rev.seis.sc.edu

USGS Interactive Recent Earthquake Maps

http://earthquake.usgs.gov/earthquakes/recenteqsww

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Name: _____

Let's Learn About

Earthquakes

Before **Agree or Disagree**		*After* **Agree or Disagree**
_____	1. Earthquakes happen every day.	_____
_____	2. Rocks are too hard to ever break.	_____
_____	3. Earthquakes last a few seconds or minutes.	_____
_____	4. Some places on Earth have more earthquakes than other places.	_____
_____	5. Buildings should be built on sand to keep them from falling during an earthquake.	_____
_____	6. We cannot stop earthquakes from happening.	_____

Photograph of fence offset by 8.5 ft. during the 1906 earthquake