Candy Quakes

Life Skills:

- Complex Thinking
- Collaboration
- Lifelong Learning

Time Frame:

1 class period that runs 45 minutes.

Group Size:

Pairs

Summary:

Using a candy bar, gum, and Twizzlers, students will demonstrate the effects of deformational forces on the earth's crust.

Main Curriculum Tie:

Science - 8th Grade Standard III:
Students will understand the processes of rock and fossil formation.

Materials:

- Candy bar (bite size or larger, any type)
- Large Gum pieces (Not sticks, best with gum like Bubblicious)
- Licorice (Red Whips, Twizzlers) or similar type of candy (at least 10 inches long)
- Napkin or paper towel for each student

Background For Teachers:

Crustal deformation depends on two things, the type of rock layers (strata) and the type of deformational forces. There are probably as many different rock layers as there are different candy bars. Candy behaves like many rock layers, each layer having its own distinct traits.

There are three basic deformational forces: tensional, compressional, and transversal. Tensional forces are forces that pull crustal rocks apart. Compressional forces are forces that squeeze crustal rock together. Transversal forces are forces that push crustal rock horizontally and in different directions.

In some cases crustal rocks move in the same direction but at different velocities. These forces translate into faults, folds, and joints. Faults are breaks or cracks along which crustal rocks move. Folds occur when compressional forces are applied to rock that is hot and pliable. Anticlines are folds in rocks that bend upwards. Synclines are folds in rocks that bend downwards. Joints are parallel cracks in rocks. All of these physical features can be seen in broken and bent candy. Have the students bring in their favorite candy bars and the other items.

Intended Learning Outcomes:

- Students will construct models and simulations to describe and explain natural phenomena.
- Students will learn science terminology appropriate to grade level.
- Students will understand science concepts and principles, explain science concepts in their own words and demonstrate scientific principles.
- Students will use the language and concepts of science as a means of thinking and communicating.

Instructional Procedures:
(NOTE: At the end of this lesson, the participants will be able to consume more than just the wealth of new knowledge gained by this activity.)

Review vocabulary: crustal deformation, tensional forces, compressional forces, transversal forces, faults, folds, joints, anticline, syncline. Pair all students. Give the students the following instructions:

1. Unwrap one gum piece and apply compressional forces with your fingers on the gum. Record your observations.

2. Reshape gum piece and apply a tensional force with your fingers on the gum. Record your observations.

3. Unwrap second piece of gum and apply a transversal force with your finger on the gum. Record your observations.

4. This time, using your candy bar, repeat Step 3. Leave your candy bar on the napkin. Observe the effects of tensional forces on different candy bars by looking at the candy bars of at least five other students. Record your observations on five different candy bars.

5. Take your Twizzlers and stack them horizontally on top of each other, supporting them with your hands. Apply compressional forces by pushing in towards the center. Observe and illustrate your anticline and syncline.

6. Closure: Clean up any mess on your desk. Hand in your observation sheet and enjoy your candy.

Extensions:
Activity - Find web sites on the Internet that deal with this subject. Find interactive sites that teach students these concepts. Report findings to the class.

Assessment Plan:
Show students candy bars that have been deformed by various types of forces. Ask students to identify the type of force that caused each deformation.

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