

# Breaking Up

## Summary

In this activity students perform an experiment with graham crackers to model an earthquake and they will design a metaphor and an analogy to help them remember the cause of earthquakes.

## Time Frame

1 class periods of 60 minutes each

## Group Size

Pairs

## Materials

one whole or half a Graham cracker per group of students or per student, depending on how many you wish to buy. Other crackers will work but they need to have a dent in the middle like Graham crackers do.

model of fault (directions in procedures)

- [student sheet](#)  
(attached)

## Student Prior Knowledge

Students should have some knowledge of earthquakes and faults.

## Instructional Procedures

Have students observe their cracker. They should make predictions on where it will break when pressure is put on the sides:

Explain to students that the cracker is brittle, like Earth's crust. Earth's crust has pressure placed on it from forces deep within the Mantle. The forces can push the crust together (compression) pull it apart (tension) or shear it sideways. Have each student in a group put a different type of pressure on their cracker and see what happens.

Students should record their findings. Discuss with the class their findings. Make a model of earthquake faulting show students how the slipping creates features on Earth. The model can be easily made from a piece of Styrofoam cut like this:

By applying tension or compression you can get "mountains" or "valleys" to form.

Two other pieces can form a shear fault:

Read the information from the student sheet on metaphor and analogy design. Give students time to write them.

Ask students to share their work with the class. They can write them on the board or verbally read them.

## Assessment Plan

### Scoring Guide:

Students participate in lab activity.....	4
Students record data.....	4
Students write analogy and metaphor.....	4
Students correctly answer analysis questions.....	4

### Answers:

Answers will vary. The crackers will break most cleanly with compression.  
Earthquakes create mountains and valleys.  
Earthquakes are caused when a build up of pressure is released by a fault slipping.  
Students write thoughtful conclusion.....4

#### Bibliography

Lesson Design by Jordan School District Teachers and Staff.

#### Authors

[Utah LessonPlans](#)