

# Spaghetti Faults

## Objectives:

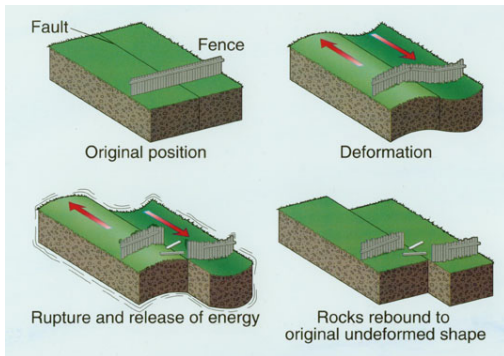
- Understand what causes earthquakes
- Understand that rock composition allows them to bend
- Understand the transfer of energy leading to earthquakes

## Standards:

- Science (5-8/9-12):
  - Science as Inquiry: Abilities necessary to do scientific inquiry
  - Physical Science: Properties of objects and changes in matter; transfer of energy and interactions in energy and matter.
  - Earth and Space Science: Energy in the earth system
  - Science in Personal and Social Perspectives: Natural hazards

## Background:

An earthquake is caused by the release of energy built up in the earth where rocks are sliding past one another. As the rocks slide past each other some



pieces get stuck and instead of quickly snapping off they bend a bit, yes rocks bend. When they finally are released they snap back into position, this snapping releases the energy that was stored in them into the ground in the form of waves. (This is similar to pulling on a rubber band until it breaks; when it finally breaks, it snaps back to its original shape releasing all the energy it had in it, usually in the form of a welt on your hand).

## Classroom Activity:

Part I: A simple way to show learners the concept of elastic rebound is to have them put their hands together so that just the tips of the fingers are holding onto each other. Then pull the hands apart, gripping onto the opposite hand with fingertips. Pull hard! Have the fingertips let go – arms will snap away from each other and then come back to their original position. This activity can also be done with two learners.





Part II: Students predict and measure strike-slip fault movement using wooden models of the San Andreas fault and pieces of spaghetti that simulate locked segments of rock along the fault. After predicting the number of strands of pasta that will result in the greatest movement, students perform four trials for each strand of pasta added, measuring the distance the block moves. See individual instructions for

spaghetti faults.

**Possible questions/inquiry for learners:**

Describe the flow of energy as the rocks (fingertips) are “stuck” and then describe the energy upon release.

How is this experiment like/unlike a real fault?