

Folding

In our everyday experience, rocks are very hard and never bend. But under the right conditions and with a lot of time, rocks not only bend, they can be bent into zigzag shapes. This zigzag pattern is called *Folding* and tells us that the rock experienced these special conditions.

Deformation

Deformation means to change shape. Geologists separate deformation into two forms. Breaking a brick is an example of *Brittle Deformation*. At first, nothing appears to happen as pressure is applied to the brick. Then suddenly, the brick snaps in two. Folding is an example of *Ductile Deformation*. As pressure is applied, the rock smoothly bends. Clearly, something special is required to make rock behave like that.

Activity Overview

In this activity, you will create folds in Play Doh® that will look like folds found in rock outcrops.

Materials

- Newspaper
- 12 cardstock squares
- Tubs of Play Doh®
- 2 wood cutting boards

Instructions

First read all of the steps and think through what you are going to do. Now you are ready to begin.

1. Gather all of the materials that you'll need.
2. Spread newspaper over your work area. When you clean up, all you'll

have to do is roll it up.

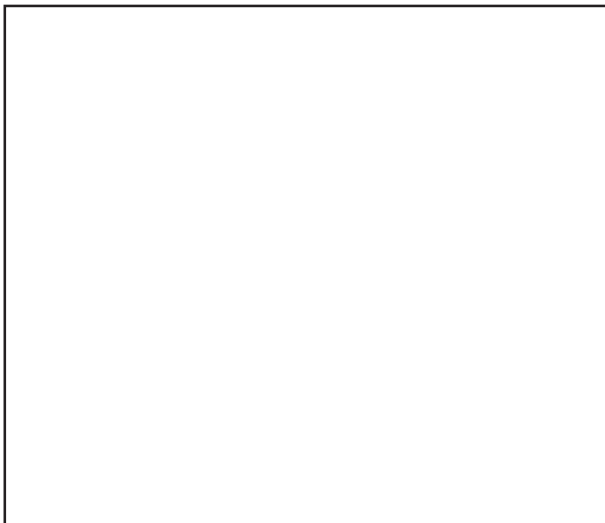
3. Pinch off and roll ten balls of different colored Play Doh®. Make the balls about the size of a golf ball.
4. Press each ball onto a cardstock square. Spread the Play Doh® so that it covers the square evenly. You will have two squares left over.



5. Form two stacks of Doh squares by placing five Doh squares neatly one on top of the other. Place each square with the cardstock down. Now cover the tops of the stacks with the left over cardstock pieces. When you are done, you'll have five Play Doh® layers separated by six cardstock squares.
6. Lightly press each stack so that they stick together.
7. Turn a stack on its edge and place on one of the cutting boards. Give it a bit of a squeeze if it starts to fall apart.
8. Place the second cutting board on top of the stack and press down hard. Try to squash the stack to about half of its original height.
9. Carefully remove the top cutting

board. Try not to disturb the squashed squares.

10. Call your instructor over to cut the squares with a sharp knife.
11. Repeat steps 7 through 10 for the remaining stack.
12. Examine the cut edge to see the folds that formed as you compressed the stack. Make a sketch of the folds that you created in the space below.



Play Doh ® Folds

Words to Know and Understand

Brittle Deformation - As force is applied, little happens at first. Then, all of the shape change that will take place, happens suddenly.

Ductile Deformation - the shape of an object changes smoothly as force is applied. The first changes in shape begin soon after force is applied.

Folds - Bends in rock caused by ductile deformation.