Folding Rocks into Mountains

Georgia Standards of Excellence

S5E1. Obtain, evaluate, and communicate information to identify surface features on the Earth caused by constructive and/or destructive processes.
a. Construct an argument supported by scientific evidence to identify surface features (examples could include deltas, sand dunes, mountains, volcanoes) as being caused by constructive and/or destructive processes (examples could include deposition, weathering, erosion, and impact of organisms).
b. Develop simple interactive models to collect data that illustrate how changes in surface features are/were caused by constructive and/or destructive processes.

S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.
f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions. (Clarification statement: Include convergent, divergent, and transform boundaries.)

Objective:
Students will observe how the land masses colliding can force rock to bend and fold into mountains.

Discussion:
Fold mountains form when the edges of two tectonic plates push against each other. This can occur at the boundary of an oceanic plate and a continental plate or at the boundary of two continental plates. Fold mountains are often composed primarily of sedimentary rock.

Fold mountains usually occur along the edges of continents, as this is where the sedimentary deposits tend to accumulate on a geological time scale. When the oceanic plate collides into the edge of the continental plate, the sedimentary material folds up on itself like an accordion.

Examples of fold mountains include the Appalachian Mountains, the Rocky Mountains, the Ural Mountains and the Himalayan Mountains. Both the Rockies and the Himalayas are of relatively recent origin, and are no more than 25 million years old. By contrast, the Appalachians and the Urals are old mountain ranges that were formed at least 200 million years ago.

Materials:
- Several towels of different colors
- Two books

Procedure:

1. Place the towels flat on the table, layering each towel on the other until you have a small stack of towels.
2. With the two books at either end or the stack of towels, slowly push the books toward each other and see what happens to the towels.

Fold mountains occur when two plates collide head on and push against each other. The huge forces involved push the rock up and it folds and creases as it goes.

Further Observations:

Change how deep you have the modeling clay and try to move the cardboard.

.