



Wave Action Activity

Introduction

In the book *In One Tidepool* by Anthony Fredericks, children are introduced to a "coastline with pounding waves, Sea-splashed rocks and hidden caves." In this activity, students will explore how tides and waves affect the surface of the earth.

Materials Needed

- ◆ White glue
- ◆ Playground sand
- ◆ Water
- ◆ Small coffee can (with lid)
- ◆ Cookie sheet

Key Concepts

- ◆ The surface of the earth changes.
- ◆ Objects in the sky have patterns of movement.

For standards correlation please see our website.

Procedure

1. Mix together six tablespoons of white glue with six tablespoons of sand in a bowl.
2. Using the tablespoon, place small lumps of mixture on a cookie sheet.
3. Place the cookie sheet in a slow over (250 degrees F) and "bake" them for three to four hours.
4. Remove the "rocks" and allow them to cool.
5. Put three or four "rocks" into a coffee can with some water and place the lid securely on top.
6. Shake for four to five minutes and remove the lid.

The rocks will begin to wear down. Some of the "rocks" will be worn down into sand. The action of the "waves" inside the coffee can causes the "rocks" to wear against each other. As a result, they break down into smaller and smaller pieces. On a beach or shoreline this process takes many years, but the result is the same. Rocks become smaller by being tossed against each other by the action of the waves. Over time rocks wear down into sand-like particles which eventually become part of the beach or shoreline.

Nature Connections

- ◆ Invite students to log onto the National Wildlife Federation's web site "Keep the Wild Alive." Ask students to write a paper on endangered species in the ocean or along the seashores of the world utilizing this website as a resource.
- ◆ Invite students to imagine that they are a tidepool creature and are writing to another animal in another tidepool to convince him or her to visit. What features or attractions should be pointed out in the letter? What is it about that specific tidepool environment that would make it appealing for another creature?

Additional Resources

- ◆ Tides are caused by the gravitational pull of the moon.
- ◆ A neap tide is a weak tide and occurs during quarter moons.
- ◆ The biggest tide swells occur in Spring when the moon, sun and the Earth are all aligned.
- ◆ Waves only occur on the surface.
- ◆ Waves are caused by friction between the wind and the surface of the water.

