

Student Instructions

Hold On to Your Home!

Imagine you are a small, shelly creature at the coast. You live in a place called the intertidal zone, or the area between the lowest low tide and the highest high tide. As an intertidal creature, what are some challenges you might have to deal with? Make a list here:

Coastlines generally can be divided into two types: sandy and rocky. In this activity, you are going to experiment with each type to determine some adaptations that can help you survive there. Your challenge in this activity is to find ways to help the creatures stay put.

Materials:

Be sure you have the following materials ready.

- Tray
- Beaker or cup
- Sand
- Rocks
- Water
- Various organisms or models of organisms

Procedure:

1. Use the attached observation worksheet for this activity. List each of your organisms in a separate row. Use enough rows so that you can test each of your organisms in both a sandy coast and a rocky coast (for instance, if you have five organisms, you will need ten rows). You may need to use an additional worksheet in case you do additional tests.
2. Place the sand in the tray. Mound it at one end so that it looks like a beach. Add water to the other end so that it fills the tray about half way.
3. Gently swish the water around by lifting one end of the tray. This is to simulate waves. Watch what happens to the sand while you are creating waves. Write your observations in the space provided on the worksheet.
4. Experiment with the different organisms to see how they might avoid being washed away on a sandy beach. In particular, you should observe how the differently shaped organisms might use different methods to stay put. As you place the organisms, gently swish the water to observe what happens to them. Write your observations in the table on the worksheet.
5. Place the organisms in their most stable positions, take a beaker or cup of water, and slosh it onto the beach. This is to represent storm waves. Did the organisms behave differently with the sudden motion?

6. Take the sand out, place rocks in the tray to simulate a rocky coast and repeat steps 2-5. Write your observations of what happens in the space provided on the worksheet.
7. Be sure to clean up your station before finishing the exercise.

Analysis Questions:

1. What were the differences in trying to survive in a rocky coast versus a sandy coast?
2. Were some organisms better equipped to survive on a rocky coast than on a sandy coast?
3. How did the storm wave affect the organisms? How does this relate to what really happens on beaches during storms?
4. Choose one of the organisms that you found was able to stay put fairly well in one of the experiments you did. How might this organism deal with some of the other factors that it might face on a coast. For instance, how could it adapt to avoiding predation, to finding food, etc.