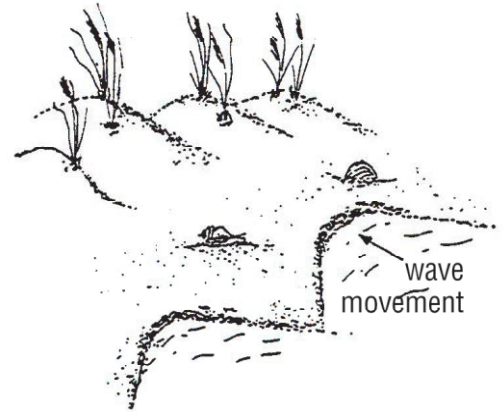


MAKING WAVES

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- OBJECTIVES:**
1. To investigate the effect of wave action on a beach.
 2. To investigate the difference in summer and winter waves.

MATERIALS:

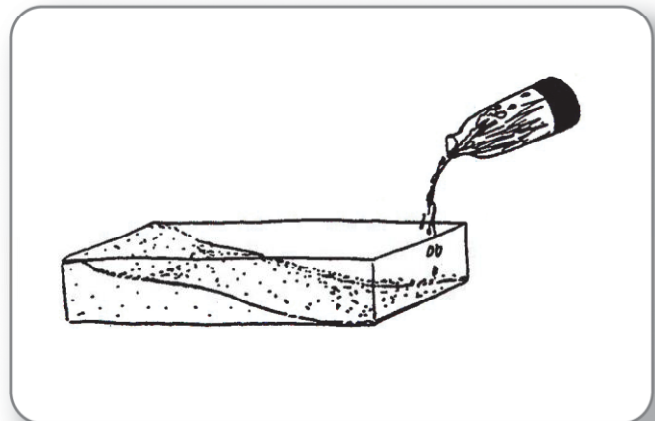
- shallow container (aquarium, transparent sweater box, or rectangular glass baking dish)
- block of wood
- sand
- erasable marker or crayon (several colors)
- container of water

BACKGROUND INFORMATION:

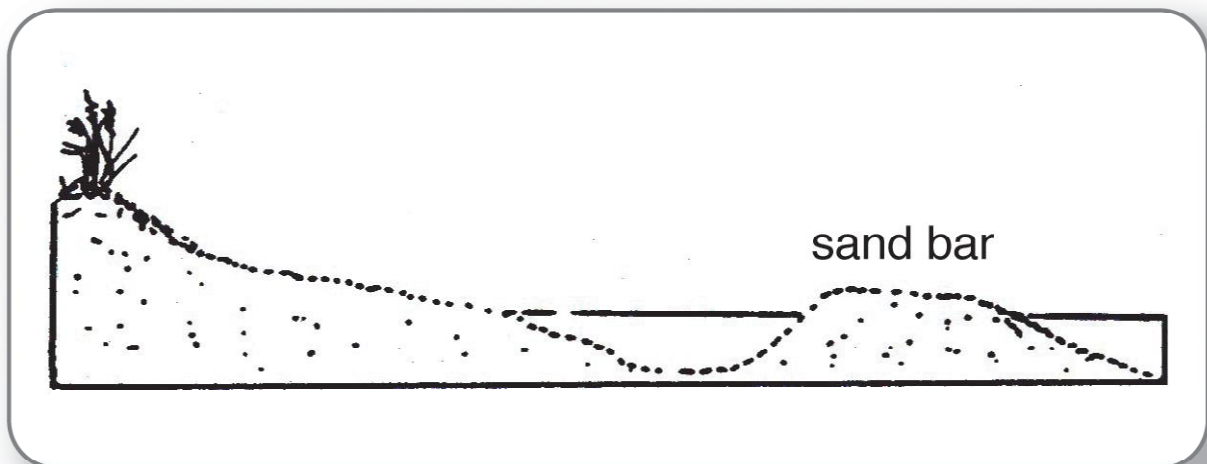
Ocean waves are continually shaping and reshaping the shoreline. Every wave that rolls up onto the beach, carries sand and when the wave recedes to the ocean, it carries sand also. In the winter, stronger winds produce bigger, stronger waves, which can move sand off the beach than they deposit on the beach. The sand that is removed is deposited in offshore sandbars. During the summer, the waves are gentler and carry sand from the offshore sandbars and deposit it back onto the beach. The strong backwash of winter storm waves leaves the beach with a steeper slope than the summer waves, which create a more gradual slope. (*Also see Wave Fact Sheet, located on www.seacoos.org*)

PROCEDURE:

1. Simulate a sand beach at one end of the shallow container. It should occupy about one fourth of the container. Prepare the slope the sand to look like a real beach.
2. Pour water into your model at the opposite end from your beach. Pour slowly so as not to disturb the sand.



3. Use an erasable marker or crayon and outline the profile of your beach on the side of the container. Draw this profile or cross-section in your observations data table and label it "*original beach profile*".
4. Using a block of wood as a wave generator, create strong winter waves. Continue this for several minutes until about half of the sand has been removed from your beach. Record your observations.
5. Using a second color of erasable marker or crayon, trace the new profile of your beach. Draw this new profile or cross-section in your observations data table and label it "*beach after winter waves.*"
6. Using the block of wood again, create some gentler summer waves for several minutes. Record your observations.
7. Using a third color of erasable marker or crayon, trace this new profile of your beach. Draw this profile in your observations data table and label it "*beach after summer waves.*"
8. Rebuild your beach. This time add the offshore sandbar a short distance from beach.
9. Repeat steps 4 - 7.



OBSERVATIONS:

Data table:

	Description of beach	Drawing of beach profile or cross-section
original beach		
beach after winter waves		
beach after summer waves		

1. What happened to the sand on the beach after the influence of the stronger winter waves? Where did the sand go?
2. What happened to the beach after the influence of the gentler summer waves? Where did the sand go?
3. Did you notice any evidence of the formation of an offshore sandbar? If so, where did it begin to form?

CONCLUSIONS:

Describe the effect of wave action on a beach.

Explain the difference in what happens to the sand after the gentle summer waves and the stronger winter waves.