



LESSON 2

Shoreline Habitats

Grades 4 – 7

Objectives

- To identify different shoreline habitats – mud flat, rocky shore and sandy beach.
- To identify at least one animal from each different habitat and list at least one adaptation to its habitat.
- To demonstrate an understanding of shoreline animal adaptations by designing an imaginary animal with adaptations that help it survive in mud, sand or rocky habitat.

Materials

Rocks, sand and mud in 3 different containers; Pictures of moon snail, Dungeness crab, ghost shrimp, echiuroid worm, pea crab, sea star, mussel, barnacle and sand sole.

Shells of razor clam, moon snail and limpet, sea urchin test, seaweed with holdfast.

Lists of adaptations from 3 habitat types (Lesson 2 Worksheet 1).

Book: *Once Upon a Seashore* by Gloria Snively.

Ocean Animal Clue Cards (from *Once Upon a Seashore* by Gloria Snively).

Book: *Beach Explorations* by Gloria Snively.

Concepts

- There are many different types of habitats along the shoreline.
- All animals have the same basic needs, but have adaptations that help them to survive in a particular habitat.

Activities

1. Review the basic needs of all organisms (food, water, shelter and space.)

All living things have needs. What do you need? How are seashore creatures alike? Different?

Could children get their needs met if they never left their bedrooms? If not, where would they go? What needs are met at home? Outside your home?

What is a habitat?

A: A place in which a plant or animal lives. It is made up of food, water, shelter and space.

What types of habitats or homes exist at the seashore?

A: On rocks, under rocks, in crevices, tide pools, under sand, in mud, etc.

How are your house and neighbourhood like a habitat at the seashore?

2. Challenges to living on the shore.

Imagine being a marine animal living in a mud flat, on a rocky beach or sandy beach.

What problems could you have?

How hard would it be to survive?

Challenges to living in a **mud flat** include:

- Low oxygen so you have to live in burrows or tubes open to the surface;
- Nothing stable to attach to;
- Hard to move!

Challenges to living on a **sandy beach** include:

- Nothing stable to attach to because sand is always moving;
- Powerful waves;
- Having to withstand moving sand that is like sandpaper – rough!

Challenges to living on a **rocky shore** include:

- Strong waves;
- Drying out when the tide goes out (ebbs);
- More predators at low tide.

3. Adaptations to different shoreline habitats.

Mud flat adaptations

1. Shells
2. Protective shields or leathery skin
3. Tubes or siphons open to the surface
4. Ability to build a protective shell house
5. Ability to live inside another animal
6. Anchoring device

Sandy beach adaptations

1. Ability to move swiftly
2. Shells
3. Streamlined and/or flattened body shape
4. Ability to burrow under sand
5. Tubes or siphons open to the surface
6. Ability to move with surf action
7. Lives beyond surf action
8. Weighted body
9. Anchoring device

Rocky shore adaptations

1. Thick, protective shells
2. Strong attachment devices
3. Streamlined and/or flattened body shape
4. Ability to regenerate body parts
5. Ability to seal moisture-filled shell
6. Clustering behaviour

4. Who lives in what habitat?

Have students look at the different shells and pictures and, using the list of adaptations (Lesson 2 Worksheet 1), sort the creatures into sandy beach, rocky shore or mud flat habitat (represented by the containers of each habitat type).

Mud flat inhabitants include:

Worms
Ghost shrimp
Soft-shell clam
Littleneck clam
Moon snail

Sandy beach inhabitants include:

Butter clam
Razor clam
Lugworm
Cockle
Dungeness crab
Sunflower star
Moon snail
Sand sole

Rocky shore inhabitants include:

Barnacles
Mussels
Sea stars
Limpets
Chitons
Snails
Anemones
Sea urchins

Conclusion

Use the worksheet to review shoreline habitats and adaptations:

- Review shoreline animals and their adaptations for all three habitats.
- Design an imaginary creature that has at least two of the adaptations listed to live in a mud flat, rocky shore or sandy beach. Try this in groups or individually. Name the creature and draw the creature in its habitat.