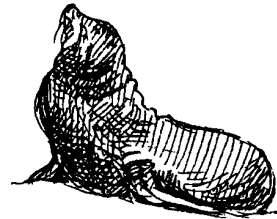


Who Are Those Pinnipeds?

Lesson by Pat Rutowski, Monterey, CA

Key Concepts

1. Like sea otters, seals and sea lions are marine mammals.
2. Although similar in many ways, sea lions and seals differ in significant ways including in their ability to rotate their back flippers.



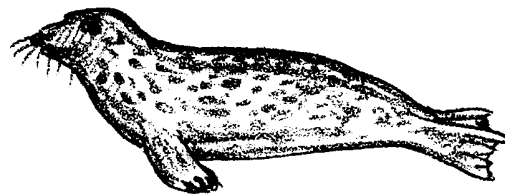
Background

Seals and sea lions are frequent visitors to the kelp forest. While they occasionally use the kelp forest as a hunting ground, most often it serves as a safe hideout from their most serious predators: sharks. Visiting seals and sea lions nap in the world's best waterbed: the canopy of the kelp forest.

Seals and sea lions belong to a group of marine mammals called pinnipeds, meaning “feather- or fin-footed”. In addition to sea lions and fur seals (the eared seals) and harbor seals and their relatives (the earless, “true” seals), this family includes the walruses. The members of this family spend time on land and in the sea. On land they can appear quite clumsy, but in the water they swim with speed and grace, using their foreflippers to “fly” underwater. All pinnipeds have sleek, muscular bodies, padded with blubber, however the patterns of fur on their bodies and the shapes of their heads are very different. Pinnipeds are “opportunistic carnivores”, feeding on the fish or shellfish most available in an area.

Harbor Seals

Harbor seals, like all true seals, have very round heads and no external ears. They use short, stubby foreflippers, to steer underwater and to pull themselves forward on land. Underwater, their strong back flippers are used to propel themselves ahead. Unlike sea lions, seals cannot turn their back flippers around and sit on them. This means that on land, seals can only move by scooting along like an inchworm, and only rest on their belly with their small foreflippers close to their body and their back flippers in the air. In spite of this apparent awkwardness, seals often haul out to rest on rocks, beaches, or on buoys and docks.



An Olympic-class diver, the harbor seal can dive to 600 feet and hold its breath for 20-30 minutes. Like all pinnipeds, a seal's nostrils are normally shut, not open. To inhale, a seal "snorts" its nostrils open.

Harbor seals eat many species of fish, octopus, squid, shrimp, crab and mollusks. A mature seal, which can weigh more than 250 pounds, eats 5-10% of its body weight daily! In turn, harbor seals are eaten by killer whales, sharks and people. The life span of a harbor seal is 20-30 years.

Sea Lions

As the "seal" of most circus acts and the most common species of pinniped in captivity, California sea lions are the animal most people think of when the word "seal" comes to mind. Sea lions and the various fur seals belong to the Otariidae or "little ear" group of pinnipeds. All have short ears that look like curled leaves. Their faces are longer and more pointed than the earless seals. Sea lions and fur seals also move very differently. To walk on land, the back flippers turn forward. They rear up on their foreflippers and lunge along in almost a gallop. They are very agile.



California sea lions are often seen in large groups; sometimes floating asleep in the sea with their flippers extended into the air. Other times they are seen leaping in and out of the water in a playful manner or shooting entirely out of the water, appearing to fly through the air. They also seem to enjoy body surfing, bubble chasing, kelp tossing and sparring in mock battles.

Adult male California sea lions and juveniles of both sexes migrate in the summer and fall, leaving the breeding grounds in search of food. Their migration may take them from Canada to Mexico and back. The females, on the other hand, are "stay-at-home moms". Once they reach sexual maturity at about 5 years old, they stay near the "rookeries" (breeding and pupping areas) year round.

Sea lions eat hake, squid, herring, octopus, crabs and lamprey eels. Interestingly enough, they also eat stones! Sea lion stomachs have been found to contain up to 100 rocks, gravel to golf ball size.

Materials

For the class:

- slides or pictures of different types of pinnipeds

For each student:

- seal or sea lion pattern
- brown and gray construction paper
- glue
- crayons or felt markers

Teaching Hints

In “Who Are Those Pinnipeds?”, students dramatize seals and sea lions as a way to recognize the differences between these two groups of pinnipeds. Students then assemble seals and sea lions to underscore these differences.

Preparation

Locate the seal and sea lion patterns included. Cut the seals from gray construction paper and the sea lions from brown. Organize the seal and sea lion patterns so each student gets his or her own seal or sea lion kit.

Procedure

1. Introduce pinnipeds using pictures or slides.

Compare these animals to sea otters. Sea otters are not pinnipeds. They are actually part of the weasel or mustelid group. They are different from seals and sea lions in that they have virtually no blubber; they have a tail and front paws, not flippers; and they have musk glands, like their close cousins the skunk and ferret.

2. Have students dramatize eared and earless seals, in pantomime. Have them “put on” the various body parts distinctive to each group.

To turn the students into **harbor seals (earless seals)**:

- a. ask them to lay on the ground
- b. take off their external ears
- c. put on whiskers and sleek fur
- d. put webbing between the five fingers of their hands and hold them to their sides
- e. put webbing between their toes and keep them pointed straight back
- f. make the “krooh krooh” call that harbor seal babies make.

To convert them to **sea lions (eared seals)**:

- a. have them stay on the ground but raise their upper bodies onto their arms (flippers)
 - b. put on external ears
 - c. add additional webbing between their fingers and toes
 - d. bend their legs out to the side so their feet will point forward.
3. Distribute the prepared seal and sea lion kits. Have students assemble their animals. The harbor seal could use some spots.
 4. When everyone is finished constructing his or her seal or sea lion, review the body parts and have the students summarize the differences between the two groups.
 5. The completed seals and sea lions can be used in the mural constructed in the activity that follows, “Marine Mammals in the Garbage”.

Key Words

eared seals - seals with external ears and rear flippers that bend forward, includes fur seals and sea lions

pinnipeds - members of the group of “fin-footed” marine mammals that includes eared seals, true seals and walruses

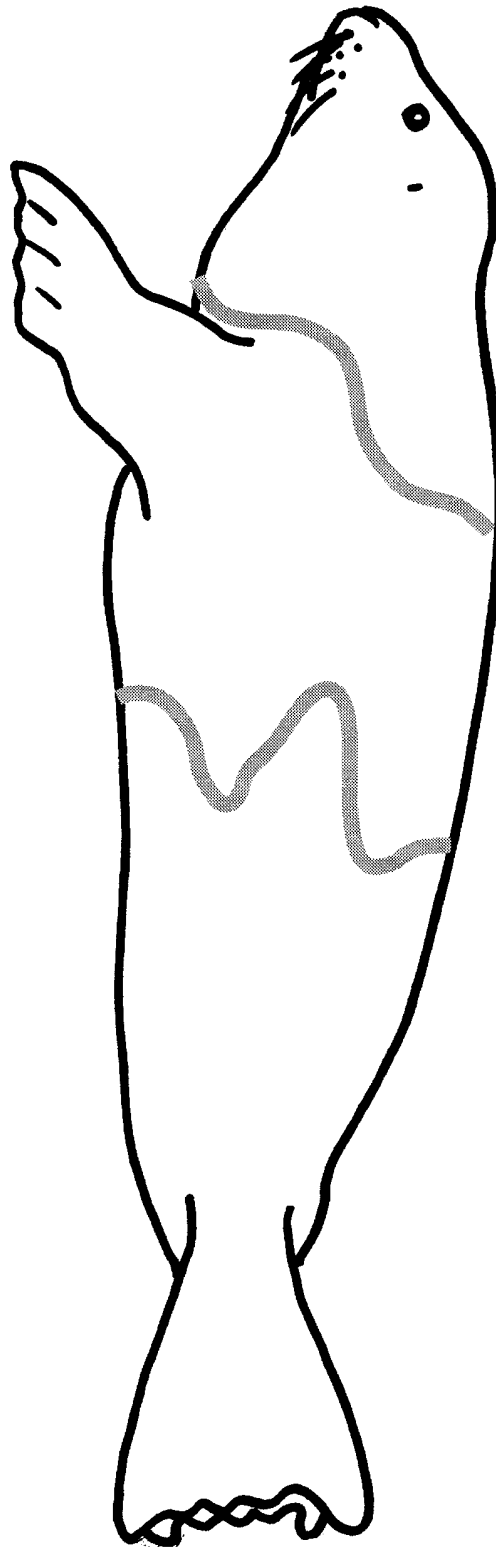
true seals - seals with no external ears and rear flippers that always extend backwards

Extensions

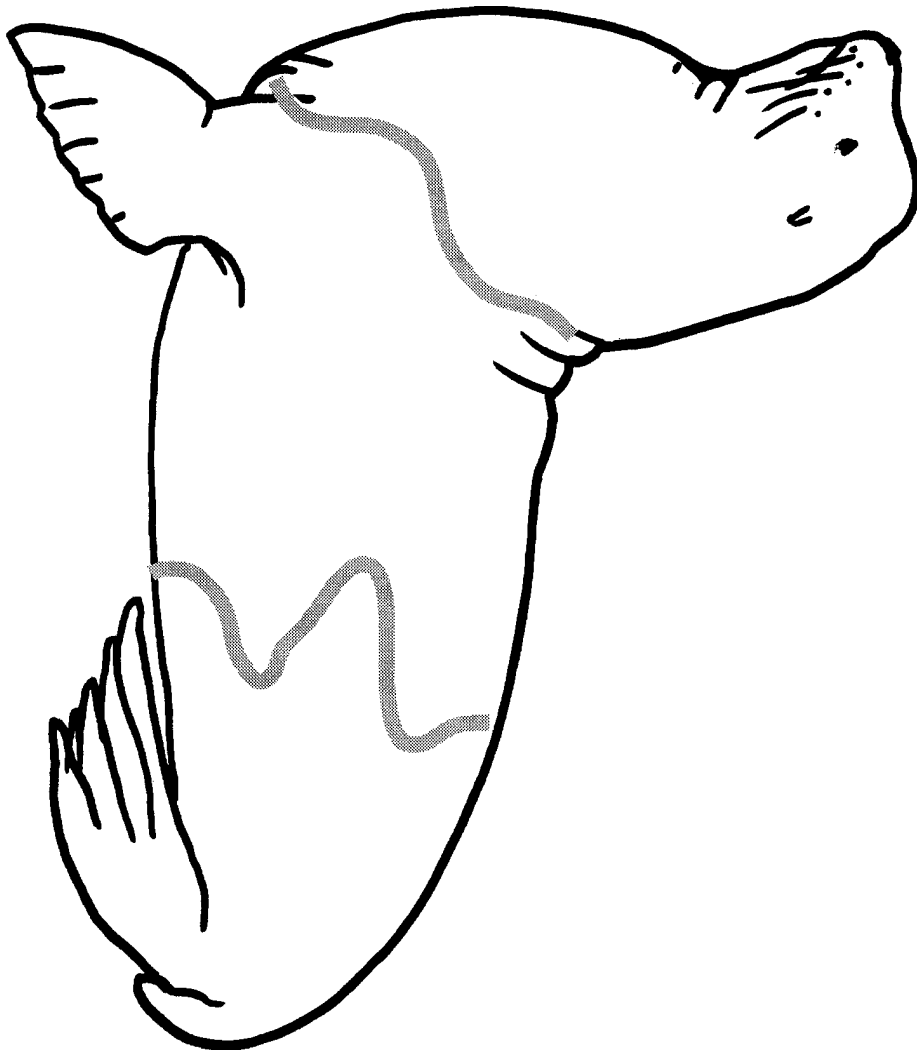
1. Make puppets by backing the seals and sea lions with stiff paper or cardboard and attaching a stick to be used as a handle. Have students create puppet shows in which the two animals meet and talk about how they are similar and different.
2. Take a trip to a beach, zoo or an aquarium to observe seals and sea lions.
3. Play music like “Carnival of the Animals”. Ask students to think about which selections sound like the movement of seals and which sound like sea lions.

4. Read poems about pinnipeds such as “Sea Lions” by Valerie Worth, and “The White Seal” and “Lukannon” from Rudyard Kipling’s *The Jungle Book*.
5. Read about the walrus, another pinniped, and have students construct a walrus puppet, using a brown paper lunch bag and the pattern which follows.

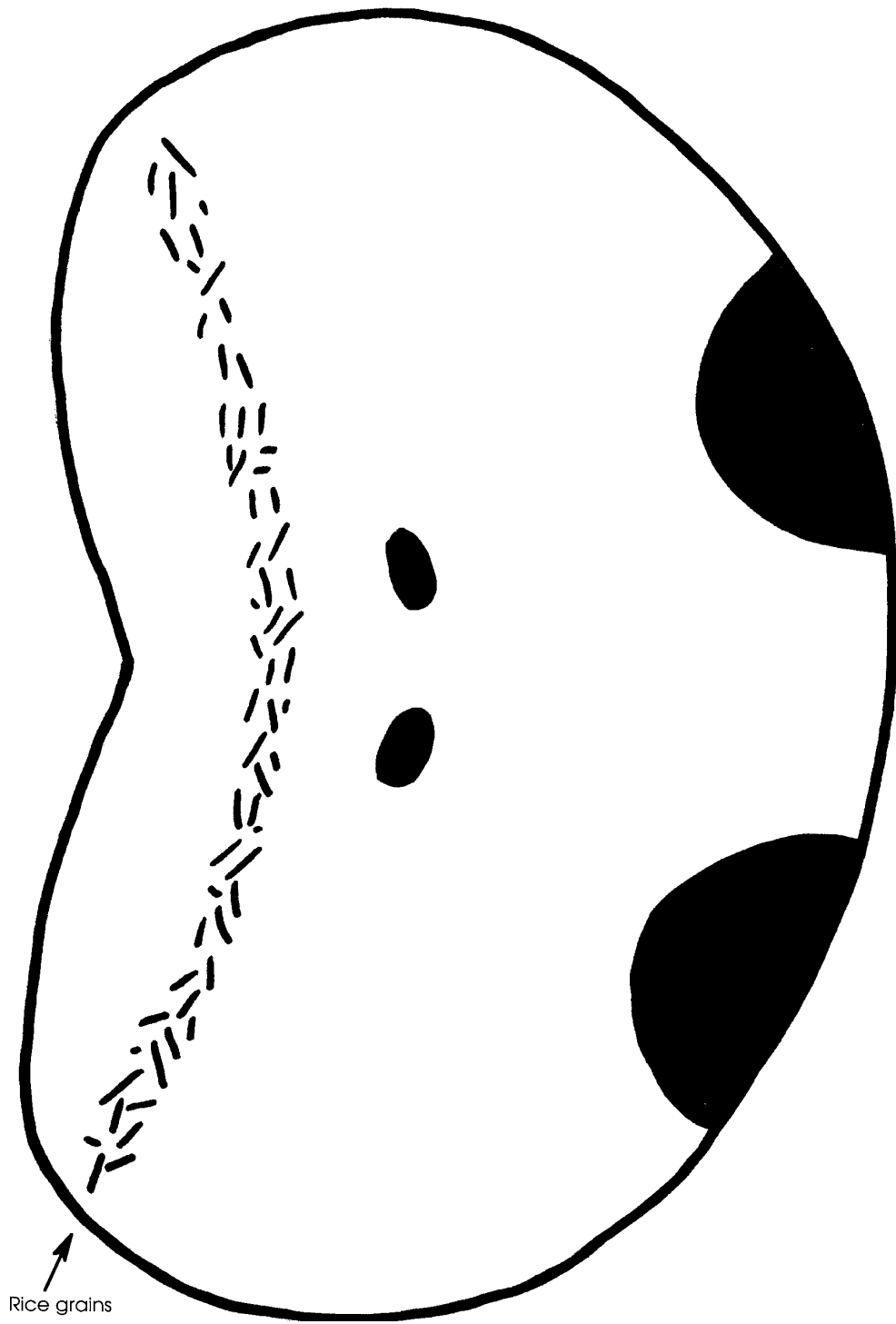
Seal and Sea Lion Patterns

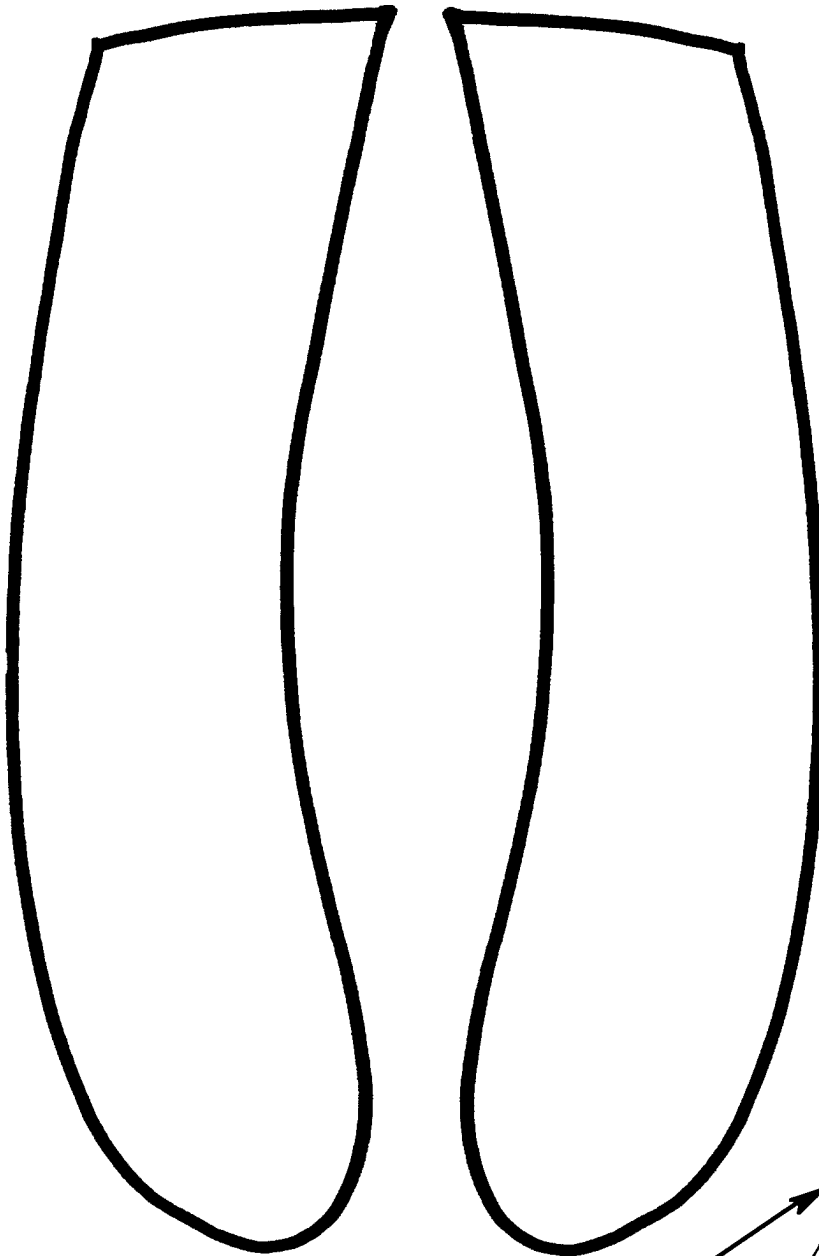


Seal and Sea Lion Patterns

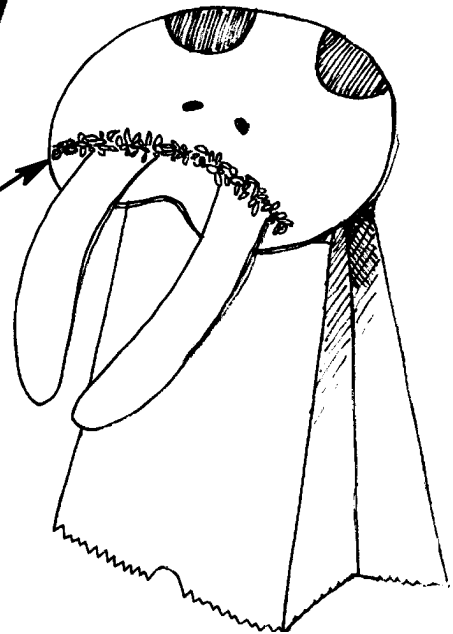


Walrus Bag Puppet Pattern





Rice grains



Cut out walrus parts. Glue the head to the bottom of a lunch sack size paper bag. Glue tusks on face. Glue rice grains on face to represent whiskers.