

Where in the World do Pinnipeds Live? [Grades 6 & 7]

Georgia Performance Standards addressed:

SS6G1 The student will locate selected features of Latin America and the Caribbean.

SS6G8 The student will locate selected features of Europe.

SS6G12 The student will be able to locate selected features of Australia.

SS7G1 The student will locate selected features of Africa.

SS7G5 The student will locate selected features in Southwestern Asia (Middle East).

SS7G9 The student will locate selected features in Southern and Eastern Asia.

Enduring understandings:

- 🐬 Pinnipeds are found throughout the world in all types of habitats.
- 🐬 Each type of pinniped has unique adaptations to survive in their environment.

Objectives:

- 🐬 Identify where pinnipeds are found throughout the world.
- 🐬 Explore the adaptations pinnipeds have to survive in their habitat.

Time: 45 minutes

Materials:

- 🐬 Pinniped characteristic sheet
- 🐬 Pinniped squares
- 🐬 World map
- 🐬 Keys for the pinniped characteristic sheet
- 🐬 Key for world map
- 🐬 Image of harbor seal and California sea lion
- 🐬 Glue or tape

Background:

Sea lions and seals belong to the suborder *Pinnipedia*, which means “wing or fin-footed” in Latin. All pinnipeds have large, streamlined bodies and a few other common characteristics that make them well suited for life in the water. They have flipper-like limbs for swimming, large eyes to help them see underwater, well developed whiskers to help them detect prey and fur and blubber for warmth. Today, there are more than 30 species of pinnipeds that can be found throughout the world from the Antarctic to Arctic and around the equator.

Pinnipeds can be further divided into three distinct families: *Otariidae* (sea lions, fur seals), *Phocidae* (earless seals), and *Odobenidae* (walrus). Key characteristics of sea lions and fur seals (*Otariidae*) include having external ear flaps, long front flippers with short claws, fore and rear flippers rotate under body for walking on land, and use front flippers to swim. Key characteristic of earless seals (*Phocidae*) include having no ear flaps, short front flippers with claws, larger rear flippers, cannot walk on land – use an undulating motion instead and use rear flippers to swim with a side to side movement.

Procedure:

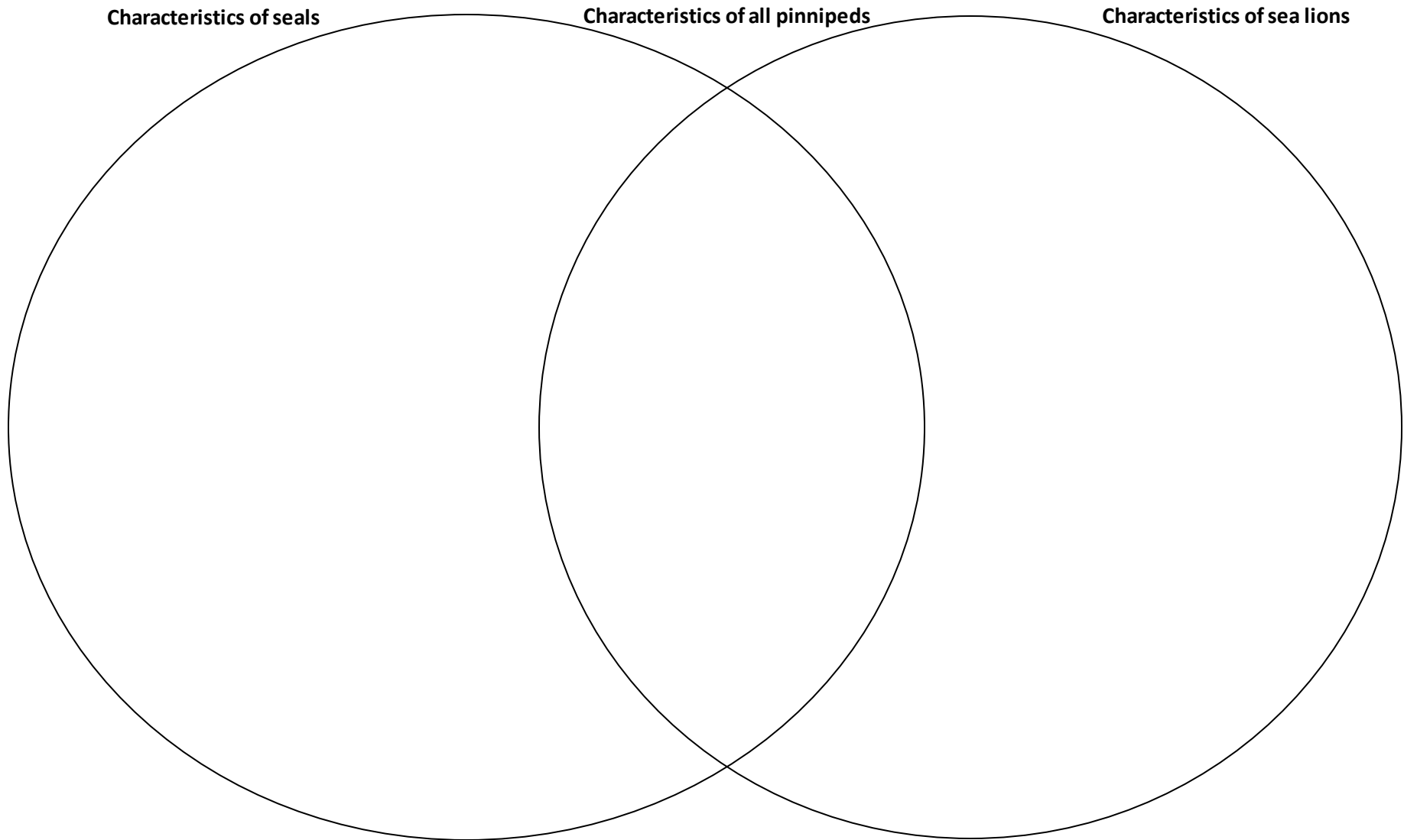
1. Introduce the term *pinniped* to the class. Ask if anyone has ever heard that word before? Pinniped means wing or fin-footed and includes all seals, sea lions and the walrus.
2. Next compare the two main types of pinnipeds – *Otariidae* (sea lions, fur seals), *Phocidae* (earless seals) - by having students look at images of a harbor seal and California sea lion. Have students brainstorm the similarities and difference between the two and record their notes using the Characteristics of Pinnipeds Venn Diagram.
3. Once done have students break up into groups of 2-3 students and hand out the pinniped clue sheets and world map to each student.
4. First, have the students identify the five major ocean basins of the world (Pacific, Atlantic, Indian, Arctic and Southern Oceans), major land/water features (Caribbean Sea, Amazon River, Andes Mountains, Rocky Mountains, Saint Lawrence River, the Alps, Norwegian Sea, Scandinavian Peninsula, Nile River, Sahara, Lake Victoria, East African Mountains, Caspian Sea, Himalayan Mountains and Korean Peninsula), and the seven continents.
5. Next, students need work together to read each of the twelve clues and determine where in the world that pinniped could be found based on the clues given. Shade that range on the map and write the name of pinniped next to it.
6. Once everyone is done, have a large group discussion to review where the twelve pinnipeds live and share some of the fun facts learned.
7. **Extension:** Have students select one pinniped from the twelve to further research and write a one-page paper about that pinniped noting additional details about its habitat, diet, predators and any other fun facts they discover.

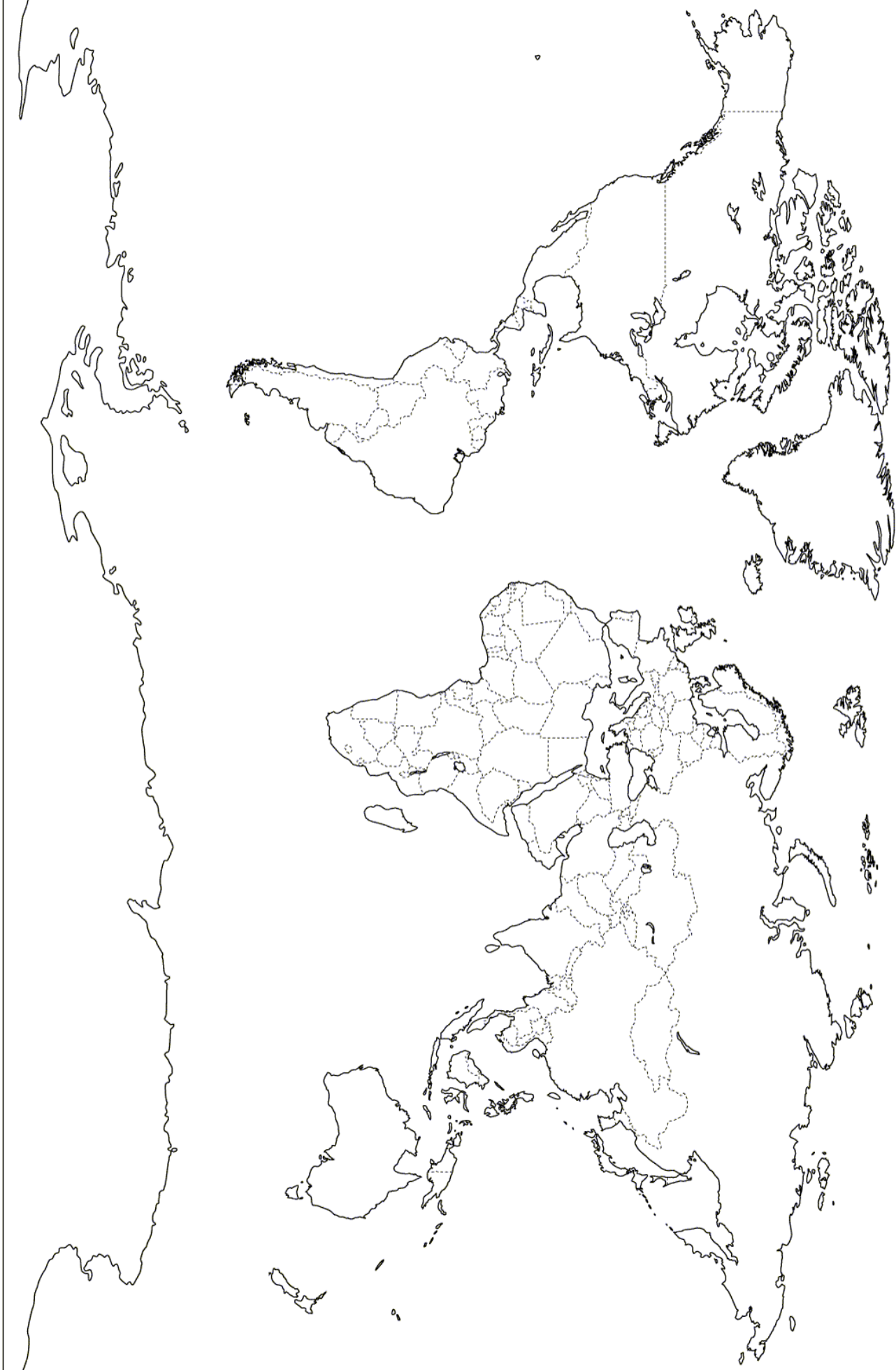
Assessment:

- ◆ Check that each group of students correctly labeled all the 12 of the animals in the map.
- ◆ Have students share at least two facts they learned about one of the pinnipeds in the activity.

Characteristics of Pinnipeds Worksheet

The two main types of pinnipeds that exist are the family *Otariidae* (sea lions, fur seals) and the family **Phocidae** (earless seals). Today we are going to compare and contrast a harbor seal and California sea lion.





Pinniped Clues



Ribbon Seal

North Pacific, Bering and Okhotsk Seas, adjacent parts of Arctic Ocean

- Ribbon seals have a very distinguishable color pattern. Adults are dark with white bands that encircle each fore flipper, the neck and the hips.
- Ribbon seals are solitary animals.



Caspian Seal

Caspian Sea

- Caspian seals stay in the saltwater of the Caspian Sea and its tributary rivers.



Harp Seal

Western North Atlantic around Greenland, Newfoundland, Canada and White Sea

- Harp seal pups are born solid white and as they grow, they develop the distinguishable black harp like markings on their sides
- They travel in large groups and live on the ice pack most of the year.



Gray Seal

Coasts of Iceland, Great Britain, Norway and Newfoundland /Gulf of St Lawrence

- Gray seals are usually quite sociable, hauling out in groups of 100 or more, and sharing the space with harbor seals.
- At sea, gray seals are usually solitary.
- Pups are born white and eventually turn gray as they mature.



Hawaiian Monk Seal

Hawaiian Islands

- No other pinnipeds regularly inhabit the habitat of this seal.
- Hawaiian monk seals are considered non-migratory, and live near their island of birth.
- Hawaiian monk seals feed primarily on fish, eels and cephalopods living on nearby reefs.



Leopard Seal

Around Antarctica - to tip of south America - Sandwich island - Heard island

- Leopard seals have a counter shaded color pattern. They are dark gray above and light silvery gray below to help them camouflage.
- Leopard seals eat krill, fish, squid, penguins, a variety of seabirds, and young of other seals species.



Southern Elephant Seal

Islands around Antarctica - Falkland, Prince Edward, Sandwich, Corzet, Heard and Southern New Zealand

- The southern elephant seal is the largest of all pinnipeds.
- Adult males are easily identifiable by their proboscis, an enlarged nose that is inflatable.
- Southern elephant seals spend the majority of their lives at sea, returning to land to give birth, breed and molt.



California Sea Lion

Eastern North Pacific from Baja California to the Pacific Northwest

- Only male California sea lions bark.
- During breeding season (May-July), almost the entire population is found around the Channel Islands in Southern California
- California sea lions eat a wide variety of prey including anchovy, squid, sardines, mackerel and rockfish. An adult sea lion eats an estimated 5-8% of its body weight every day.



Stellar Sea Lion

Central California to the Aleutian Islands of Alaska. Kuril Islands to northern Japan, the Sea of Japan, and Korea.

- Steller sea lions produce low-frequency rolling roars and can be heard for miles underwater.
- Steller sea lions eat walleye, pollock, Pacific cod, Atka mackerel, herring, sand lance, salmon, rockfish, squid, octopus and bivalves.



Galapagos Fur Seal

Galapagos Archipelago

- They prefer to haul-out on rocky coasts with large boulders and ledges that provide shade.
- In the water, Galapagos fur seals will raft together.
- Predators include sharks and killer whales.



New Zealand Sea Lion

Two separate populations, one occurring around New Zealand, the other off the coast of Southern Australia.

- Also known as the Hooker's Sea Lion, the New Zealand Sea Lion is one of the largest animals found in New Zealand.
- At sea they are active divers that eat squid, octopus, crab and crayfish.
- Average dives are to 400 feet (123 m) and for 3.9 minutes.
- Predators include sharks, leopard seals, and killer whales.