

# **Where in Alaska?**

## **Using art to illustrate marine life along the coast**

Grade: 3<sup>rd</sup> – 5<sup>th</sup>

### **Goal:**

Students will be able to discuss the characteristics of a mammal and the physical adaptations of marine mammals. They will also be able to identify and discuss anatomy and morphology of different pinnipeds. Emphasis will be placed on basic art technique to produce good visual representation of the pinniped.

**Objective:** Students will be able to...

- Identify the characteristics of a mammal and the physical adaptations of marine mammals.
- Investigate the basic physical adaptations of pinnipeds and demonstrate their knowledge of the geography of Alaska through hands-on craft activities.
- Read and create a map of coastal Alaska to locate various habitats that seals and other marine animals utilize.

### **Standards:**

Geography – A-1, A-3, B-1, B-2, C-3

Arts – A-3, D-6

### **Materials:**

- Bake-able clay. This may be purchased at a craft store or ordered on line at [www.clayfactoryinc.com](http://www.clayfactoryinc.com).
- Map illustrating the coastline of Alaska
- Overhead projector
- Reference books on North Pacific marine animals
- Hot glue gun for attaching animals to maps
- Scissors, crayons, glue, etc.

### **Activity 1:**

Before students begin to create their clay seals, discuss the characteristics of mammals and marine mammals.

- Mammals:
1. breathe air
  2. give birth to live young
  3. mammary glands to nurse young
  4. have hair or fur
  5. have a backbone
  6. warm blooded

Marine Mammals: possess all of the above characteristics as well as...

1. often have blubber
2. hydrodynamic shape
3. tolerate tremendous pressure at depth

4. kidneys are specialized for dealing with the absence of fresh water.
5. efficient use of oxygen (higher blood volume with increased myoglobin in the muscle tissue).

The following information should be discussed with students while creating their clay seals. As you follow directions on creating your seals, go over the various body parts and their functions.

**Body shape** – for seals, the rounded, torpedo shaped body design is hydrodynamic which makes them less resistant in the water. This body plan also allows the seals to slide rapidly on the ice in order to escape potential predators.

**Vibrissae** – “whiskers” in pinnipeds are very well developed and very sensitive. They are used for tactile purposes (to feel objects), and they are also used to detect vibrations in the water.

**Front flippers** – used mostly for steering while in the water and pulling their bodies along while on land. They have nails to help move around on the rocks and ice as well as for defense. They also use their front flippers to scratch. Each flipper has five digits just like human hands.

**Rear flippers** – used for propelling through the water; they use a lateral thunniform motion where one flipper will close while the other sweeps through the water in a back and forth motion. They also have nails on the rear flippers, but they are not known to suit any purpose. Each flipper has five digits just like human feet.

**Blubber** – a thick layer of blubber underneath their skin which helps them keep warm. A seal’s body temperature is about one degree warmer than ours. Blubber also helps to keep them floating on the surface when they are resting.

Five main functions of blubber:

- Insulation
- Food storage
- Hydrodynamic shape
- Pollutants collect in the blubber
- Buoyancy

**Eyes / Ears** – eyes are large and highly sensitive to allow the animal to peer through the murk of coastal waters. Ears of a seal are internal and all that is observable are little holes on either side of its head. This helps to reduce water resistance and also helps to conserve heat.

Once students have completed their clay seals, bake the seals in an oven or toaster oven at 275 degrees for 20 minutes.

## **Activity 2:**

Reproduce a map of the Alaskan coastline and create a transparency of the map. Use an overhead projector to draw an enlarged version for a bulletin board or classroom wall.

Students will label the map (cities, villages, Gulf of Alaska, islands, etc.). Once the map is labeled students can research the different types of marine animals that are found in Alaska. Have students draw and color pictures of the different animals and attach them to the appropriate part of the map.

### **Extension activities:**

- Identify and compare the characteristics of the coastline that would attract a seal as a “haul-out” location. List the characteristics.
- What type of area do these animals prefer?
- Describe the diversity /variation of the coastline.
- Are there people anywhere near these environments? How close are they? What is the size of the population? Graph this information.
- List geographic areas.
- Have students’ research and include other marine species, including polar bears, sea otters, sea birds like Puffins or Guillemots, etc.