



Washington
Department of
**FISH and
WILDLIFE**

Marine Mammals of Washington 3-5th Grade

Themes: Adaptations, How Animals Use Senses

Location:

The PowerPoint, brainstorming, and assessments can be done in the classroom with student computers.

Remote learning modification: Lesson can be taught over Zoom or Google Classrooms.

Standards:

NGSS

4-LS1-2

Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

CCSS

ELA-LITERACY.SL.4.4

Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Modifications, Adaptations:

For COVID-19 distance learning, or other remote learning modification, look for **remote learning modifications** throughout the lesson plan.

Materials:

WDFW PowerPoints, computers for student research, arts and crafts materials for student models

Vocabulary:

Adaptation: A special skill which helps an animal to survive. Adaptations can be physical changes to the animal's body or behavioral changes in an animal or groups of animals.

Biodiversity: Biodiversity is the full range of life in all its forms. This includes the habitats in which life occurs, the ways that species and habitats interact with each other, and the physical environment and the processes necessary for those interactions.

Echolocation: A way that some animals use to determine the location of things. Animals emit sound waves and listen for the echo. They use the delay to determine how close or far something is from them.

Mammal: Animals that are warm blooded, females have mammary glands that produce milk for feeding their young, three bones in the middle ear, fur or hair (in at least one stage of their life), and most give live birth.

Objectives:

Students will..

1. Define an adaptation and explain how marine mammals' senses are adapted to life under the ocean.
2. Summarize five things they learned about marine mammals after watching a webinar.
3. Discuss differences and similarities in marine mammal adaptations.
4. Research a marine mammal of their choice and identify senses and adaptations that allow the species to survive.
5. Create a model of their own marine mammal by using knowledge gained in this lesson.

Procedure:

Introduction to marine mammals

This lesson starts with an [introduction to marine mammals webinar from NOAA](#). We recommend watching this video as a class. Begin the video at 2:11. This webinar was streamed out of Woods Hole in Massachusetts and discusses marine mammals in general. Some of the species the interpreter talks about are found in the Atlantic or Arctic, so it's important to inform students of this. Have students write down five things they learned during the webinar. After the webinar is finished, have students pair together and then share. Have a few pairs share with the entire class what they learned as review. This webinar lasts about 33 minutes. You may choose to do the next portion in another class.

Remote learning modification: Use Google/Zoom breakout rooms to have students discuss in small groups.

Adaptations in marine mammals

Open the Adaptations in Marine Mammals PowerPoint. Make sure presenter notes are on. The introduction of this PowerPoint will review with students what a mammal is, and what makes marine mammals unique. Try and have students answer questions before presenting the answers on the slide. Some of the slides have short videos embedded to help build on presented concepts. This PowerPoint will go over some adaptations marine mammals have for surviving in the cold, Northern Pacific waters. You can either read the text of the slide, or have the students popcorn read the text. The last slide asks students to briefly share what marine mammal adaptation they find most interesting so far.

Marine mammals in Washington

Open the Marine Mammals in Washington PowerPoint. Make sure presenter notes are on. This PowerPoint can be taught in a different or same class period depending on your time. The first slide introduces students to reading a species' scientific and common name. The lesson does not go into taxonomic classifications, but this could be an extension if you choose. In this PowerPoint, animals are grouped into different families. We left out scientific family names, but you could introduce these if you think students are prepared. We recommend having students popcorn read through the descriptions of the species. This can be done over Google Classroom and Zoom as well. After reading through the 13 species, on slide 17 you



will have students think-pair-share the following questions.

- What are some adaptations that you think Washington's marine mammals have?
- What were some differences you noticed?
- Why do you think some mammals are huge (blue whale) and others are smaller (otters)?
- Why do you think some are social and some are solitary (alone)?

Remote learning modification: Use Google/Zoom breakout rooms to have students discuss in small groups.

After student pairs or groups have shared, you will introduce their next assignment. Students will get into groups of two or three (possibly more depending on class size) and will choose one of the 13 marine mammals to research. They should pay specific attention to how the animals use their senses to navigate their underwater or above water worlds. Slide 19 features questions students should consider in their report. Students can create and share either a written report with photographs or a multi-media report. We recommend giving students a week to research and compile their reports for presentation. Have students share the presentations with the class so that the class gets to know each marine mammal a little better. Ensure students [cite references](#) properly.

Remote learning modification: Students can still choose to virtually work together, or they may choose to work individually. You may have multiple students reporting on the same animal.

Optional extension: You can have students compare and contrast differences in [3D models of marine mammal skulls and skeletons](#).

Creating your own new marine mammal

For the final project of this unit, students will create their own, unique marine mammal. They will use what they have learned about adaptations and senses in Washington marine mammals to brainstorm, design, and model a new species. Students can draw, paint, use clay, Play-Doh, building sticks, cotton swabs, etc. to create their mammal. The model should be detailed and should include a short report about how the animal survives in the Pacific Ocean.

Students should consider:

- What will they name their species? (Don't forget the scientific name!)
- What will it eat (mouth shape, size, features)?
- What color will it be (camouflage)?
- How long can it dive for?
- What adaptations are needed for this?
- How big will it be (length and weight), and why?
- Will it be able to go on land, why or why not?
- How will it stay warm?
- Will it migrate, why or why not?
- What senses will it use to:
 - find food,
 - escape predators,
 - find mates, and
 - find shelter (if needed)?

We recommend giving students a week for this project. Set aside a day and time for students to present their model and talk about the adaptations of their marine mammal.



Idea: Show off your students' work! Share student projects from this lesson with WDFW.

Facebook: @WashingtonFishWildlife

Instagram: @TheWDFW

Twitter: @WDFW

#WildWashington #WildWa

Share students work or give feedback and receive a Orca cards for your class!

Did you teach this lesson? [Give us your feedback.](#)

Additional Resources :

We encourage you to use the following resources as either a supplement to this lesson, or to share the resources with students for their project.

Supplemental activities:

- [Voices in the Sea](#)- Six short lessons that teach everything from whale communication to the web of life by UCSD
- [Learning at Home](#)-Pacific Coast based online courses, activities, crafts, habitat exploration, and lesson plans for parents and teachers- Monterey Bay Aquarium
- [Washington on Water Classroom Resources](#)- A variety of lessons and activities based on water and marine life- Washington Sea Grant
- [Exploration Guide: Marine Animals of the Puget Sound](#)- The Seattle Public Library

Other information:

Videos

These videos go into more detail about adaptations in marine mammals. We encourage you to watch them with your class or send them to your class as a resource.

- [Ocean Animals for Kids](#)- This video reviews a handful of marine mammals and highlights how they survive. It also shows some other animals that live in the Pacific.
- [How do Marine Mammals Hold Their Breath for So Long?](#)
- [Why do Whales Sing?](#)
- [Marine Mammal Adaptions: Blubber!](#)
- [What's Inside A Whale's Blowhole?](#)
- [Evolution of Whales](#)

Articles, Species Profiles, Other Resources

- [Marine Mammal Library](#)- A collection of articles, lessons plans, photos, slideshows, and videos by Smithsonian Ocean
- [About marine mammals](#)- Marinebio.org
- [Games and activities about marine life](#)-Marinebio.org
- [Species in Washington](#)-WDFW Students can use this link to search for marine mammals in Washington.
- [Find a species](#)-NOAA fisheries
- [How Does Blubber Keep Whales Warm](#)-Whale and Dolphin Conservation Center
- [Commonly found marine mammals of Puget Sound](#)- Orca Network
- [Live Cams](#)-See sea otters and harbor seals, live!- Seattle Aquarium
- [Cetacean Fact Sheet](#)-Seattle Aquarium