



Feed the Whales

Objective:

Students will compare sizes of marine mammals in Alaska waters. Students will learn to identify the different baleen whale feeding mechanisms. They will understand how these different feeding mechanisms are adaptations for feeding on specific food sources within the marine environment.

Concept:

Marine mammals are a specialized group. Many marine mammals are predatory, with large teeth and jaws to catch fast-swimming prey. However, baleen whales have adopted specific filter feeding behaviors to select small planktonic prey. While these whales select the smallest prey for consumption, they are among the largest animals in the world.

Materials:

- ⊙ Science notebooks
- ⊙ Pencils
- ⊙ Stopwatch
- ⊙ Tape Measure (50 meters)
- ⊙ Tape (colorful or masking tape)
- ⊙ Pepper / short blades of grass/ glitter (represents plankton)
- ⊙ Round slices of carrot / sliced potatoes/ hard candy (represents fish & other marine mammals)
- ⊙ Toothbrush/ fine tooth comb/large square paintbrush (represents baleen)
- ⊙ Chopsticks/ toothed hair clip/ tongs (represents teeth)
- ⊙ Large clear bin or bowl of water with sand on bottom (one per group)
- ⊙ Handout: Marine Mammal Lengths
- ⊙ Pictures of baleen and whale teeth

2020 School Closure Adaptation: Please don't have kids line up head to toe! You can skip the measurement piece altogether. If you have a long tape measure, you can measure the distance and have kids, walk (or run, or crawl) the distance to get a sense of how different the lengths are.

Preparation:

Fill a clear bin or large bowl with water for each group of students. Add "plankton" and "fish" to the water. Set out feeding options, one "baleen" and one "toothed jaw" for each group.

Introduction:

Begin by introducing marine mammals, identifying that although these mammals live in the marine environment they share some of the same characteristics of terrestrial mammals.

Marine mammals breathe air through lungs, are warm blooded, have hair (at some point in their lives), give live birth to their young, and provide milk for their young through mammary glands.

Next provide the students with a marine mammal guide or the marine mammal handout provided.

Help the students to measure the length of three or four of the marine mammals on the ground (it is recommended to use a sea otter and a blue whale and two others).

Have the students place three to four piece of tape on one wall of the gym or end of the playground. Place the tape about 3-4 feet apart. Have a student label each tape with the marine mammal name and length.

Help the students to measure each marine mammal with the measuring tape, and place a piece of tape at the end of the length.

Have students lay down, head to toe for each marine mammal, measuring the number of students in each animal.





Feed the Whales *Continued*

Activities and Procedures:

Back in the classroom, provide the students with the handout entitled "Feed the Whale." These are pictures of the two types of whales (Cetacea), baleen whales (Mysticeti), and toothed whales (Odonotoceti), and their food preferences.

Discuss the different feeding method of the two types of whales.

Split the class into groups of 3-5. Have the students observe the "food" available in their "ocean" in the bowl. Have them also observe the available feeding apparatus.

Ask the students to discuss and predict within their group which feeding apparatus will pick up which type of food, and which will pick up the most pieces of food in a 5 minute period of time. Have the students write their predictions in their science notebooks.

Next, have the students create a chart to keep track of the type and amount of food they collect with the two types of feeding apparatus.

Time the students as they collect food from their "ocean" bowls. Give the students 5 minutes to collect food with each apparatus.

Have the students record which type of food was most easily picked up by each apparatus. Have the students count and record the individual pieces of food picked up by each apparatus. Have the groups share their results with the rest of the class. Where the results similar in all the groups?

Finally, have the students in their groups match the apparatus and food type with the type of

whale that uses that feeding apparatus and targets that type of food.

Baleen whale represented by the toothbrush/ comb/ paintbrush eat small plankton which get stuck in their hair-like baleen. Toothed whales select each prey item and hunt it, clamping or chomping it with its sharp teeth and strong jaws (hair clip/ chopsticks/ tongs).

Wrap-up:

Review the difference between the two types of whales, and their feeding apparatuses and behavior. Have the students reflect in their science notebooks about the difference in size between those whales with baleen and those whales with true teeth. Have them consider and hypothesize why baleen whales are generally larger than toothed whales and eat some of the smallest animals in the ocean (krill).

Extensions & Lesson Connections:

For an extension consider inviting an Elder in the community into the classroom to discuss the traditional use of marine mammals in your area. Here is a guide to inviting Elders to participate in your classroom: <http://www.ankn.uaf.edu/publications/handbook/littlefield.html>.

Evaluation:

Observe student engagement and participation during the both the class activity in measuring the length of marine mammals, and the group activity on whale feeding. Also review whale feeding charts and written reflection in science notebooks.

