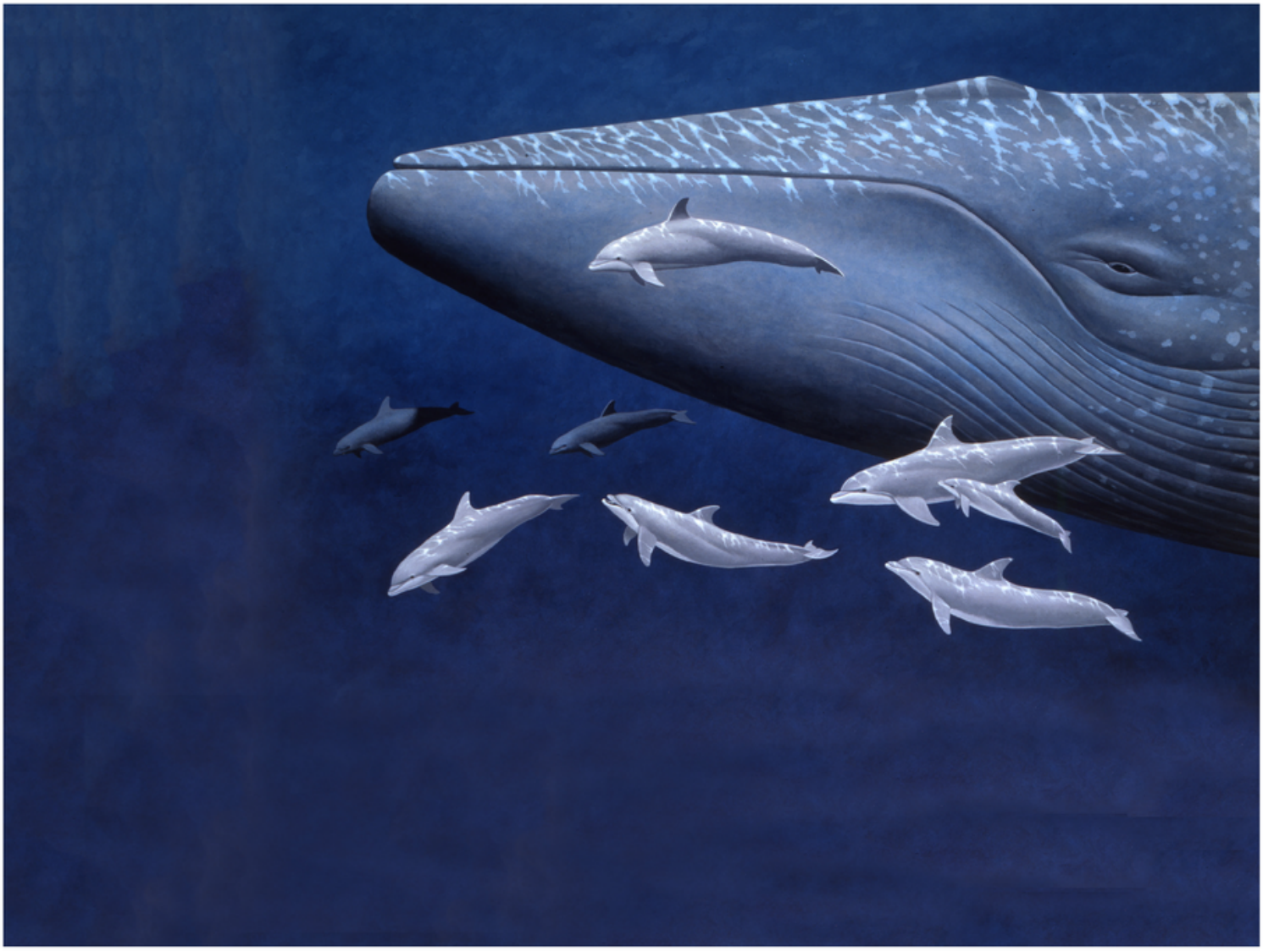
NEW BEDFORD WHALING MUSEUM

WHALES GIANTS OF THE OCEAN

Facilitator's Guide - Lesson 7
Whale Adaptation - Feeding

Lesson time: 60 minutes



Students will explore how the mouth parts of toothed and baleen whales are suited for the type of food they eat. Students will assess which feeding method is most successful for gathering a specific type of prey.

www.whalingmuseum.org

INSTITUTE of Museum and Library SERVICES

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WELCOME!

This facilitator's guide will assist you as you lead *Whales: Giants of the Ocean* - **Lesson 7 Whale Adaptation - Feeding**. It includes content and links to a video and to other resources that can be used to present the material to students. All resources listed can also be found on the New Bedford Whaling Museum education website at www.educators.whalingmuseum.org/

GUIDING QUESTIONS

How are the feeding habits of toothed and baleen whales different?
What special adaptations do toothed and baleen whales have to eat effectively?

BY THE END OF THIS LESSON, STUDENTS WILL BE ABLE TO:

Explain how toothed and baleen whales differ in feeding methods

KEY TERMS

mysticete odontocete baleen krill phytoplankton zooplankton

BACKGROUND INFORMATION

Cetaceans are divided into two categories based on how they obtain their food. There are filter feeders, called mysticetes, that use plates of baleen to strain small organisms, usually zooplankton, from the water. There are toothed hunters, called odontocetes, that eat squid, octopus, and fish. They use echolocation to find their prey, and then get close enough to it to swallow it without chewing.

MATERIALS NEEDED

- Data sheet
- Small container/tub of water ('plastic shoebox' size works well)
- Plastic comb
- Italian seasoning or similar seasoning
- Tweezers
- Carrot chunks
- Towels/paper towels
- Clock or stopwatch

ACADEMIC STANDARDS

NGSS: LS1.A Cross-Cutting Concepts: Cause and effect: Mechanism and explanation, Structure and function; Science and Engineering Practices: Asking questions and defining problems, Developing and using models, Planning out and carrying out Investigations, Analyzing and interpreting data, Using mathematical and computational thinking.

COMMON CORE: ELA RI.4.4, RI.4.7, RL.4.7, SL.4.1, SL.4.2, W.4.1, W.4.2, W.4.3, W.4.4

COMMON CORE MATH Mathematical Practices, Use appropriate tools strategically, Attend to precision.

LESSON DIRECTIONS

INTRODUCTION

Explain to the students that you will be setting up an activity that will enable them to pretend that they are both filter feeders and echolocators. It will be their task to try both methods of feeding, make note of which method does the best job of gathering a specific prey, and then graph that information.

ACTIVITY

- Prior to starting the activity, cut a carrot into small (1/4") chunks. You may opt to watch this video as well to see how the activity is run.
- Print out this data sheet for the students
- Put water into your plastic container. Ideally you are able to have two of these set up. Sprinkle in the seasoning and add carrot chunks.
- Ask students to predict which food will be easier to pick up with the comb; with the tweezers.
- (Directions given will be for one set-up. Have second group do the same activity if you have a second container.)
- Set the stopwatch at 15 seconds. Using tweezers have a student pick up as many pieces of seasoning as possible. Count and record this number on the data chart. Have the student put a check mark next to the difficulty level of this type of feeding.
- Set the stopwatch at 15 seconds. Using tweezers have a student pick up as many chunks of carrot as possible. Count and record this number on the data chart. Have the student put a check mark next to the difficulty level of this type of feeding.
- Set the stopwatch at 15 seconds. Using the comb have a student pick up as many pieces of seasoning as possible. Count and record this number on the data chart. Have the student put a check mark next to the difficulty level of this type of feeding.
- Set the stopwatch at 15 seconds. Using the comb have a student pick up as many chunks of carrot as possible. Count and record this number on the data chart. Have the student put a check mark next to the difficulty level of this type of feeding.
- Once all students have participated, direct them to fill out the Think About It questions on the data sheet.

WRAPPING UP

- Provide students with the bar graph sheet.
- Based on the number of food pieces collected, have them create a numbering scale for the Y-axis.
- Students choose a color to represent the seasoning and another to represent the carrot chunks.
- Using the numbers from the data sheet, have them shade in the graph to create the bars that represent the food gathered.

Have more time?

Try this additional activity to help students...
Whale Feeding Strategies

Need Additional Resouces?

Shape of Life - Krill and Whales
WhaleZone TV - Baleen Plates
Terra Azul - Echolocation

Ready for the next lesson?
Lesson 8.1 Sound Wave Activities