



## **What the Aquarium Needs From Your School**

**Please have the following items available at least 30 minutes before the first scheduled program:**

- ❖ A presentation room on ground level that can be darkened slightly for PowerPoint presentation and accommodates the total number of students for each program
- ❖ Four six-foot long tables for displaying teaching tools
- ❖ An AV cart or small table for the Aquarium's AV equipment
- ❖ A slide screen (if your school's slide screen is larger than 58" X 78")

**Our staff will check in at the office when they arrive and will need:**

- ❖ Easy access to the presentation area for unloading program materials
- ❖ An orientation of the presentation area from your custodian regarding access to electrical outlets and instructions on how to turn lights on and off

**The Aquarium's Education staff will arrive at your facility approximately 30 to 45 minutes before the first scheduled program.**





## Important Information for Teachers

**Because our staff is following a tight schedule and your school time is valuable, please share the following points with your students before the program:**

- Students will be asked to sit on the floor during the presentation. Please instruct your students to sit cross-legged and flat on their bottoms so that everyone can see the presentation.
- We suggest that the younger grades sit in the front with the older grades behind them.
- The Aquarium's instructors may be asking for student volunteers during some programs. Instructors will choose students according to listening skills and body size.
- Younger students often confuse the concept of questions and statements. Please review the difference with them. Questions are appropriate both during and after the presentation. (Time constraints may limit the opportunity for questions during the presentation – students may be asked to save their questions until the end of the program.)
- If a student has a question during the Q&A period, a raised hand will help the instructor answer it.
- Please remind students that they should not be talking while another person is talking, whether it is the instructor or another student with a question.
- We will be bringing biofacts (sea urchin teeth, whale bones, mammal fur, etc.) Your students will have a chance to handle and look at these biofacts at the end of their program. **These biofacts are fragile and must be handled with care.**
- The instructor will speak to the whole group for approximately 30-45 minutes, followed by 15 minutes when students will visit the biofacts tables. Only two classes will visit the tables at a time, beginning with the younger grades. While you are waiting, have your students review what they learned during the program and come up with at least one new question to ask the Aquarium staff when they reach the tables.
- Groups who use their best listening skills will have more time at the end of the program to see the biofacts and interact with the program instructors.

**We appreciate your help in addressing these issues!**



# Tales of Whales

# Grades K-2

Dear teacher:

Here are the instructional objectives for and an outline of the outreach program your school has scheduled for your students. Please use them to help direct your preparation and to review what was learned during the assembly program.

**Goal:** To understand that whales are marine mammals and describe how they survive in the ocean.

## **Cognitive Objectives:**

1. Explain what makes whales mammals.
2. Explain that marine mammals have adaptations that help them survive in the ocean environment.
3. Explain how whales breathe, move and stay warm.
4. Compare and contrast toothed whales and baleen whales.

## **Affective Objectives:**

1. Students will value whales as worthy of protection and conservation.
2. Students will be inspired to learn more about whales.

## **Benchmark Correlations:**

- SC.03.LS.01 Recognize characteristics that are similar and different between organisms.
- SC.03.LS.02 Describe the basic needs of living things.
- SC.05.LS.05 Identify how some animals gather and store food, defend themselves, and find shelter.

**Time:** 45 minutes

## **Program Outline**

- I. Introduction to Whales as Mammals**
  - A. Whales are mammals, and mammals:**
    1. Are warm blooded
    2. Have hair or fur (at some time in their lives)
    3. Breathe air (with lungs)
    4. Give live birth (except the spiny anteater and duckbilled platypus)
    5. Nurse their young
  - B. Whales live in the ocean.**
    1. Whales have adaptations that help them live in the ocean.
    2. Adaptation: a body part or behavior that helps an animal survive in its environment
    3. We have adaptations for living on land (e.g., hands, feet, hair in our nose).
  - C. Two groups of whales**



1. Toothed whales (e.g., killer whales, dolphins)
2. Baleen whales (e.g., gray whale, blue whale)

## **II. Toothed Whale Adaptations**

- A. Toothed whales have teeth.
  1. Cone shaped and interlocking (like a zipper)
  2. Used for grabbing and ripping, not for chewing
- B. One blowhole, located on the top of the head for easy surface breathing
- C. Tail flukes
  1. Move up and down, not back and forth
  2. Make the whale go forward
- D. Dorsal fins help fast-swimming toothed whales stay straight and upright.
- E. Also have flippers on the side
  1. Flippers are used for steering.
  2. Flippers have bones; fins do not.
- F. Blubber keeps whales warm in cold ocean waters.
- G. Review toothed whale parts with the “Whale Wiggle” dance and song

## **III. Baleen Whale Adaptations**

- A. Baleen whales have baleen instead of teeth
  1. Made of the same stuff as your hair and fingernails
  2. Whales filter krill and other plankton from mouthfuls of seawater
- B. Baleen whales have no dorsal fin.
  1. Baleen whales are typically larger and slower and have little need for a large dorsal fin.
- C. Blowholes for breathing
  1. Baleen whales have two blowholes, located at the top of the head for easy surface breathing.
  2. The spout you see when a whale breathes is condensed air (like your breath on a cold day), not water.
- D. Larger, slower baleen whales accumulate barnacles and whale lice.

## **IV. Review the Differences Between Toothed Whales and Baleen Whales**

- A. Students judge if the animal in the slide is a toothed or a baleen whale
- B. Students review fins and compare the sizes of inflatable killer and gray whales.

# What About Whales?

# Grades 3-5

Dear teacher:

Here are the instructional objectives for and an outline of the outreach program your school has scheduled for your students. Please use them to help direct your preparation and to review what was learned during the assembly program.

**Goal:** To familiarize students with whales found off the Oregon coast and their adaptations that help them to survive in this environment.

## **Cognitive Objectives:**

1. Compare and contrast toothed and baleen whales in their:
  - a. Feeding mechanisms
  - b. Movement
  - c. Social structure
  - d. Physical characteristics
2. Describe the appropriate whale adaptation for a given environmental stress and how it works.
3. Explain how whales are protected.

## **Affective Objectives:**

1. Students will value whales as worthy of protection and conservation.
2. Students will be inspired to learn more about whales.

## **Benchmark Correlations:**

- SC.05.LS.01 Group or classify organisms based on a variety of characteristics.
- SC.05.LS.03 Describe basic animal structures and their functions.  
SC.05.LS.03.01 Associate specific structures with their functions in the survival of the organism.
- SC.05.LS.05 Describe the relationship between characteristics of specific habitats and the organisms that live there.  
SC.05.LS.05.04 Explain the relationship between animal behavior and species survival.  
SC.05.LS.05.05 Describe the living and non-living resources in a specific habitat and the adaptations of organisms to that habitat.
- SC.05.LS.06 Describe how adaptations help a species survive.  
SC.05.LS.06.01 Describe changes to the environment that have caused the population of some species to change.  
SC.05.LS.06.02 Identify conditions that might cause a species to become endangered or extinct.

**Time:** 45 minutes – 1 hour

## Program Outline:

### I. Introduction to Whales as Mammals

- A. Mammal characteristics
  - 1. Warm blooded
  - 2. Hair or fur (at some time in their lives)
  - 3. Breathe air (with lungs)
  - 4. Give live birth (except the spiny anteater and duckbilled platypus)
  - 5. Nurse their young
- B. Challenges to life in the ocean
  - 1. Finding and capturing food
  - 2. Staying warm
  - 3. Predators
  - 4. Finding a mate
  - 5. Darkness and pressure in the depths
  - 6. Inability to breathe underwater (where their food is)
  - 7. Human impact (e.g., pollution)
- C. Whales have adaptations to help survive these challenges.
  - 1. Adaptation: a body part or behavior that helps an organism survive in its environment
- D. Two groups of whales
  - 1. Toothed whales (e.g., killer whales, dolphins)
  - 2. Baleen whales (e.g., gray whale, blue whale)

### II. Toothed Whales

- A. Toothed whales have teeth.
  - 1. Cone shaped and interlocking (like a zipper)
  - 2. Used for capture, not for chewing
- B. Blowholes for breathing
  - 1. Toothed whales have only one, located at the top of the head for easy surface breathing.
  - 2. All whales are voluntary breathers (they have to *think* about breathing).
- C. Toothed whales have a dorsal fin.
  - 1. Dorsal fins help fast-swimming toothed whales stay straight and upright.
  - 2. Flippers have bones; fins do not.
- D. Toothed whales are social animals.
  - 1. Family groups are called pods.
  - 2. Pods provide protection and hunting advantages.
  - 3. Toothed whales use echolocation (a kind of sonar) to locate prey.
  - 4. More eyes mean predators and prey are spotted sooner.

### III. Baleen Whales

- A. Baleen whales have baleen instead of teeth.
  - 1. Made of keratin (like hair and fingernails)
  - 2. Whales filter krill and other plankton from mouthfuls of seawater.



- B. Baleen whales are typically larger and slower and have little need for a large dorsal fin.
- C. Blowholes for breathing
  - 1. Baleen whales have two blowholes, located at the top of the head for easy surface breathing.
  - 2. The spout you see when a whale breathes is condensed air (like your breath on a cold day), not water.
- D. Larger, slower baleen whales accumulate barnacles and parasitic whale lice.
- E. Behavior
  - 1. Breaching may be for communication or to unseat itchy lice.
  - 2. Spyhopping may help gray whales navigate long migrations by identifying landmarks.

#### **IV. The Marine Mammal Protection Act (1972)**

- A. You must stay at least 100 feet away from any marine mammal.
- B. You may not keep *any* part of a marine mammal no matter how you acquire it, unless:
  - 1. You have a permit for education (like the Aquarium does) or you can prove you acquired it before 1972.
- C. The penalty for violating either part of the law is up to a \$10,000 fine and up to 6 months in jail.

# Oregon Coast Aquarium Outreach Program Feedback

## *Tales of Whales & What About Whales?*

Please help us improve our outreach programs. Each teacher in attendance should complete this sheet and return it to the Aquarium. Your comments are important to us. Thank you!

School: \_\_\_\_\_

Teacher Name: \_\_\_\_\_ Grade: \_\_\_\_\_

Please evaluate the outreach program in which your students participated:

1. **Information level:**      ✧ too basic      ✧ too technical      ✧ just right

Please explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. **Instructor presentation:** ✧ too basic      ✧ too technical      ✧ just right

Please explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. **Overall impression:**      ✧ too basic      ✧ too technical      ✧ just right

Please explain: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Please indicate which of the provided program materials you used to help prepare your students for their outreach visit:**

_____ Pre and post visit suggestions	_____ Measuring Whales
_____ Marine Mammal Background	_____ Marine Mammal Resources
_____ Marine Mammal Vocabulary	_____ General Dilemma Cards
_____ Killer Whale Fact & Coloring Sheet	_____ English/Spanish Translation
_____ Gray Whale Fact & Coloring Sheet	_____ Certificate
_____ Whale Flash Cards	_____ None of the above

**What types of materials would you have liked us to include?**

**What part of the program did your students enjoy the most?**

**How did this program fit into your curriculum? Did it help you address common curriculum goals and benchmarks?**

**What could we do to make this program a better learning experience for your students?**

**Additional comments:**

**Public Programs Department  
Oregon Coast Aquarium  
2820 SE Ferry Slip Road  
Newport, Oregon 97365**



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# Marine Vocabulary

English/Spanish Translation

English	Spanish
<b>A</b>	
Abalone	Abalone
Adaptation	Adaptación
Ampullae of Lorenzini	Ampollas de Lorenzini
Anchovy	Anchoa, Boquerón
Anemone (sea)	Anémone del mar
Aggregating anemone	Anémone agregada
Green anemone	Anémone verde
Pink tipped anemone	Anémone punta de rosa
<b>B</b>	
Baleen	Ballena
Baleen whale	Misticetos
Barnacle	Percebe
Acorn barnacle	Percebe de bellota
Giant barnacle	Percebe gigante
Gooseneck barnacle	Percebe de cuello de ganso
Blubber	Grasa de mamífero marino
Bony fish	Pez óseo
Breach	Saltar del agua
Bryozoans	Bryozoos
<b>C</b>	
Cartilaginous fish	Pez cartilaginoso
Caudal	Caudal
Cetacean	Cetáceo
Clam	Almeja
Coralline algae	Alga coralina
Crab	Cangrejo de mar, cambara, caneta, jaiba
Hermit crab	Cangrejo hermitaño



Kelp crab	Cangrejo de alga
<b>D</b>	
Denticles	Dentículos
Dolphin	Delfín
Dorsal	Dorsal
<b>E</b>	
Echolocation	Localización por eco
<b>F</b>	
Feather boa kelp	Alga de pluma
Fin	Aleta
Fish	Pez (pl.: peces)
Flipper	Aleta pectoral
Fluke	Aleta anal, cola
<b>G</b>	
Giant kelp	Alga gigante
Gill	Agalla
<b>H</b>	
Hydrodynamic	Hydrodinámico
<b>I</b>	
Intertidal zone	Zone inundada por la marea
Invertebrate	Invertebrado
<b>J</b>	
Jellyfish	Medusa
<b>K</b>	
Keratin	Queratina
Krill	Krill
<b>L</b>	
Lateral line	Linea lateral
Limpet	Lapa
Lobster	Langosta
<b>M</b>	
Marine mammal	Mamífero marino
Mussel	Mejillón



<b>N</b>	
Nematocyst	Nematocisto, célula que pica
Narwhal	Narval
<b>O</b>	
Octopus	Pulpo
Orca	Orca
<b>P</b>	
Pectoral	Pectoral
Pelvic	Ventral, pélvico
Pinnipeds	Pinnípedos
“Wing-footed”	“Pie-aleta”
Plankton	Plankton
Pod	Manada
Porpoise	Marsopa
Predator	Animal predador, cazador
Prey	Presa
<b>R</b>	
Ratfish	Quimera
Rays	Rayas
<b>S</b>	
Scallop	Venera
School (of fish)	Banco de peces
Sea cucumber	Pepino de mar
Sea grass	Hierba de mar
Sea lemon	Limón de mar
Sea lettuce	Lechuga de mar
Sea lion	León marino
Sea otter	Lataz, nutria, lutra
Sea slug	Babosa de mar
Sea star (starfish)	Estrella de mar
Bat star	Estrella murciélago
Brittle star	Estrella delicada
Ochre star	Estrella ocre
Pink star	Estrella solar



Sea urchin	Erizo de mar
Purple urchin	Erizo morado
Red urchin	Erizo rojo
Seal	Foca
Seaweed	Alga marino
Shark	Escualo, tiburón
Thresher shark	Pez zorro
Tiger shark	Escualo tigre
Blue shark	Escualo azul
Great white shark	El gran blanco
Hammerhead	Pez martillo
Whale shark	Tiburón ballena
Shrimp	Gamba, camarón
Skate	Raya
Snail	Caracol
Spanish shawl	Bailarin español
Sponge	Esponja de mar
Squid	Calamar magano
<b>T</b>	
Toothed whale	Odontoceto
Tube feet	Pies en forma de tubo
Turkish towel seaweed	Alga toalla turca
<b>V</b>	
Vertebrate	Vertebrado
<b>W</b>	
Walrus	Morsa
Whale	Ballena
Humpback whale	Ballena nudosa (yubarta)
Bowhead whale	Ballena polar
Grey whale	Ballena gris
Killer whale	Orca
Pilot whale	Calderón
Sperm whale	Cachalote
Blue whale	Ballena azule



Beaked whale	Ballena de hocico de botella
Beluga whale	Beluga
Dall's porpoise	Marsopa de Dall
Bottlenose dolphin	Delfin mular
Worm	Gusano
Flat worm	Gusano liso
Ribbon worm	Gusano cinta

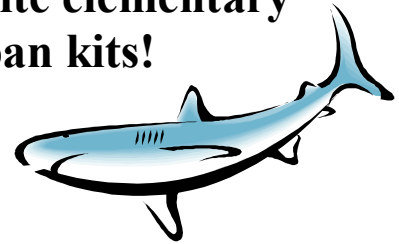


# Educational Kits

The Aquarium would like to invite elementary school teachers to use our new loan kits!



## What's inside?



Each kit contains videos, books, plush animal models, flashcards, prepared specimens or models of shells, teeth, or bones and information and activities developed by our education staff.

## Is there a fee?

There is no fee for schools registered for outreach assemblies. The education staff will drop the kit off at your school when they come to give your program. You will be responsible for mailing or delivering the kit back to the Aquarium no later than two weeks after you receive your kit. Teachers from non-outreach schools may also acquire kits for a fee of \$35.00 and round-trip shipping. A refundable deposit of \$100 is required from both outreach and non-outreach schools.



## What topics are offered?

- ◆ Sharks
- ◆ Whales
- ◆ Rocky Shore Invertebrates
- ◆ Seals, Sea Lions and Sea Otters

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## How do we get one?

Call the Aquarium at (541) 867-3474, ext. 5222 to request a kit. Completed kit applications must be received at least two weeks prior to requested arrival date. Visit our website to download an application:

<http://www.aquarium.org/edTeacherResources.asp?sid=4>



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