



Lesson 6: Cetacean behaviors

Objectives: Students will learn about behaviors that many whales and dolphins can be seen doing. Students will make whale puppets and use them to model different behaviors. Students will conduct a simulated whale research expedition.

You will need:

- Ability to project PowerPoint presentation
- Copy of PowerPoint presentation “*Cetacean Behaviors*”
- Optional: Internet connection (as a back-up to show YouTube videos directly from the internet)
- Optional: Speakers for PowerPoint presentation

Sunshine State Standard: SC.4.L.16.3

Vocabulary:

Behavior – an observable activity.

Breaching – The whale leaps out of the water head first. Usually whales and dolphins roll in the air so that they land on their side when they hit the water, creating a lot of noise and a huge splash.

Bow Riding – Dolphins are well known for bow or wake riding. The dolphins will swim in the waves at the bow of a boat or the wake or waves behind a boat. They may continue this behavior for quite a long while.

Disturbance- annoyance or disruption of natural behavior such as migration, breathing, nursing, breeding, feeding, or sheltering. Marine mammals often display certain behaviors in response to disturbance.

Flippering – A whale at the surface rolls onto its side and then hits the surface of the water with its flipper. This is also called a flipper slap.

Lobtailing – The whale dives down but leaves its tail out of the water, then slaps the surface of the water with its fluke.

Logging – A whale resting at the surface can look like a floating log.

Spouting – When a whale comes to the surface to breathe it releases a lot of air, called its “spout”, when it exhales. Following a very long or deep dive, whales may need to remain at the surface for some time (almost an hour in some cases) to catch their breath before they are ready to dive again.

Spyhopping – A whale lifts its upper body out of the water. It is thought that this allows the whale to look around and see what is happening above the surface of the water.

Vessel – Usually refers to a boat, but could refer to a jetski or other form of water transportation.



Strategy: There is an instructional PowerPoint presentation and two (optional) activities that reinforce concepts introduced in the presentation.

Presentation: *Whale Behavior* (PowerPoint)

Teacher Script

- Slide 1. Many of you have probably seen dolphins or other toothed whales performing at places like Marineland or Sea World *[or insert your local marine mammal park's name]*. The things that these animals do on command in captivity are usually based on behaviors that the animals do naturally in the wild. Today we are going to learn about some whale and dolphin behaviors.
- Slide 2. Why do we care about whale behavior? Because whales and dolphins spend so much time underwater, often in very deep water, it is a challenge for biologists to study them. Although whales make sounds, we cannot tell what those sounds mean. However, when these animals are at the surface, we can make observations about what they are doing, and can try to learn more about them based on their behaviors.
- Slide 3. Let's read these behaviors together *[point to each one in turn and have the class read them out loud with you. It may be helpful to explain to the class that "bow" in "bow riding" is pronounced the same way as the verb, "to bow," with a long "ow" rather than a shorter "oh" sound]*. In this lesson, we will learn more about these common dolphin behaviors.
- Slide 4. Although whales and dolphins also have many different types of feeding behaviors, those will be covered in a different lesson; however, I want to point out this commonly seen behavior called begging. Begging is a behavior learned by dolphins and other marine mammals that have been fed by humans. Feeding or attempting to feed a dolphin or other marine mammals is illegal. *[see lesson 7]*
- Slide 5. Often dolphin species are seen moving very slowly at the surface of the water in small groups. This behavior is called resting. It is very important to give these dolphins lots of space, because they need to rest in order to have enough energy to feed, mate and nurse their young. Some dolphin species such as spinner dolphins rest during the day.
- Slide 6. Groups of dolphins are often seen moving quickly in the same direction. This behavior is called traveling.
- Slide 7. Our next behavior is called breaching. Breaching is a very dramatic behavior. During breaching, a dolphin or whale jumps head first out of the water. While in the air they may rotate their body so they land on their side, creating a HUGE splash!! Both baleen and toothed whales use this behavior. Scientists are not sure why whales and dolphins breach. Ideas include communication with other animals, stunning prey so they are easier to catch or showing that they feel threatened by something. *[Click on video to start it. Video is about 60 seconds in length. You might want to be ready to mute the audio for this clip—there are people shrieking quite loudly in it!]*. Did you recognize the type of whale in this video? *[Correct answer is orca or killer whale.]*



- Slide 8. Let's start by talking about bow riding. Many different types of dolphins can be seen bow or wake riding. Note that baleen whales do NOT bow ride! Dolphins ride the waves created in front of or behind boats and may do this for minutes to hours. It can look like the boat will run over the dolphins, but scientists think dolphins use this to save energy. It may be that bow riding is similar to what people experience when they go "body surfing" which is "surfing" without a surf board. This is often a fun game for humans to play at the beach. People should never drive a boat towards dolphins in order to try and get them to bow ride. This can be dangerous to the dolphins. Let's watch some dolphins bow riding in this video clip. *[click on the video to play it. If needed, the direct link is also given on the slide, but this will require that you be connected to the internet, and will open the video in a new window. Video clip is about 1.5 minutes.]*
- Slide 9. When people get too close to dolphins, or the animals feel threatened, they may display certain behaviors. These can include tail slapping or breaching, mothers shielding calves from people or vessels, and animals swimming away quickly. Scientists call these "disturbance behaviors."
- Slide 10. Dolphins are very social animals. However, it's important to give dolphins lots of space and view them from a distance. It is very difficult to tell the difference between social behaviors and disturbance behaviors.
- Slide 11. Some whale behaviors have funny names. Let's read these behaviors together *[point to each one in turn and have the class read them out loud with you.]*
- Slide 12. Let's watch some video of whales breaching. Breaching may be a way for whales to scratch their backs. *[Click on video to start it; video is 1 minute in length].* Can you tell me anything about this whale? *[You might prompt students to see if they can tell if it is a toothed whale or baleen whale...it is a humpback whale, which is a type of baleen whale. Students might be able to identify it because of its long, white flippers]*
- Slide 13. This next video shows one of the reasons that people should stay far away from whales. Getting too close could be dangerous for people and for the whale. This clip is a news report showing a young right whale that breached and landed on a sailboat. *[Click on video to start it. Video is about 50 seconds in length. You might mention that people need to stay at least 100 yards away from most whales. This is the length of a football field. People need to stay 500 yards away from right whales..]*
- Slide 14. Our next behavior is called flippering or flipper slapping. Baleen whales do this by rolling on their side and hitting one flipper on the surface of the water. Scientists do not know why whales do this behavior. *[Click on video to start it. Video is about 25 seconds in length].*
- Slide 15. When lobtailing, a whale positions its body so that its head is down and the tail flukes are above the surface of the water. The whale repeatedly hits the surface of the water with the big flukes. The sound can be very loud and may be heard for some distance. Scientists do not know why whales display this behavior. Captive groups of dolphins that are upset or annoyed display a similar behavior called tail slapping. *[Click on video to start it. Video is about 4 minutes in length, but the first 20 seconds or so is probably enough to give the students the idea! To stop the video, click on it again].*



- If you have visited Marineland, Sea World or other marine parks, you may have seen whales or dolphins trained to “wave goodbye” by standing on their head and waving their tail flukes at the crowd. This is an example of how trainers are able to modify a behavior that whales and dolphins do on their own, and train the animals to perform the natural movement for entertainment purposes.
- Slide 16. Logging is very different from the active behaviors seen so far. The term is used to describe a behavior in which whales stay very still at the water’s surface, moving mainly to take a breath. This behavior may be part of resting after a deep dive. It is possible that whales may sleep in this position. *[Click on video to start it. Video is about 30 seconds in length].* You can see that the whales could be very hard to see when they are in this position. Logging whales are at risk of being hit by boats or ships.
- Slide 17. Spouting is the term given to the spray of fine water droplets that forms when a whale exhales, or breathes out. In colder weather, the breath is more visible, for the same reason that you can see your own breath on cold mornings. The breath is made of warm air and water droplets. The spout of different types of whales looks quite different. Experienced observers can identify a species of whale from the appearance of the spout on the horizon. *[Click on video to start it. Video is about 18 seconds in length. Note that the right whale should have a V-shaped spout. Unfortunately in this video clip it is hard to make that out. The whale is turned toward the camera at an angle that makes this very hard to see. Plus it is up and down quickly, making it that much more difficult to interpret.]*
- Slide 18. Here we have a blue whale spouting. *[Click on video to start it. Video is about 90 seconds in length. Note that the blue whale spout does not appear to rise as high in the air as the humpback whale spout. The character of the spout is thicker at the bottom. The whale filmed here is traveling, making the character of the spout more difficult to describe.]* Some of these videos were clearer than others, just like some days are clearer than others out on the ocean. Imagine if you were a whale biologist and you were trying to identify the type of whale you were seeing based only on their spouting. That might be a bit of a challenge! Remember that some whales can hold their breath for a very long time, so you might easily have to wait ten minutes to see a single whale breathe twice, assuming it doesn’t swim too far away for you to see it during that time!
- Slide 19. When “spy hopping” a whale pops its head up out of the water and looks around. To do this, the whale positions itself in the water column head up and tail down. It lifts its body up above the surface so that it can see what may be happening nearby. In this video, we will see a young gray whale spyhopping off the coast of California. *[Click on video to start it. Video is about 30 seconds in length.]*
- Slide 20. Learning about animals that live their entire life in the ocean can be very difficult. Generally, most behaviors that we can see are only those that are visible from the surface. There is much, much more going on under the water! This lesson has shown you commonly observed whale and dolphin behaviors. Scientists try to interpret these behaviors to understand more about the whales. You can see that this could be very hard to do.
- Slide 21. As we watch this final video clip, try and see how many different behaviors you can see the humpback whales doing. *[Click on video to start it. You may want to play it a second*



time and have the students call out the behaviors that they see. These include breaching, lobtailing, flipper slap, spouting and possibly spyhopping (or a weak breach). Clip is 1 minute 15 seconds.]

NOTE: The video clips used in the PowerPoint presentation are all used with permission of the owners. Please contact the clip owner before using the clips in anything other than this curriculum.

Activities:

Buffington, K.; Fleming, M.; Kovacs, D.; Steuer, K.; Ward, N. 1992. *Whales, Activities based on Research from The Center for Coastal Studies*. Scholastic Professional Books, New York NY. 64 pp.

Whale Behavior, pgs 27-32

This workbook has a worksheet and activity that relates directly to this lesson on whale behavior. Pgs 28-29 have a poster that includes depictions and brief descriptions of the behaviors described in this lesson (and two feeding behaviors covered in Lesson 7). Pgs 30-32 have a simple whale puppet that can be made as an easy craft project. Students can then use the puppet to display the behaviors they have studied.

Conducting Whale Research, pgs 39-42.

This activity requires students to complete a (fictional) whale observation data sheet, and use the data sheet to plot the locations of whales on a simple map. Students then answer a few questions based on the chart/map.