

ACTIVITY PLAN

Orca Vocalizations

Through this activity, students will learn about orca communication! After listening to orca vocalizations, students will have the opportunity to develop their own classification system to describe the sounds.

Materials

You may wish to have students listen to the audio clips individually or as a class. The number of internet enabled devices and headphones will depend on your choice.

- Internet enabled device (computer, chromebook, tablet, smartphone, etc.)
- [“Sounds of the Deep”](#) YouTube playlist on the Ocean Networks Canada channel
- Speakers and/or headphones
- Quiet space
- Wax paper cut into roughly 8.5” x 5” pieces with enough pieces for students to work individually or in pairs
- Any piece of printed material (i.e. newspaper, book, printed text, etc.) with enough items for students to work individually or in pairs
- [“Example Orca Vocalizations”](#) Google Slides

Directions

Hook

1. As a hook, play the [Quiet and Noisy Oceans | Southern resident killer whale calls](#)
 - a) Share that during July, 2020 there was reduced vessel (i.e. boat) traffic in the Strait of Georgia due to the COVID-19 pandemic.
2. Discuss what the students heard:
 - a) What surprised you in what you heard?
 - b) What is different in the second part of the recording when a vessel passes by?

Part 1

3. Ask students to read a piece of printed material.
4. Have them put the wax paper over half of the text and discuss what they observe.
5. Have them fold the wax paper and put it over a portion of the text and discuss what they observe.

6. Share that orcas use sound to sense and “see” their surroundings whereas we rely more heavily on sight. The wax paper acts like other noises in the ocean in that it makes it difficult for them to sense their surroundings. A good analogy is like trying to look at something that is too bright or shiny. Just as this can hurt our eyes and make it hard to see, noise pollution makes it hard for orcas to sense what’s nearby.

Part 2

7. In a way that suits your students, have them listen to a variety of orca vocalizations. This can be done as a class or as individuals. A suggested order is listed below:
- a) [Likely Southern Resident J Pod Killer Whales at Fraser Delta](#)
 - b) [Southern Resident Killer Whale J-Pod in Eastern Strait of Georgia](#)
 - c) [Southern Resident Killer Whale J-Pod Calls](#)
 - d) [Amazing Sounds of Northern Resident Orcas \(G clan, G sub-clan\)](#)
 - e) [Northern Resident Killer Whale G Clan, I Sub-clan \(2 of 2\)](#)
 - f) [Clear Recording of Inner Coast Biggs Killer Whales](#)
 - g) [Inner Coast Biggs Killer Whales Attacking Prey](#)
 - h) [Offshore Killer Whales \(2 of 2\)](#)
9. As they listen to the orca vocalizations, ask them to create their own classification system for the sounds. We suggest a think, pair, share so individuals have the opportunity to create their own thoughts.
- a) How would they describe the vocalizations?
 - b) If your students are feeling brave, ask them to share the vocalizations they picked by “singing” them to the group.

- c) Where does one sound start and another sound stop?
 - d) Which ones sound the same?
 - e) Are there similarities or differences between the Northern residents and the Southern residents?
 - f) How are the orca vocalizations and other marine mammals similar and different?
9. Share with the students that there are three categories of orca vocalizations: pulsed calls, clicks, and whistles. Examples of each of these vocalizations can be played for the students from this “[Example Orca Vocalizations](#)” slide show. An interesting note is that the Ocean Networks Canada recordings on the YouTube channel does not have any examples of whistles because our hydrophones, the instruments that collect sound data, are too deep to collect the whistles.

Extension

Play this [news clip](#) and discuss how orca vocalizations were an important part of this Northern residents’ return.

How This Helps Us #knowtheocean

Interesting scientific words are highlighted in blue!

- Orcas make a number of different **vocalizations**, and pods share the same type of calls. Scientists can actually identify pods and some individuals by their call patterns.
- There are three types of orca vocalizations: pulsed calls, clicks, and whistles.
 - Pulsed calls are the most common vocalization for orcas
 - Clicks are used for **echolocation** and **navigation**
 - Whistles are used for close-range communication
- Orcas use **echolocation** clicks to search for food, so being able to hear is equivalent to being able to see.

Glossary

Echolocation: Use of reflected sound to determine the location of objects

Hydrophone: A scientific instrument used to collect sounds underwater

Navigation: Controlling the movement of an object from one location to another

Vocalizations: Making of a sound, especially for communication purposes