



LET'S TALK ABOUT NATURAL SELECTION, BIRD SONGS VS CALLS, COURTSHIP DISPLAYS AND NESTING!

UNIT 1: REPRODUCTION

Virtual Nature School

Teacher Guide

UNIT 1 LESSON 2: BIRD SONGS VS CALLS

Theme

A bird species' song and calls have different characteristics and serve different purposes to enhance survival and reproduction.

Missouri Science Standards: LS1.B.1

Vocabulary



Songs - Tend to be complex, learned, and given primarily by males during the breeding season to establish a territory and attract a mate.

Calls - Tend to be simple, innate, and used by both sexes in more general contexts, such as to raise an alarm, maintain contact between flock members, or beg for food.

Spectrogram - A computer-generated graph of sound frequencies across time. A way to visualize bird sound.

Frequency - The speed of the sound vibration, and this determines the pitch of the sound.

Amplitude - The size of the sound vibration, and this determines how loud the sound is.

Pitch - The quality of a sound governed by the rate of vibrations producing it; the degree of highness or lowness of a tone.

Common Misconceptions to Watch Out For:



- **Bird species make only one type of sound or only have one song and one call.** This misconception is often what can make learning the sounds that birds make so difficult. Almost all species of bird have more than one vocalization and some have repertoires into the thousands.
- **All individuals in a species will sound the same.** Not all young birds copy songs from a tutor. Some invent their own songs according to the typical pattern of their species. In species that learn from tutors some young birds typically end up with slightly different versions than their tutors sang. When birds breeding in a particular area sound similar to.....*continues on next page...*

- *Continued from previous page....* to each other but different from members of the same species elsewhere, they are said to have a regional dialect.
- **Watch out for mimics.** There are a few species of bird that will mimic other bird's songs and calls and others who will copy only part of another's song and include it in their own repertoire.
- **All bird sounds are innate.** some bird sounds are innate, meaning that birds can produce them without ever having heard them before. the ability to produce innate sounds is inborn and genetically controlled. However, some bird sounds are learned, meaning that in order to produce them properly, a young bird must hear them from an adult tutor of the same species. Tutors do not actively "teach"; instead, young birds learn by listening from a distance. The tutors are often the neighboring males on a young bird's first summer territory.

Video 1: Sound Science

Video Description: In this webinar MRBO Director, Ethan Duke, leads a discussion of bird sounds, with a focus on how to identify and record your own.

Video Link: <https://www.youtube.com/watch?v=CfsryJw11Is&t=8s>

Teacher Notes:

- Video produced for MRBO webinar series so language will sometimes refer to birder terms and might be a bit advanced.
- Start video at 14:30 and End at 30:21. Total time: ~16 min.
- If you want to make it shorter, you could cut out basic tone qualities from 19:37 to 26:14.
- Video will include what sound spectograms are, sound patterns and terms, basic tone qualities, and key terminology.
- Some bird recordings are on the quieter side, so you may want to turn up volume for these parts.

Video 1 Follow- up Questions:

1. Fill in the blank. A computer-generated graph of sound frequencies across time is called a _____.
2. True or False? The pitch of the bird sound has to do with the frequency of the sound wave.
3. How many basic pitch patterns are there? Can you name three?
4. Fill in the blank. If a bird sound is too fast to count and the notes are repeated and not unique, it is called a _____.



Activity: Bird Song Hero

Activity Summary: Students will use this excellent resource provided by Cornell Lab of Ornithology to learn more about how and why birds sing as well as learn the songs of a few bird species.

Video Instructions Link: <https://www.youtube.com/watch?v=8xH2GjHKYj0>

All About Bird Song Tutorial Link:

<https://academy.allaboutbirds.org/features/birdsong/songbirds-in-action>

Teacher Notes:

- Have students watch the 7-min video before doing the activity to learn what the game will involve and get some practice.
- Then have the students move through the All About Bird Song interactive lesson to learn about how and why birds sing. The lesson will then lead them right into the game.

Concluding Questions/Assessment

*Student worksheet included in packet.

1. What are the different characteristics of sound between bird songs vs. bird calls? What different purposes do they serve?
2. What does it mean when a bird sound is innate vs learned?
3. What is a sound spectrogram and how is it used?
4. Explain how a bird's song helps it survive and reproduce. Why is it worth the energetic cost to the bird?
5. Explain how an alarm call can help a bird or a group of birds survive. Give an example of a situation when a bird might use an alarm call.

