

Natural History of UCSC Fall 2018

Birds of UCSC Lesson Plan

By Deanna Davidson

Learning Outcomes:

- Students will learn what makes birds unique and gain a basic understanding on birds
- Students will gain an understanding of different features of birds and how to observe these features to identify birds
- Students will learn how to use field guides and binoculars to identify birds
- Students will learn about bird language and learn skills for observing and recording bird sounds

Background:

This class is geared toward students with little to no birding experience. The class is focused on helping students practice species identification skills through learning tools for deep observation. Birds are a great focus for introducing species identification because students are almost guaranteed to spot several different birds, often distinct species with various features to observe. This class will help students practice observing physical features as well as behaviors and song/sounds. Birds also tend to fly away quickly so it forces students to practice staying focused and making quick observations. When a student spots a bird, instructors should encourage them to voice everything they notice, wonder and are reminded of right at that moment and to jot any quick notes or illustrations in their journal if they can. Instructors should also encourage students to practice these skills on their own in their sit spot, whether it be through birding or deep observation and species identification of other groups of animals. Instructors do not need to have a strong knowledge of bird species for this class because they are simply there as a guide for their students and can work on identification together. However, if you would like to prepare it could be wise to look through field guides of common birds in the Santa Cruz region. If you would like to become more familiar on bird features, a chart of bird beaks is included in the lesson plan. All of the activities in this lesson plan have been adapted from the sources included in the bibliography.

Materials:

- Binoculars for each student
- 4 field guides
- 4 bird specimen of common/relatively easy to identify birds
- Sound graph example
- White board
- White board markers

Plan for the Day:

Meet and Quiz: Duration: 30-40 minutes

Meet at the music center. Have people go around and share nature notes from their sit spots/weeks while we wait for every student to show up. Once a lot of students show up, collect homework and begin quiz.

Intro to Birds: Duration: 15 minutes

- Open with a poem about birds
- Pair share: What do we know about birds, why are they unique, why do we care? Ask what makes birds unique from all other animals-(feathers, hollow bones) Bring back to big group talk.
- Explain qualitative vs. quantitative observations (~5 min):
Talk about why qualitative observations are important in birding: We must practice making quick observations when birding because we may only be able to observe the bird for a short moment before it flies away. This is why it is important to encourage students to use their journal to record everything that they see and notice. This will make the process of identifying the bird through a field guide later much easier. Have students brainstorm other things they can notice about birds besides just color. (ex: bill shape, feet shape, size, body shape, tail length, leg length, behavior, songs) (From Sheyna's lesson)
- Bird features (~5 min)

Ask students: What are some different features we can notice about birds besides just color? What do different bird features say about their lifestyle?: Draw some bird bills on a whiteboard to discuss. Draw a generalist beak, seedeater beak, and meat eater beak. What other beak shapes can anyone think of? What do you all think this bird eats? (Other features to discuss can include feet, wingspan/shape, body shape, patterns, leg length, behavior, sounds, etc.) (From Sheyna's lesson)

9:20- Observation Activity-Duration: 20 mins

- To practice observing and identifying birds, have a TA or instructor dress up in a flashy/strange outfit and have the students take out their journals. Let the students know that they are about to see a strange specimen appear and to record everything they observe in detail, including as many different features as possible. Then signal for the specimen to appear, do their thing for a short amount of time and disappear again. When they have disappeared, see if anyone can describe the specimen without having them present. Then you can have the specimen come out again and compare the description to reality. (~5 min) (from Sheyna's lesson)
- Go over field guides: Explain that field guides should be used *after* you have observed deeply and recorded a good amount of information about a bird in your journal. Once you have enough information to go off of, you can start looking through a field guide to identify your species. Explain to students that most field guides include a range map that shows residency and what seasons they are in depending on their migration patterns. Point the maps out to students and explain that they are usually color coded, often differently depending on the guide. Make sure students know that range maps are very important to look at because whether or not the bird you think you are seeing is common enough in your region during the time you are in can be the final deciding factor when determining species. Other things you can point out about the field guides are to look for sound descriptions and to pay attention to male vs female features. (~5 min) (From Sheyna's lesson)
- Split students into groups of 4ish. Give each group a specimen to observe for 5 minutes. Have them discuss and write down everything they observe. Then take the specimen away (it flew away!!) and hand each group a field guide. They have 5 minutes to try to

guess what bird it is. If a group finishes right away, you can give them another specimen. Then once everyone has a guess, have each group share their guess and evidence to the group. (From Rozy's lesson)

9:45- Binos & Birding (each instructor type takes a group) -Duration: 1 hour

From sheyna's lesson: "Show everyone the key features of binos- they only focus, they don't zoom in or out. Explain the eyecups and which dials to turn to focus. The small end of the binos are the ones you look through and don't walk or run while you bino. In addition, spot what you are going to look at, then bring the binoculars to your face. Otherwise it will be disorienting to try to find your target through your binos." You can have students choose something around them to focus on. "Go through the instructions for closing one eye while you focus and then switching and focusing the eye cup dial to calibrate the binos." (Haisman-Holmes, 2017) Once everyone is comfortable with the binos, go birding! Encourage students to make an entry in their journal. Everytime you see a new bird, have students observe deeply and point out all the different identifying features they see. Ask them if they have any guesses to what the bird might be. Then, see if together you can identify the bird in your bird guide. Have students keep track of all the birds they observe, preferably in their journal.

Bird Language -Duration: 20 minutes (from Beetles lesson and Rozy's lesson)

- "Finger Listen." Gather the group and have everyone silently focus on listening to all the bird sounds around them, and hold up a finger for each new bird they here. (1 min) Let students know they'll be learning about the language of birds which will help them better understand bird behavior, interactions and other things going on in the environment. (From Bird Language Exploration)
- Pair share: What kinds of messages might birds need to communicate, and how might they help with survival? What might these calls sound like? Bring back to whole group discussion (from Bird Language Exploration)
- Share brief information/examples about each "category" of call. Describe or demonstrate examples of each type of communication, but keep these descriptions brief. (from Bird Language Exploration)

- Songs are often used to alert others about territory & attracting a mate.
- Aggression calls and alarm calls are often loud and abrupt sounding.
- Short call notes are often used to stay in contact with others
- Young birds make begging calls to ask for food.
- Discuss qualities to pay attention to: pitch, tone/quality (smooth, raspy, etc.), speed and acceleration, rhythm and repetition, phrases. Introduce sound mapping. (from Rozy's lesson)
- Pair share if time: what are some tools we can use to remember bird calls?

Sound mapping -Duration: 30 minutes (From Rozy's lesson)









Introduce the tools of sound graphing and sound mapping. You can draw a sound graph on a whiteboard or piece of paper. Have students find a solo spot in nature and make a sound map (with them in the center) of all the different birds they hear. For each bird, they can draw a sound graph. They can also try describing the pitch, tone, speed, etc. in words and/or come up with a catch phrase for each call they hear. They can also try to guess what the bird might be trying to communicate. At the end, have everyone come together again and anyone who wants to share about their experience and/or a song they heard can do so. Conclude with any important class announcements.

Bibliography:

Bathrick, Rozy. "Bird Language 101." Natural History Field Quarter. 2017, Angelo Reserve.

"Bird Language Exploration - Beetles Project." *Beetles Project*, The Lawrence Hall of Science, beetlesproject.org/cms/wp-content/uploads/2017/12/Bird-Language-Exploration.pdf.

Haisman-Holmes, Sheyna , 2017. "Envs15 Birds Lesson_Sheyna_2017" (google doc). ENVS15 student-developed curriculum.

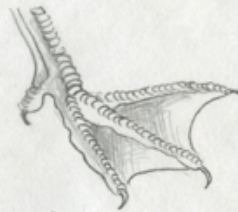
| Beak Shape | Beak Type | What does the bird eat? |
|---|------------------|---|
|  | Cracker | Seedeaters like sparrows and finches have short, thick conical bills for cracking seed. |
|  | Shredder | Birds of prey like hawks and owls have sharp, curved bills for tearing meat. |
|  | Chisel | Woodpeckers have bills that are long and chisel-like for boring into wood to eat insects. |
|  | Probe | Hummingbird bills are long and slender for probing flowers for nectar. |
|  | Strainer | Some ducks have long, flat bills that strain small plants and animals from the water. |
|  | Spear | Birds like herons and kingfishers have spear-like bills adapted for fishing. |
|  | Tweezer | Insect eaters like warblers have thin, pointed bills. |
|  | Swiss Army Knife | Crows have a multi-purpose bill that allows them to eat fruit, seeds, insects, fish, and other animals. |



Perching
Sparrow



Climbing
Woodpecker



Swimming
Duck



Walking
Chicken