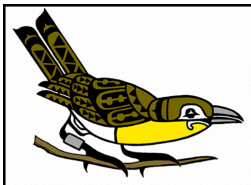

Behave Like a Bird

Oregon State Standards

OR Science
4.1, 4.2
5.1, 5.2, 5.2L.1
6.1, 6.2
7.1, 7.2, 7.2L.2

Vocabulary

- adaptive breeding
- thermoregulation
- winter flock

Summary:

Through this activity students will gain a better understanding of bird behavior, of the adaptivity of bird behavior and why knowing or understanding bird behavior is important for understanding the natural world and avian ecology. This is accomplished through two games and a creative writing project. One game pertains to courtship behavior and one explores why birds join together in flocks.

Prep Time: 1 hr
Time: 120 min
Note: The associated activities may be expanded to multiple class session.

Grade Level: 4th-7th

Goals
- Learn about how bird behaviors help birds survive
- Explore courtship and breeding season behavior and flocking behavior

Learner Objectives
Students will…
- Match courtship behavior exhibited by males and females of selected species by acting out a card and finding their "mate."
- Participate in a game about flocking and predator evasion behaviors, graphing the results from several game trials.
- Read a poem about bird behavior and then create their own poem or story about bird behavior.

Materials
- "*Bird Dating Game*" cards
- "*Bird Exercise*" poem by Jacqueline Schiff
- Stopwatch or timer
- Binoculars (for outdoor extension)

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Behave Like a Bird

Background information:

When studying birds it is important to have an understanding of bird behavior. Birds exhibit a number of different types of behaviors, which can be classified into several groups: flocking, territorial, preening or grooming, foraging, courtship and vocalizing. Some of these behaviors vary from season to season, for example Black-capped Chickadees will form flocks during the winter, often with other species, but do not form flocks during the breeding season. Some of these behaviors can fit into more than one study area. For example, vocalization is one area of study but functions to attract mates, to defend territory and to alert other birds of intruders, predators, or food nearby.

How birds interact with other species, interact with individuals of their own species, forage, and court or select mates varies not only from species to species, but among different families of birds as well. Some species have elaborate courtship displays, such as the dancing and leaping of Sandhill Cranes, while others create a repertoire of complex songs, such as the Marsh Wren. There are species of birds that form flocks that can number in the thousands, such as Red-winged Blackbirds, and birds that do not form flocks, such as Golden Eagles. Any behavior that we look at in birds can be traced to survival. A Marsh Wren that sings numerous and complex songs is showing that he has the stamina or energetic reserves to do so. Similarly, a Sandhill Crane that dances and leaps better than other males is likely to have healthy genes and to be excellent at foraging and have better overall fitness as a parent and mate.

Bird Song

Fun Fact: In North America the bird with the largest singing repertoire is the Brown Thrasher. Male Brown Thrashers (top) can have 1500-2000 songs or more in their repertoire! There are several species of songbird with 1 song or no song in North America. The Black-capped Chickadee (center) has only one song and some scientists argue that the Cedar Waxwing's (bottom) distinctive vocalization is not a song at all.

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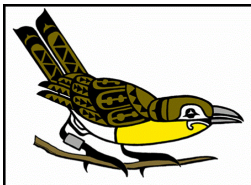

Behave Like a Bird

Background continued:

Flocking is a behavior that is common in bird species, but the timing and reason for flocking can vary from flock to flock, as can flock size. Birds form flocks to avoid predators, increase their foraging efficiency, and to help with thermoregulation. Large numbers of shorebirds in flight can make it difficult for a potential predators to focus on one individual bird, and can therefore reduce a predator's success at capturing prey. Also, with more eyes on the lookout for predators, everyone has a greater possibility of surviving.

Foraging efficiency is increased in a flock for a number of reasons. For example, in a mixed species flock in winter that includes Red-breasted Nuthatches, Black-capped Chickadees and Ruby-crowned Kinglets, each species forages in a different manner. The different foraging behaviors and locations, combined with more eyes for finding food increases feeding efficiency. In some species, such as the American White Pelican, foraging flocks create a system of cooperative hunting.

Flocks formed for migration generally assist with predator avoidance and increase in-flight draft avoidance, saving time and energy and assuring more individuals make it to both wintering and breeding grounds. In some species birds will roost together as a method of thermoregulation. The more birds there are in a roost, the warmer individuals are, conserving energy in the cold winter months.

Birds of a feather, stick together *sometimes*

Winter Flocks are mixed species flocks, consisting of 2-4 species. These flocks often contain a higher number of Chickadees than individuals of other species. The other species in these flocks know both the alarm and foraging calls of the Chickadees, increasing predator avoidance and foraging success. In some instances, non-flocking birds learn the alarm calls of mixed flocks, increasing their chances of avoiding predation.

Bird Sing-a-longs

Fun Fact: Females of some species, such as the House Finch, will sometimes sing the same song as males of their species. In other species, such as the Plain-tailed Wren of Ecuador, the males and females duet, each singing their own song in an interactive musical performance with their mate, creating a song that sounds like it comes from only one bird For a video of duetting Plain-tailed Wrens go to: http://www.youtube.com/watch?v=Kkbqla8tgTU

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Information on Peregrine Falcons and Vaux's Swifts:

Vaux's Swifts are a swallow-like bird that breeds in the Pacific Northwest. These small gray birds are communal roosters, with roost sizes ranging from a few hundred to several thousand birds. During fall migrations, as they descend into their roost, Vaux's Swifts put on impressive aerial displays. These shows are so impressive that the Portland, OR Audubon Society sponsors an event called Swift Watch at Chapman Elementary School every September. For more information go to this website: http://www.fws.gov/oregonfwo/ExternalAffairs/Outreach/Documents/WildRead/Swifts.pdf

Peregrine Falcons have been an increasingly common sight in urban areas. The cliff-like sides of tall buildings provide ideal nesting sites and the proliferation of Rock Pigeons in urban areas provide adequate food resources. Peregrine Falcons capture their prey on the wing, typically by diving at their prey and capturing them with their talons. Peregrines will capture reptiles and ground mammals, but birds captured in the air make up the majority of their diet. For more information about Peregrine Falcons in Oregon go to this website:
http://audubonportland.org/issues/species/portland-peregrines/fremont

Foraging Fun Fact:

American White Pelicans have two methods of cooperative hunting. In the first method, individuals swim in a line and herd fish toward shallow water. The second method involves forming a circle around prey and constricting the circle by swimming toward each other, trapping prey in the middle. In both methods, synchronized feeding begins when prey are concentrated, with little room for escape.

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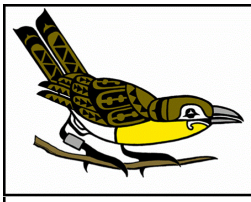

Behave Like a Bird

Getting ready:

- Read background information
- Print copies of the "*Bird Dating Game*" cards
- Print copies of "*Bird Exercise*" poem by Jacqueline Schiff

Discuss:

- Ask students to list some types of bird behaviors, for example: Greater-sage Grouse dance and inflate air sacs in their chest to attract a mate and male House Wrens sing both to defend their territory and to attract a mate. Explain that different types of behaviors are seen depending on the species, the time of year, and the desired outcome of the behavior.
- Ask students to come up with a list of birds that flock and a list of birds that don't flock.
- Have students make observations about the differences between the birds on these lists and have them come up with reasons why some birds flock and some birds don't. Are there commons traits shared by birds that flock that are not found in birds that don't?
- Now ask students if they know that some birds create winter flocks. Explain what winter flocks are and have students theorize why winter flocks form.

Investigate, part 1:

- Take students to the gym or to an outdoor field
- Hand out "*Bird Dating Game*" cards to students; make sure you have either male or female written on the cards so students know which behavior to act out!.
- Tell students that they are going to be exploring bird courtship and breeding season behavior by acting out the instructions on their card and trying to find their "mate" based on what the card says they are looking for.
- Have students read their cards, giving them time to think of how they'll act out the card.
- Put all male birds on one side of the play area, and all females on the other.

To flock, or not to flock...

Birds that flock:

- Black-capped Chickadee
- Ruby-crowned Kinglet
- American Robin
- European Starling
- Brewer's Blackbird
- Red-winged Blackbird
- Red Crossbill
- Evening Grosbeak
- Wild Turkey
- California Quail
- Rock Pigeon
- Gull species
- Canada Geese
- Sanderling
- Golden-crowned Sparrow

Birds that do not flock:

- Townsend's Solitaire
- Hermit Thrush
- Northern Flicker
- Bewick's Wren
- Wrentit
- Red-tailed Hawk
- Anna's Hummingbird
- Downy Woodpecker

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Investigate, part 1 continued:

- When students are ready, begin the "Dating Game." Students will act out the action on their card, while looking for their mate across the play area. Students will identify their mate by matching the behavior their card says they are looking for with the actions being done by the other group of students. When students find their mate, have them go to a designated area of the gym or field. If students mismatch their mate, have them go back and try again.

Conclusion, part 1:

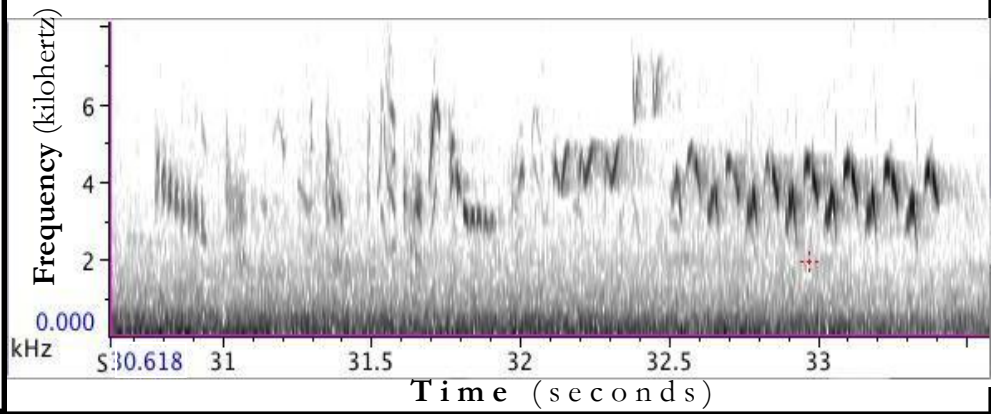
- Once all students have found their "mate" have students share with the class what their species is, what kind of courtship behavior they were exhibiting and if males and females acted different from each other.
- Ask students to discuss any difficulties they had finding their mate and strategies they used in the process. How might this process compare to birds in real life?

Investigate, part 2:

- Continuing in the gym or playing field, ask for two students to volunteer to be Peregrine Falcons.
- Once the Peregrine Falcons have been selected, tell the remaining students they are going to be Vaux's Swifts. Select five of the Vaux's Swifts to wear flags.
- Ask for a student volunteer to keep time for the trial runs.
- Ask students why they think birds flock. Do you think flocking is beneficial to birds, why or why not?
- Give students brief background about Peregrine Falcons and Vaux's Swifts (from background information).

Science Connection:

Bird songs can be made into a visual image, called a spectogram. Spectograms can not only be used to identify bird species, but can be used to identify individuals within a species and the region that individual came from! This spectogram belongs to a House



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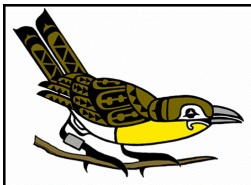

Behave Like a Bird

Investigate, part 2 continued:

- First, have Peregrines stand in the center of the play area and all Vaux's Swifts line up along one side. Tell students that the goal is to stick together, like a flock, and walk to the other side of the play area. The Peregrine Falcons are going to try to catch the flagged Vaux's Swifts. Peregrines will catch the Swifts by pulling their flags. Remind students that the goal is to get to the other side as a flock and tell the Falcons call the Swifts out by saying "Swiftly, Swifts" when they are ready to begin. All Swifts must go into the play area when the Falcons call them out! Have the time keeper keep track of how long it takes to get across the play area and how many of the flagged Swifts are "eaten."
- Now, have students go back to the starting line. Tell students that this time the goal is to get across the play area as fast as possible, that they do not need to stay in a flock. Ask students, will more or less Swifts get caught? Will it take more or less time for everyone to get across? When Falcons are ready have them call the Swifts out, by saying "Swiftly Swifts." Have time keeper keep track of the time and how many flagged swifts get caught.
- You can have students run this activity in as many different variations as you and the students can think of, keeping track of the time and number of Swifts caught each time.

Conclusion, part 2:

- Once you've finished with your trial runs, have students reflect on the results. Did more Swifts survive when they functioned as a flock, or when they functioned as individuals?
- Head back to the classroom and have students graph the results of the various rounds of their game.

What is he singing for?

Science Connection:
Scientists that study birdsong have identified two distinct parts of birdsong in some species. The first part is for mate attraction, the second part is for territory defense. Males that have recently partnered will often drop the first part of their song, singing only for territory defense. Scientists can record a male's song and, if he is from a species that has a two part song, determine if that male has found a mate!

Observing Bird Behavior

Science Connection:
Recording all of the observed behaviors of a species is called an **Ethogram**. Behavioral scientists use ethograms to help them define and describe the behaviors they are seeing in a given species. After behaviors have been put into an ethogram, behavioral scientists will use these observations to formulate questions about their species.

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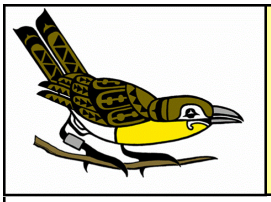

Behave Like a Bird

Investigate, part 3:

- Distribute copies of the poem "*Bird Exercise*" and tell students that they are going to look at an example of how people talk creatively about bird behavior.
- Have students read the poem and discuss the behaviors mentioned in the poem. Are they descriptive of flocking or courtship behavior? Are they behaviors that help a bird survive? What are some other ways people can be creative about bird behavior?
- Now have students write their own poem, story, comic strip or create some other creative work that showcases bird behavior.

Conclusion, part 3:

- Have students share their creations with the class and discuss what behavior they described and how it helps their bird survive.
- How can these behaviors help birders identify and understand birds?

Outdoor extension

- **Nature observation:** Take students to an outdoor area of your choosing, a sports field or nearby park will work well. Have students select an individual bird or species to watch, recording all of the behaviors they see the bird doing for a designated amount of time. For the remainder of class have students select a behavior (such as foraging) and record either the number of times they see their bird or species foraging or the duration of time they see their bird or species foraging.

Literature cited:

Ehrlich, P.R., D.S. Dobkin and D. Wheye. *The Birder's Handbook*. New York: Simon and Schuster Inc. 1988. Print.

Further Resources:

- For a video series of bird behavior and adaptations:

Life of Birds. David Attenborough. 1998. DVD. BBC Natural History Unit PBS

- Information about Vaux's Swift in Portland, OR: http://portland.daveknows.org/2011/08/29/chapman-vauxs-swift-watch-2011/
- Information about Vaux's Swifts on the West Coasthttp://westcoastswifts.org/archives/date/2012/05
- For a great video of a flock of starlings (a murmuration) over the River Shannon in Ireland: http://www.youtube.com/watch?v=iRNqhi2ka9k

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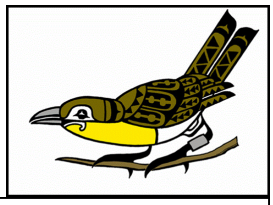

Behave Like a Bird

Read the poem about bird behavior on this sheet. Using the space below the poem, create your own poem, story, song, comic strip, picture or other method of creatively representing or talking about bird behavior.

Bird Exercise
by Jacqueline Schiff

I climb like a woodpecker,
High in the tree.

I dive like the eagle,
And you can't catch me!

I race like a pigeon.
I walk like a duck.

I hop like a robin,
And I call, "Tut-tut."

I swim like a mallard.
Like a blackbird I fly.

I flap like the crow
That cries, "Caw!" in the sky.

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Behave Like a Bird
Bird Dating Game Cards

Great Blue Heron

Male: Flies in a circle around the nesting area then lands in tree. Male stretches neck, with bill vertical, and shake tail feathers while making a goooooo-goooooooo noise. At the end of the display male claps beak. When male finds a mate he provides her with a nesting stick as a gift.

Female: Stretches neck, feathers fluffed and claps beak.

Photo © Jim Livaudais 2013

Mallard

Males: Raises wingtips, while shaking head and tail briefly and then swims with neck outstretched and held close to the water. Swims around female arching neck, whistling, then lowers bill below the water surface and quickly moves bill up to their breasts while spurting water toward the female.

Female: Swims with neck outstretched and head just above water. When approached by a male, swims after her preferred mate, producing a rapid staccato series of quacks and flicking her head back,

Photo © Jim Livaudais 2013

Red-tailed Hawk

Male: Flies in spiral, dives and then swoops up at a steep angle.

Female: Flies in spiral, circling in same area as male.

Together: After several dives and swoops, male will swoop toward female, touching lightly with his feet. Pair locks talons and spirals toward ground for several seconds before pulling away.

Photo © Jim Livaudais 2013

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Behave Like a Bird
Bird Dating Game Cards

Mourning Dove

Male: Performs gliding, spiraling aerial display, with wingtips held below body; struts on ground with feathers spread and head nodding.

Female: Bobs head with feathers spread

Photo © Jim Livaudais 2013

Great Horned Owl

Male: Loud hooting vocals when perched, nods and bows with half-spread wings, wobbling and twisting head side to side.

Female: Loud hooting vocals when perched, nods and bows with half-spread wings, wobbling and twisting head side to side.

Photo © Jim Livaudais 2013

Anna's Hummingbird

Male: Flies in an arc, creating a vertical circle; rising very high, then plummeting downward making explosive chirp sound at lowest point, then rising straight above female, hovers at top of ascent, delivering brief squeaky song.

Female: Feeds on flowers, watches male's every move, moving her head side to side.

Photo © Jim Livaudais 2013

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Behave Like a Bird
Bird Dating Game Cards

Northern Flicker

Male: Drums, calls, flashes wings and tail and bobs head.

Female: Drums, calls, flashes wings and tail and bobs head.

Photo © Jim Livaudais 2013

Steller's Jay

Male: Flies in circles, hops sideways with crest down, performs 180 degree jumps (jumps in the air and turns, so they are facing opposite of where they were first looking.

Female: Flies to potential, or future, nest site and spreads wings; calling to invite male to come feed them; hopes sideways with crest down.

Photo © Jim Livaudais 2013

Dark-eyed Junco

Male: Hops and bows with wings drooped and tail fanned to display the white outer feathers, quivers wings and sings softly from perch.

Female: Hops and bows with wings drooped and tail fanned to display the white outer feathers.

Photo © Jim Livaudais 2013

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Behave Like a Bird
Bird Dating Game Cards

Golden Eagle

Male: Flies in an upward spiral then performs a nose-dive. With wings half open, glides up again and then dives and calls.

Female: Flies in an upward spiral, then performs a nose-dive. With wings half open, glides up again and then dives and calls.

Photo © Jim Livaudais 2013

Greater Sage-grouse

Males: Gather at lekking grounds, an open area where many males of the same species go to perform courtship displays. Strut around with tail feathers fanned, feathers on head erect, wings drooped stiffly. Males swish wings so that wing tips drag on the ground and fill their chests with air. Then they release the air with a "booming" sound.

Females: Walk among males observing them lekking. Once a selection has been made, females approach males crouched low with wings spread.

Photo © Jim Livaudais 2013

Sandhill Crane

Male: Makes loud, rattling calls while bobbing head, bowing and leaping, running with wings extended and tossing grass.

Female: Makes loud, rattling calls while bobbing head, bowing and leaping, running with wings extended and tossing grass.

Photo © Jim Livaudais 2013

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