

Migration Relay

“Nothing wholly admirable ever happens in this country except the migration of birds.” – Brooks Atkinson

Background Information:

Bin Information

This lesson is the first in a series about phenology, which is the changes that occur in nature in cycles. The purpose of this lesson is to use one of the great phenology events; migration to see that what happens to one species has a ripple effect. It is followed by a nature journaling activity, focused on heightening student’s observational skills and exposing them to seasonal changes that happen all around them. The third lesson in the series focuses on what happens when changes to the environment cause these cyclical changes to fall out of sync with each other.

Information for Instructors

This lesson focuses on bird migration as an introduction to phenology. In it, students will represent two categories of birds; songbirds and raptors. Not all birds migrate, but most that do have food scarcity as the primary reason. In the spring in the Northern Hemisphere, migrating birds leave overcrowded warmer location to take advantage of an abundance of food in the north, but return in the fall as the supplies diminish. This includes birds whose with plant based diets, but also birds who are higher on the food chain and follow the migration of another species, such as American Kestrels and Common Green Darner Dragonflies or Sharp-shinned Hawks who follow Passerine (songbird) migrations such as warblers and wrens as demonstrated in the activity.

Birds also migrate for better climate that their plumage is more suited for and that will be best for breeding, incubation of eggs and raising of chicks.

Vocab

Migrate: an animal moving from one habitat to another with the change in seasons

Hibernate: spending the winter in a deep sleep or dormant phase to conserve energy.

Adapt: Changing to be better suited to a new environment.

Materials and Set-Up:

This kit includes:

Author:

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Themes:

Migration, Empathy, Adaptations, Phenology

Estimated Duration:

45 minutes

Audience Identified:

K-2nd grade

10-30 students

Location:

Large open space with room to run; field or gym

Goal:

Students will role play as migrating birds to learn about why some animals migrate and how doing so is connected to other species.

Objectives:

Students will be able to define migration.

Students will list reasons why bird species migrate.

Students will identify relationships between species.

- Cones to mark boundaries (4)
- Food tokens
 - 20 white
 - 20 pink
 - 20 red
 - 20 green
 - 20 black
- Birds of the Midwest (4 copies)

You will need:

- Paper and writing utensil for each student
- Internet devices for research (optional)
- Additional birding books, classroom set or library (optional)

Set-Up:

- In a field or a gym, set up boundaries with one end designated as 'south' and the opposite end designated as 'north.'
- If outdoors, walk the area to check for environmental hazards.

Introduction:

Estimated Duration: 10 minutes

Attention Getter

Any established group or classroom attention-getters can be used to regain the attention of the students when giving directions for transitioning activities. If you choose to use an attention-getter personalized to this lesson, introduce the following before introducing the lesson:

- The instructor calls out "Migrate!"
- The students pause in what they are doing and take one step closer to the instructor to cement the idea that to migrate is to move toward something.

If this attention getter is used, a second will also need to be introduced for use when it is impractical for students to move toward the instructor.

Warm Up

Gather students and ask them what their favorite season is and what they like about it. Give students time to share with a partner and then call on a few students to share with the group. Brainstorm as a class what are some things that are different about what they do in different season. Some prompting questions can include:

- Do you have different favorite things to do outside?
- Do you have different foods that you associate with your favorite season?
- What are different things that you wear in different seasons?

After discussing seasonal differences briefly, ask the students what they think different kinds of animals do when the weather changes. Do they have different favorite foods, or change what they wear? Cover the following points;

- Some animals in winter hibernate and sleep through the cold (like frogs)
- Some animals in winter have different adaptations that help them survive the winter (like deer)
- If an animal can't hibernate or adapt, then it will have to migrate and go somewhere else for the winter (like geese)

Content and Methods:

Estimated Duration: 20 minutes

Set Up

- Gather students on one end of the field to explain the rules.
- Each round will take place in day/night cycles. When the instructor calls "day" the students will move. When the instructor calls "night" the students will freeze where they are, as it would be time for them to rest. Start the timing of the day and night cycles to last approximately thirty seconds for the 'day' and fifteen seconds for the 'night,' and adjust as needed for the group. Practice two or three rounds of being active for the day and resting during the night. (*Instructor note:* there are many species of birds that do migrate primarily or partially at night, but for the purpose of this activity, night is used as a resting period.)

First Round:

Student's Role

- For the first round, all of the students will be songbirds. As songbirds, they will need to eat things such as berries, seeds, bugs, etc. These will be represented by the tokens. Each student will need to collect three tokens every 'day' in order to have enough food. If any day they fail to have enough, they are eliminated and should go stand off to the side of the playing area.
 - Optional: divide the students into groups and assign different food types to each group represented by the different colors of food tokens. For example, robins should collect pink tokens representing worms, orioles should collect red tokens representing berries, etc.

Instructor's Role

- The instructor's role, aside from calling day and night, is to scatter the food tokens throughout the game. The scattering should be reactive; watch to see how many food tokens are left at the end of each round and toss out more as needed. There should be enough that most of the students are able to make it to the next round, but few enough that the students have to move around in order to collect and take the full amount of time. The amount scattered can vary as needed.
- The first round represents spring coming, and so the instructor should start by scattering the majority of tokens in the 'south' moving further and further to the 'north' side of the field as the days progress. At the end of the round, the students should all be clustered more towards the south part of the field.
- Briefly discuss as a group why that is; the birds follow their food.

Second Round:

- For the second round, pick a few students to be raptors or birds of prey (approximately one bird of prey for every ten songbirds). The raptors eat songbirds. Each day, they must 'catch' one songbird to eat by tagging them and leading them off to the side of the playing area or they will starve. The previous roles are the same as the first round. The instructor can determine if this round is a second spring or will represent fall moving north to south.
- Ask, after the end of the second round, where are the raptors?
- Break for a discussion. More rounds can be played after if desired.

Conclusion:

Estimated Duration: 5 minutes

Gather round and give students some time to discuss how the game went. Ask them if they have seen birds behaving like they did in the game and share connections to observations in life. Compare and contrast the game to life, asking prompting questions as needed.

Reflection and Evaluation:

Estimated Duration: 10 minutes

Reflection

Have each student choose a migrating bird that could be seen in Lakeville. This could be one that they are already aware of, or one that they choose from the following list;

- Ruby throated hummingbird
- Sandhill crane
- Yellow-rumped warbler
- Canada goose
- Mallard duck
- Sharp-shinned hawk
- American Kestrel
- Bald Eagle

For this bird, they should work to answer the following questions:

- What does migrate mean?
- Where does this bird spend the summer? Where does it spend the winter?
- What does this bird eat?
- What does this bird 'follow' on its migratory path?

These questions can be asked out loud or written on a board. Students can use bird books or online resources to find the answers to the questions to extend the activity.

Websites Resources:

- allaboutbirds.org/guide
- audubon.org/bird-guide
- birdwatchersdigest.com/bwdsite/learn/identification.php

- dnr.state.mn.us/eco/mcbs/bird-map-list.html

Free App Resources:

- audubon.org/app
- birdnet.cornell.edu/ Identifies birds by sound
- ebird.org/about/resources/finding-birds-with-ebird

Evaluation

Evaluation is based off both the answers written and participation in the group discussion. The answers to the reflection questions can be written down on a scrap piece of paper and turned in as an exit ticket for the activity. For younger students it may be more beneficial to answer out loud or even work through some of the examples as a group.

Extensions:

Life Science

Students can learn more about bird migration itself from a Minnesota Science Teachers Education Project (MnSTEP) lesson by Melissa Zeglin found [here](#). The lesson teaches why some birds migrate and how they are able to find their way. It can be adapted for any elementary grade level.

Math

Because of the geographical layout of the area, the fall and spring raptor migration funnels around Lake Superior, concentrating in an area called Hawk Ridge, where a detailed raptor count occurs. For a math enrichment, students can use the numbers recorded on [HawkCount](#) to create graphs or other ways to visualize the timing of migration for different species.

Reference Materials:

Hawk Ridge Bird Observatory (2020). Hawk Ridge. Retrieved from <https://www.hawkridge.org/>

Mayntz, M. (2019, October 02). Exactly Why Do Birds Bother Migrating? Retrieved from <https://www.thespruce.com/why-do-birds-migrate-386453>

Zeglin, M. (2019, August 19). Learning About Bird Migration. Retrieved from <https://serc.carleton.edu/sp/mnstep/activities/26455.html>

