

The Great Migration Challenge



OVERVIEW

While playing the part of birds, participants discover challenges faced by migrating birds.

CONTENT AREA

Science, Social Studies, Environmental Education, Geography

PEOPLE POWER

1 adult and 1 student leader

SPACE REQUIREMENT

Either inside or outside, 1 booth next to an area (about 20' X 40') for setting up the numbered migration cards

TIME

Preparation: 45 minutes
Activity: 15 minutes

MATERIALS

- Copies, Student Planning Guide
- 10 pieces card stock (preferably brightly colored) for copies of the Great Migration Challenge Activity Cards
- 5 dice
- 1 roll of flagging (brightly colored nylon ribbon used to flag trees) or similar material
- Scissors to cut the flagging
- Hole puncher and yarn or string, or 24 wooden stakes
- Cut-out pictures of birds
- 1 copy, The Great Migration Challenge Instructions Page
- Several copies, Migration Activity Results Chart
- Laminating materials (clear shelf paper will work)

TERMS TO KNOW

migration, pesticides, West Nile Virus, wildlife refuge, wildlife rehabilitator

It's time to fly south for the winter, but watch out for the power lines, jets, and bad weather. Will you make it safely to your wintering grounds?

Learning Objectives

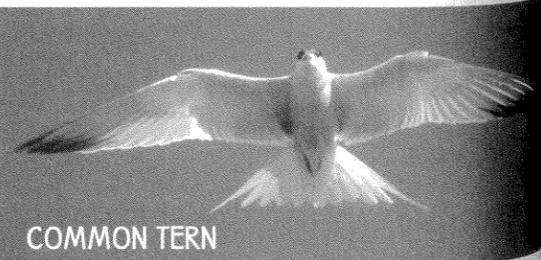
Students and festival participants will define migration and summarize factors affecting migration for many bird species.

Background

Each year in North America nearly 350 different species of birds *emigrate*, or move from one place to another. Migration can best be understood as an annual movement from one area to another and the eventual return to the same area of departure. It is associated with the departure from and return to a particular breeding area. Most migrations result from seasonal changes that lead birds and other animals (such as butterflies, bats, caribou, and whales) to move to areas where the food supply is more abundant, climates are warmer and more favorable for survival, and hours of sunlight are longer.

Some species of birds move only a short distance within their geographical area throughout most of their lives. Other species travel thousands of miles, crossing oceans and, in some cases, continents during their annual migratory journeys. Migrating long distances requires a tremendous amount of energy. Before a major migratory trip, birds accumulate a reserve of fat to fuel their journey. They need food and clean water to nourish them along their way—they also need a clean environment. Alteration or loss of habitats along their migration paths and breeding and wintering grounds pose serious challenges. Many other hazards facing migratory bird populations include collisions with skyscrapers, windows, radio and communication towers, and predators, including cats. Exposures to *pesticides*, such as DDT, and diseases, such as the *West Nile Virus*, have had devastating effects on many bird populations. (For more information on these topics, see these activities: "Bird Action," "Home is Where the Forest Is," and "Bird Olympics.")

As scientists continue to study and learn more about migratory birds—



COMMON TERN

why birds migrate, where they migrate, and the many challenges they face along their journeys—it becomes clear that birds' survival is in great part dependent on *human* actions. Thanks to the hard work of many dedicated individuals, resource agencies, and environmental groups, more people are taking action to ease the plight of migratory birds. Understanding more about migratory birds and their conservation needs is the first step in helping them survive. The actions you take to help them along in their journeys can and will make a difference.

Getting Ready

Procedure 1: Creating the 24 Great Migration Challenge Activity Cards

1. Photocopy and enlarge The Great Migration Challenge Activity Cards onto a heavier paper, such as card stock (preferably colored lightly and brightly). You may want to enlarge the size of each card to at least 8.5" X 5" so that it is easy to read.
2. Cut cards apart into their numbered sections, then laminate or cover them with clear shelf paper.
3. Punch holes into the top corners of the cards. Attach yarn so that cards can be hung from trees or indoor objects, or attach each card to a wooden stake to pound into the ground.

Procedure 2: Creating Bird Pictures

1. Many sources for bird pictures are available: magazines (check out used book stores), brochures and posters distributed by your state department of natural resources, wildlife calendars, student illustrations, and photos. You can download images from websites listed under Web Resources in Appendices B and C.
2. Write the following facts on the backs of the bird pictures:
 - bird name;
 - bird's food, range, habitat, and migration destinations; and
 - other pertinent information you would like students to know.

These bird facts can be found in bird identification books, as listed in Appendix C.

Procedure 3: Preparing Copies

1. Rewrite in large letters or make an enlarged photocopy of The Great Migration Challenge Instructions on a large poster board using thick black or boldly colored markers. The instructions need to be printed large enough to be read easily.
2. Make several copies of the Migration Activity Results Sheet to post at the festival, for participants to record their "migration" results.

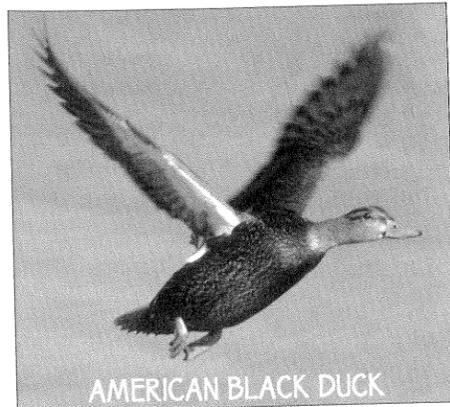
ZOOM IN, ZOOM OUT!



If sufficient space is not available to set-up the course, the game can take place as a board game. You can enlist the students' help in creating the board.

Invite professionals and volunteers involved in studying bird migration to share interesting facts about bird migration, as well as information on careers involving bird conservation. Contact bird specialists through state wildlife departments, local colleges and universities, conservation organizations, and birding organizations.

Migration is an annual movement from one area to another, associated with the departure from and eventual return to a particular breeding area.



AMERICAN BLACK DUCK

As scientists continue to study and learn more about migratory birds, it becomes clear that birds' survival is in great part dependent on human actions.

IN STEP WITH SCIENCE STANDARDS

STANDARD F: SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES

- Populations, resources, and environments
- Natural hazards
- Risks and benefits



Procedure 4: Game Set-up and Instructions

1. Place the 24 numbered cards sequentially along a circuit so that you create 24 stations. If your festival is held indoors, cards can be placed on walls or other appropriate surfaces for hanging. If your festival is held outside, you may attach the cards to wooden stakes and hammer the stakes into the ground. If your festival is held in a wooded area, you may hang the cards from low branches on trees. Arranging cards south to north for spring or north to south for autumn would be "technically accurate," but a loop configuration works nicely for simplicity.
2. Place the dice at Stations #8, #9, #13, and #15. Place flagging at Station #6. One of the dice stays at the beginning of the circuit.
3. Spread bird pictures out on a table (or tarp) at the beginning of the circuit. Students select the bird they want to be, then can travel through the circuit in small groups or individually.
4. Place The Great Migration Challenge Instructions in a visible location.
5. Participants roll the dice to begin their journey. (Note: The game is designed so that any roll of the dice causes the student to 1) eventually arrive at another station with dice so they can roll again, or 2) meet with a fate that doesn't require them to roll again.)
6. Participants record their results at the end of the game. Depending on time, students often want to try playing The Great Migration Challenge again!

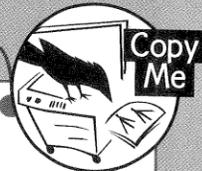
Taking Flight!

1. Review the instructions with participants.
2. Remind participants at the beginning of the activity:
Now, it's important to remember, just like this sign says, migration is a RISKY business! NOT ALL birds survive. Sometimes they encounter favorable conditions, and sometimes hazards!
Note: It's best to warn participants ahead of time—since they might "die" in the game.
3. Send them along their journey and wish them good luck!

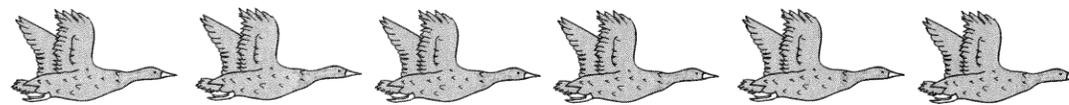
Assessment

Define migration and state at least two factors that affect bird migration.

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The Great Migration Challenge Instructions

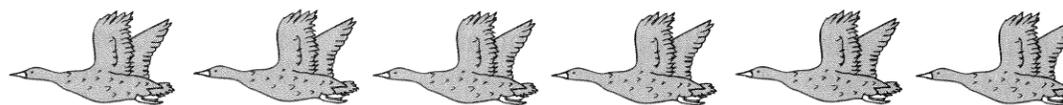


MIGRATION—it's a RISKY business!

Try this activity to explore the hazards and helpers that migratory animals encounter on their long-distance journeys. A series of numbered cards are placed in this area. Begin by choosing the bird you will be on your migratory journey. Then, follow these steps:

1. To start your journey, roll the dice and begin at the station with the number you roll.
2. Follow the instructions on each station's card. When conditions are favorable, the card tells you to move ahead. When you encounter a hazard, you may be delayed or have to go back. Sometimes, you need to roll again.
3. REMEMBER! Not all birds survive migration. Some live, and some die. At the end of the journey, return your bird card and fill out the chart.
4. When everyone in the group has finished, look at how many birds successfully complete their journeys, and how many don't.

GOOD LUCK AND HAPPY FLYING!





The Great Migration Challenge Activity Cards



<p>1</p> <p>Watch out! Power lines ahead. Don't hit them! Crawl ahead 5 feet. Then move ahead to Station 3.</p>	<p>2</p> <p>Good news! Food is plentiful. Many berries, seeds, grains, and insects are available in this overgrown field near a river. Smack your "beak" 10 times and move ahead 6 stations.</p>	<p>3</p> <p>Bad news. You land by a polluted marsh and become sick from the food you eat. Sit down, hold your stomach and count to 30. Groan 10 times. Then move ahead 1 station.</p>
<p>4</p> <p>Watch out for the predator—it wants to eat you! Freeze, count to 40, and then sneak ahead 2 stations.</p>	<p>5</p> <p>You escape capture by a predator, but slightly sprain your wing in the escape. Get it back in shape. Slowly swing your left arm around 10 times. Move ahead 1 station.</p>	<p>6</p> <p>Scientists catch you for research. They put a metal band on your leg and set you free. Tie a piece of flagging around your ankle. Move ahead 3 stations.</p>
<p>7</p> <p>You get tangled in fishing line and can't eat. You are weak from hunger. A wildlife rehabilitator cuts the line and feeds you. Hop on 1 leg in a circle, count to 40, then move ahead 4 stations.</p>	<p>8</p> <p>You land at a school where students created a schoolyard habitat. There is a bird feeder, you eat seeds, fruit, insects, and nectar. Peck or sip 20 times. Roll the die, then move ahead that number.</p>	<p>9</p> <p>It's raining, it's pouring, and you don't want to fly in this rainstorm. Count to 50 while you wait for the storm to stop, roll the die, then move ahead that number of stations.</p>
<p>10</p> <p>You can't find last year's resting spot because a new shopping mall has been built there. Walk around in 3 wide circles searching for rest and food. You are still hungry, and only have strength to move ahead 1 station.</p>	<p>11</p> <p>Whew! While flying near a large city, you almost collide with a jet. Go back 2 stations while you recover.</p>	<p>12</p> <p>You arrive at a large lake, where there is plenty of clean water, food, and shelter. Rub your stomach 15 times and move ahead 5 stations.</p>



The Great Migration Challenge Activity Cards



<p>13</p> <p>You are able to fly a long distance in one day, because of good winds. Roll the die and move ahead that number of stations.</p>	<p>14</p> <p>Bad Storm! No flying today. BRRRR! You are cold and hungry. Shiver for 10 counts, hold your belly, and go back 1 station.</p>	<p>15</p> <p>Strong winds from the wrong direction keep you from migrating. Roll the die and blow back that many stations.</p>
<p>16</p> <p>A pet cat catches you and eats you. The game is over for you. SORRY! You died. Die dramatically...then go back to the beginning and mark the chart.</p>	<p>17</p> <p>You just flew into a tall glass building in town. Sit down, hold your head, count to 35, and move ahead 2 stations.</p>	<p>18</p> <p>You have just been shot with a BB gun. The game is over for you. SORRY! Go back to the beginning and mark the chart.</p>
<p>19</p> <p>Good news!!! A good wind helps you fly. Move ahead 5 stations.</p>	<p>20</p> <p>After flying for several days, you land in a wildlife refuge. Spend time resting and eating from the abundance of food. Gulp 10 times, take a rest, then move ahead 4 stations.</p>	<p>21</p> <p>OOPS! An unexpected freeze causes food to become scarce. Go back 2 stations as you try to find more food.</p>
<p>22</p> <p>Bad luck! You have just joined a large flock of birds that has been exposed to disease. You get sick and die. SORRY! Die dramatically...then go back to the beginning and mark the chart.</p>	<p>23</p> <p>Uh-oh! You lost an important stopover spot when the wetlands were recently drained for a new building. Go back 1 station.</p>	<p>24</p> <p>Spend 5 days resting and feed in another wildlife refuge. Count to 40. Because you are so strong, you can fly to the finish!</p>

