

Nests Are Neat

Subjects: Math and Science

Objective:

Math: Students will use and understand numbers (Area of a circle).

Science: 1. Students will investigate the diversity of animals.

2. Students simulate animal behavior.

Materials:

- Materials for nest making (students collect)
- Nests are Neat Worksheet
- Tape measure

Procedure:

1. Discuss what your students know about nests. Where are nests sometimes located? What materials do birds use to make nests? How are nests built?
2. Share pictures of nests. Remind the students that nests vary as much as the birds that make them. Some birds nest high in trees; some nest on the ground. Some birds plaster their nests to the sides of buildings or on rocky cliffs. Not all birds use the same things to build their nests either. Sticks, mud, grasses, spider webs, twine, twigs, leaves, foil and scraps of cloth are a few things birds might use building their nests. Doves usually use pine needles, twigs and grass stems.
3. Tell students they are going to build a dove nest. First, they will need to collect their materials. (Remind students not to pick flowers or pull up living plants.) To simulate a bird's beak, they may use only their thumb and index finger to pick up materials. They should use their fist to form a cup shape in the nest. Ask them to think about how a dove might form the nest into the cup shape. Many species will sit in the center of the nest and turn in circular motions, pushing and shaping the material.
4. Students should share their nests with one another when finished.
5. For the second part of this activity, students will be talking about nest sizes and figuring the area. Talk again about the shape of nests, most are round. The sizes vary from an eagle's nest (9 feet in diameter) to a hummingbird's nest (3 inches in diameter).
6. Measure a nine foot line on the floor. Have the students stand in a circle around this line. Tell them this is the size of an eagle's nest. When finished, tell them they are going to learn how to figure the area of a circle. Before they sit down, you might want to explain that area is the amount of room inside the circle.
7. Pass out the Nests are Neat Worksheet. Practice the formula with your students. When they are comfortable with the formula, have them figure the area for the following birds' nests.

Answers:

Great Blue Heron $A = 5.9 \text{ feet}^2$

Eagle $A = 63.6 \text{ feet}^2$

Hummingbird $A = 7.1 \text{ inches}^2$

Mourning Dove $A = 50.24 \text{ inches}^2$

8. Don't stop with the worksheet! Have the students do some research to find out nest sizes of other bird species.



Nests are Neat!

Figuring the area of circles is as easy as pi.

There are many things in our world that are circular in shape. Look around you, do you see any? Go to one of the objects and measure the distance around the circle. This is called the **circumference**. Next, measure the distance from one side of the circle to the other. This is called the **diameter**. Divide the circumference by the diameter. If you did your calculations carefully, you should have come up with a number very close to 3.14. This number is called **pi**.

For about twenty five hundred years, mathematicians have known this little "magic" trick. They have also used pi, which symbol looks like this π , to figure the area of a circle. **Area** is the amount of space inside the circle. It is measured in square units. Think of it like this, if you cut out a whole bunch of little squares, how many little squares could fit inside the circle?

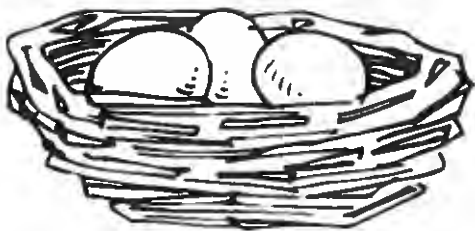
The formula to find the area of a circle looks like this: **Area = 3.14 X r²**

Figure the area of the following nests. Here's how:

1. You're given the diameter (d), which is the length across the center of the nest. To use the formula you first need to get the radius (r), which is half the diameter.
2. Divide the diameter (d) by 2. This equals the radius (r).
3. Once you have the radius. Multiply it by itself. You've figured radius squared!
4. Lastly, multiply that number by π (3.14). Remember to write that little 2 above the unit of measure on your answer!

Great Blue Heron	d = 2.75 feet
Eagle	d = 9 feet
Hummingbird	d = 3 inches
Mourning Dove	d = 8 inches

Area of a great blue heron's nest = _____
Area of an eagle's nest = _____
Area of a hummingbird's nest = _____
Area of a mourning dove's nest = _____



Congratulations!
You're a circle master!!!

Bird Behavior Scavenger Hunt



OVERVIEW

Following this bird-based version of a scavenger hunt, students observe various behaviors of birds.

CONTENT AREA

Science, Language Arts,
Environmental Education

PEOPLE POWER

Any group size

SPACE REQUIREMENT

Outdoors

ACTIVITY TIME

One class period (can be extended), plus preparation

MATERIALS

- Observing Birds in the Wild worksheet, 1 copy per student, pair, or group
- Field guides
- Notebook
- Pencil
- Optional: Binoculars
- Optional: Tips for Successful Field Experiences (*see page 318*)

SPECIAL GUESTS

Contact a local member of the Audubon society, or the owner of a bird watching supply store to discuss methods and tips for observing birds. Have them specify reasons for specific behaviors.

TERMS TO KNOW

Behavior, flocking,
roosting

Look at what that bird's doing!

Learning Objectives

Students will learn to identify different behavior patterns of birds and explain their function.

Background

Observing birds in the wild is fun but does take some patience and skill. The observer must be able to locate the bird, watch what it is doing, and try to identify it—all within a few moments. This activity concentrates on looking for different behaviors exhibited by songbirds.

Songbirds may be perching on a branch, singing to attract mates, feeding their young, searching for food on the ground, preening their feathers, or performing any number of other *behaviors*. A bird's behavior may result from a particular adaptation that helps the bird survive. For example, *flocking* is a behavioral adaptation that helps birds in several ways. It can protect a bird from a predator by creating safety in numbers—most flocks can more easily drive away a predator as a group than as individuals. Also, birds located at the center of the flock are especially safe, as the surrounding birds act as a protective barrier. Also, by having more birds available to warn against predators, the majority of birds are able to spend more time feeding and less time “watching out.”

Bird behaviors are as plentiful and varied as the physical adaptations found among the many different types of birds. A behavior may be specific to one species or found in many species. For example, a White-breasted Nuthatch can walk down a tree head-first—an unusual behavior for almost any type of bird. On the other hand, many bird species have developed the successful behavior of *roosting* communally, which involves banding together for shelter and protection from predators, primarily during sleep. Roosting enables group members to stay warm at night, which also helps conserve food



SECRETARY BIRD

resources. In addition, some members of the flock remain alert at all times, which provides further protection against predators. Also, the roosting flock shares information about available food resources when leaving the roost each day.

Knowing the behavior patterns of birds and of different species of birds is fundamental to our understanding of songbirds and can help in their conservation. Before going out to observe birds in an area, think about where birds may be found and what time birds are most active. Songbirds tend to be very active in the morning and evening.

Getting Ready

1. In this exercise, students are looking for birds exhibiting different types of behavior, like flying, feeding, or singing. Review the Tips for Successful Field Experiences (on page 318).
2. Choose an area where you can take students out to conduct the search.

Taking Flight!

1. Take students to the site where they'll conduct their search. Students can work individually, in pairs, or in groups.
2. After spotting a behavior, students can place a check in the space provided on the worksheet. They should try to identify the species if possible.
3. Return to the classroom and summarize the information. Have students discuss why a particular behavior may be a benefit or detriment to a bird. Consider the following questions: Were any behaviors not observed? Why? Did any single species seem to be exhibiting a particularly distinctive behavior? Why?

Assessment

Ask students to discuss the following questions:

1. In pairs, act out the behavior of the bird you observed and have the class guess what you are doing and why. Explain to the class how these behaviors may benefit songbirds.
2. A bird's behavior can sometimes help in identifying the bird. List one behavior you observed that helped identify the bird and explain why.

Adapted with permission from *Illinois Birds*, Illinois Department of Natural Resources Educational Services; and from *Pennsylvania Songbirds: A K-12 Teacher's Guide for Activities in the Classroom*, copyright 1998 by Audubon Pennsylvania; Pennsylvania Game Commission; and DCNR State Parks.

ZOOM IN, ZOOM OUT!



- Do this activity during different seasons and compare the findings.
- Have students choose a species of bird and record its behavior patterns at different times of day over a time period of one or more weeks.
- Conduct this activity in more than one place, such as different habitats or parts of the schoolyard, at the same time. Compare results.
- Have students write a poem or a story about what they observed.

*Observing birds
is fun, but takes
some patience
and skill.*

IN STEP WITH SCIENCE STANDARDS

STANDARD A: SCIENCE AS INQUIRY

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

STANDARD C: LIFE SCIENCE

- Regulation and behavior
- Populations and ecosystems





Observing Birds in the Wild Worksheet

Look for the behaviors listed below. Check those you find, then list the bird's specific location and habitat. If you can, identify the species. If not, list some identifying features.

CHECK	BEHAVIOR ITEMS	SPECIFIC LOCATION AND HABITAT	IDENTIFICATION
<input type="checkbox"/>	Singing or calling (Mostly males.)		
<input type="checkbox"/>	Preening (Sometimes looks as if it is nibbling, tugging, or combing its feathers with its beak.)		
<input type="checkbox"/>	Bathing in water		
<input type="checkbox"/>	Taking a dust bath		
<input type="checkbox"/>	Soaring		
<input type="checkbox"/>	Flying (Its wings are beating.)		
<input type="checkbox"/>	Perched on a limb or branch		
<input type="checkbox"/>	Hovering in mid-air (wings beating rapidly.)		
<input type="checkbox"/>	Swimming		
<input type="checkbox"/>	Walking or hopping on the ground		
<input type="checkbox"/>	Diving or tipping up its rump in the water		
<input type="checkbox"/>	Standing on the ground		
<input type="checkbox"/>	Wading in water		
<input type="checkbox"/>	Feeding		
<input type="checkbox"/>	Flying with a worm or insect in its mouth		
<input type="checkbox"/>	Flying with or gathering twigs, grasses, leaves, string, etc.		
<input type="checkbox"/>	Perched on the edge of its nest		
<input type="checkbox"/>	Climbing a trunk or branch		
<input type="checkbox"/>	Hanging upside down from a branch		
<input type="checkbox"/>	Chiseling into the side of a tree or branch		
<input type="checkbox"/>	Perching on a wire, fence post, tree snag, over an open area		
<input type="checkbox"/>	A group of birds perching together on a phone/electrical wire		
<input type="checkbox"/>	A flock of small birds chasing a large bird		
<input type="checkbox"/>	A group of birds flocking together		
<input type="checkbox"/>	Other (List behavior)		

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.



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>

Jeop-Birdy



OVERVIEW

In this trivia contest, students and other festival participants learn interesting bird facts while testing their knowledge about bird biology, adaptations, migration, and conservation.

CONTENT AREA

Science, Social Studies,
Geography, Environmental
Education

PEOPLE POWER

At least one adult and two student leaders at the booth

SPACE REQUIREMENT

One booth

ACTIVITY TIME

Approximately 15 minutes,
depending on group size

MATERIALS

- Copies of Jeop-Birdy Round Questions and Jeop-Birdy Round Answers
- Pad of paper, pencils or pens
- A scoreboard
- “buzzers” (for example, tin cans and sticks or bells)
- Masking tape or Velcro
- A timer (for example, a kitchen timer or stop watch)
- Prizes for the winners, such as bird stickers, bird posters, or book marks (See “Festival Freebies” on page 44)

TERMS TO KNOW

extinction, habitat,
migration

Test your Bird IQ! Can you answer a \$1,000 question?

Learning Objectives

Students and festival participants will state interesting facts and basic concepts about birds, and define associated key terms.

Background

The following activities offer applicable background information to this activity: Bird Bingo, Bird Action, and Home Is Where the Forest Is.

Getting Ready

1. You can make “answer” and “question” cards from the Jeop-Birdy Round pages that follow. If you want, you can make a display or poster containing the Single and Double Jeop-Birdy Round answers so that they are covered up until it is time to reveal them. For example, create flaps that you can lift or remove, either by attaching them with masking tape or Velcro. Make sure that you can reuse the cards or posters for the next game.
2. For each game, designate one person as the moderator, one as the scorekeeper, and one as the timekeeper. If there are several leaders for this activity, they can take turns serving in these positions. Depending on the number of participants, Jeop-Birdy can be played by individuals or by teams. (More than one game can be played at a time if you have duplicate sets of the materials and enough leaders.)

Taking Flight

1. Give each moderator a copy of the Jeop-Birdy Rules, the Final Jeop-Birdy Round information, and the two sets of Jeop-Birdy Round Answers and Questions. Give each timekeeper a timer.
2. Decide how long each Round should last, depending on the number of players and available time. Allow about 5 to 10 minutes per Round.

Assessment

The Jeop-Birdy activity itself can be used as an assessment tool. Make note of which questions are missed or unanswered most. Also, challenge participants to create a few of their own questions, possibly creating a certain category, such as “Our State Bird” or “Nearby Birds.” (See page 319 for *Official Bird Symbols of North American Countries*.)

Jeop-Birdy Game Rules

1. A total of 10 categories includes 5 for Single Jeop-Birdy and 5 for Double Jeop-Birdy. Each question in a category has a point value (for example, 100, 200, 300, 400, or 500).
2. The moderator posts the categories and point values on the board where all players can see them. As each point value is played, it is uncovered (or crossed out).
3. Each Jeop-Birdy Round lasts for a set amount of time (for example, 5 minutes). At the beginning of each new Round, the timekeeper sets the timer immediately after reading the "answer." The timekeeper gives a one-minute warning, then tells players when time is up for each Round.
4. The first player picks a category and value, such as "Bird Songs for 600 points."
5. The moderator reads the answer (in this case, "Four and twenty of these were baked in a pie").
6. Individuals or teams "buzz in" if they think they know the question (in this case, they may simply raise their hand). The first player to "buzz in" gets the first chance to respond.
7. Players must respond in the form of a question (For example: "What are blackbirds?") Responses not given in question form are considered incorrect.
8. If a player responds correctly, that player or team gets the points. If incorrectly, other players (or teams) have the opportunity to buzz in and respond. For older players, who may be overly bold in their efforts to "guess," consider subtracting those points from their score if they have an incorrect response.) The scorekeeper keeps track of players' scores on the scoreboard.
9. The player who gives the correct response picks the next category and point value.
10. Play continues for each round until all questions have been answered, or until the timekeeper says the time is up for that round. After the first two rounds are completed, move on to the Final Jeop-Birdy Round.
11. For the Final Jeop-Birdy Round, players wager points before seeing the "answer." They cannot wager more than the total amount of points they've earned by the end of the first two rounds. Players can write their wager on slips of paper and hand it to the moderator before the answer is posed.
12. After wagers have been placed, the moderator reads the final "answer" and players write their questions on a slip of paper.
13. When each player (or team) presents its question, correct responses allow the wagered points to be added to their total score. For older players, incorrect responses cause their wagered points to be subtracted from their total score.
14. The player or team with the most points wins!

ZOOM IN, ZOOM OUT!



- As a class activity, students can come up with an extra round of questions. Students interested in high-tech media can create a Power Point version of the game.
- To add excitement, use a three-panel display board trimmed in blinking Christmas lights, with the answer cards contained in library-book pockets that are glued onto the display.
- In the State Category, any state may be used. Volunteers can help student leaders adjust these questions to fit their own state (and other states not listed here).
- A bird biologist or naturalist can provide interesting facts about local birds to enrich this activity and clarify questions that may come up as Jeop-Birdy is played. Contact state wildlife departments, local colleges and universities, and nonprofit conservation and birding organizations.

IN STEP WITH SCIENCE STANDARDS

- The standards addressed in this activity depend on the questions asked.

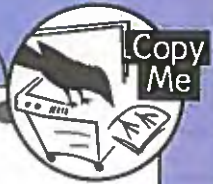


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Jeop-Birdy Round "ANSWERS"

	Bye-Bye Birdie	Bird Brained	Save the Birds	Bird Words	Potpourri
\$100	This word is what birds become when there aren't any more of them left.	The smallest bird in the world is one of these.	If you are out hiking and come upon a bird's nest, this is something you shouldn't do.	This is another word for the mouth of a bird.	Bird watchers use these to bring birds into closer view.
\$200	Only 100 years ago, thousands of these birds could be seen in the skies. Over-hunting quickly drove them to extinction.	The largest egg in the world comes from this bird.	Birds often fly into these "invisible" structures, found everywhere from skyscrapers to your house.	The claws of a bird of prey are called this.	The seasonal movement of birds from one place to another is called this.
\$300	Because it had never seen humans and therefore had no fear of them, this large flightless pigeon is now extinct.	One of the fastest birds in the world is this one.	Use of these chemicals has led to declines in the populations of many bird species.	When birds lose old feathers and grow new ones it is called this.	These books are often used to help identify birds.
\$400	This is one of the major causes of extinction in the world.	This part of a bird is made up of the same material as our fingernails and hair.	These domestic predators kill hundreds of millions of birds each year.	The name of this type of nest, made by woodpeckers, is also what a hole in your tooth is called.	In order to avoid competition, this is the reason birds migrate.
\$500	This bird, the U.S. symbol, was almost driven to extinction by the use of a pesticide called DDT.	Associated with the quote "Nevermore," these black birds may be among the most intelligent.	This Act is designed to help species of wildlife whose populations are in trouble.	This is another word for the feathers of a bird.	This is made up of food, water, shelter, and space.



Jeop-Birdy Round "QUESTIONS"

	Bye-Bye Birdie	Bird Brained	Save the Birds	Bird Words	Potpourri
\$100	What is extinct?	What is a hummingbird?	What are collecting, touching, or disturbing birds or their nests?	What is the bill or beak?	What are binoculars?
\$200	What is the Passenger Pigeon?	What is an Ostrich?	What are windows?	What are talons?	What is migration?
\$300	What is the Dodo?	What is a Peregrine Falcon?	What are pesticides?	What is molting?	What are field guides?
\$400	What is habitat loss?	What are beak and feathers?	What are cats?	What is a cavity?	What is to find food?
\$500	What is the Bald Eagle?	What are Ravens?	What is the Endangered Species Act?	What is plumage?	What is habitat?



Double Jeop-Birdy Round "ANSWERS"

	Where in the World	Bird Songs	Bird Symbols	State Birds	Amazing Adaptations
\$200	This pole is home to penguins, not polar bears.	Nicknamed "Rockin'" in a popular song, this bird's own song is considered mellow.	U.S. Symbol.	Illinois.	This special feature of birds is shared with no other living animal.
\$400	This continent is home to the Ostrich, the largest bird in the world.	Seen singing on TV by millions of children, this large yellow bird is of an undetermined species.	Canadian baseball team.	Colorado.	Baby birds develop in these.
\$600	The largest species of this nectar-sipping bird is found in the Andes.	Four and twenty of these were baked in a pie.	Not a real bird of prey, but Seattle's football team.	New Jersey.	Birds do this to find food, escape from predators, and travel from one place to another.
\$800	This is where most of Colorado's migratory birds fly for the winter.	If this bird does not sing, Papa's gonna buy you a diamond ring.	Symbol for peace.	Pennsylvania.	This is why some male birds are brightly colored.
\$1000	This country is home to kiwi fruit and Kiwi birds.	This bird is always "paired" with a tree in a popular Christmas song.	This bird is pictured on Mexico's flag.	Louisiana.	Vultures rely on this sense, but for most birds is not well developed.



Double Jeop-Birdy Round "QUESTIONS"

	Where in the World	Bird Songs	Bird Symbols	State Birds	Amazing Adaptations
\$200	What is the South Pole (also known as Antarctica)?	What is the American Robin?	What is a Bald Eagle?	What is the Northern Cardinal?	What are feathers?
\$400	What is Africa?	Who is Big Bird?	What are the Bluejays?	What is the Lark Bunting?	What are eggs?
\$600	What is a Hummingbird (Giant Hummingbird)?	What are Blackbirds?	What are the Seahawks?	What is the American Goldfinch?	What is flying?
\$800	What is western Mexico?	What is a Mockingbird?	What is a Dove?	What is the Ruffed Grouse?	What is attracting females?
\$1000	What is New Zealand?	What is a Partridge?	What is the Crested Caracara?	What is the Brown Pelican?	What is smell?

Final Round

Moderator gives the final "answer": The creature that many consider to be the ancient ancestor to modern birds.

Players guess the question: What is archaeopteryx?