An Introduction to Bird Behavior

Objectives

Students will:

- improve their understanding of behavior of birds.
- learn about observing and recording in the scientific process.
- create a scientific report of their findings.

Author

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Time

40 – 50 minutes

Grade Level

5-12

Standards

AZ Science Strands
Inquiry; Life Science

NGSS - Core Ideas
Structure and Function

Practices
Investigations; Data; Questions; Using mathematics; Obtaining, evaluating and communicating information

Crosscutting Concepts
Patterns; Quantity; Structure and function; Stability and Change

Specific AZ, Common Core, and NGSS standards on page 2.

Background:
It's no wonder that humans have a passion for birding; they can find themselves looking for over 10,000 bird species all around the world. Bird watching is a fascinating hobby. However, it requires a little bit of patience and time. Once you begin to notice the way birds behave, you'll find yourself amazed at how, and why, they do what they do. Studying bird behavior can help you find out more about the way birds relate to one another and live within their environment.

A scientist who studies animal behavior is an ethologist. Ethologists create ethograms which is a list of behaviors with a description or definition of each one. Ethologists form hypotheses about the causes and rates of a particular behavior. Behaviors can be divided into two groups: **states** are ongoing behaviors that can be timed, and **events** are behaviors that happen so fast that they would be hard to time. Ethologists count the number of times an event occurs. For example, reading a book is a state and we could time how long someone spends reading a book; sneezing is an event, and we could count how many times a person sneezes.

This activity will introduce students to a variety of common bird behaviors. Here are some behaviors that your students might observe:

Flying: the act of staying aloft in the air

Flocking: birds grouping together for protection

Feeding/Drinking: eating or drinking from the ground or their stored food

Foraging: the act of looking through ground debris for food

Preening/Bathing: the act of cleaning oneself or another

Singing: communication that is species specific

Giving an alarm call: an abrupt form of communication to warn others

Walking/Hopping: movement along the ground

Territorial: the act of protecting a tree branch or area on the ground

Vocabulary (see above)

Advanced Preparation: None

Materials:
- Bird behavior checklist
- Binoculars (if available)

Recommended Procedure:
Engagement:

1) Lead a discussion about bird behaviors. What have they seen birds doing? Write these on the board and introduce the correct terminology for the described behavior.

2) Introduce students to the term "ethologists" and animal behavior studies. Can they think of examples of people studying animal behavior (a common example are ani-

mal trainers like the "dog whisperer" who use behaviors to help train animals).

Exploration:

3) Distribute Bird Behavior Checklist and model how the students should fill it out. You may want to explain the importance of the time of day and weather conditions.

4) When scientists record data from field studies, they are careful to include all relevant information, including the time of day, weather, and area of study. This makes the information valid and allows other scientists to conduct the same exact observations, further increasing the validity of the study.

5) The students will go outside to a spot of their choice (be sure they know to stay on the school grounds). They will then sit for five minutes in the same spot and record all of the bird behavior that they witness.

6) You can also choose to have your students spend some time walking, quietly through the school grounds and making bird observations for a specified amount of time.

Explanation & Expansion:

7) Regroup the class and have a brief discussion about what they saw. Can they place their observed behavior into "states" and "events"? (See Background Material)

8) Ask them to come up with an individual scientific question that they wish to determine about the bird behaviors that they witnessed.

9) Have students find a new spot and watch bird behavior for 5 minutes. The students will try to create an ethogram for the bird behavior they observe recording the amount of time a bird is in a "state" and counting the number of "events".

Evaluation:

10) Student will turn in their, bird observation data sheet, ethogram and question about bird behavior.

Extensions:

- Students conduct their own investigations of bird behavior at bird feeders using the bird behavior protocol at http://ecoplexity.org

Readings

Have students read the article "The Good Life of Birds by James Hathaway in the ASU Chain Reaction Magazine volume 4 (http://chainreactionkids.org/files/issues/4/chreact4_p16_17.pdf) Ask students to discuss the article in small groups and summarize the results. What did the researchers discover? Which variables did they control in their study? How? What hypotheses did the researchers propose to explain their results? Ask students to generate their own hypotheses that could explain how people's lifestyles might affect bird distribution in this way. How would they design a new study to test their best hypothesis?

Standards

Arizona Science Standards

S1-C2-GR5-8-PO1
S1-C2-GR6-PO3
S1-C2-GR6-8-PO4
S1-C2-GR6-8-PO5
S1-C2-GRHS-PO1
S1-C2-GRHS-PO3
S1-C2-GRHS-PO5
S4-C4-GR8-PO1

NGSS Core Ideas

NGSS Core Ideas

LS1.A: Structure and function

NGSS Practices

Asking questions
Planning and carrying out investigations
Analyzing and interpreting data
Using mathematics and computational thinking
Obtaining, evaluating, and communicating information

NGSS Crosscutting Concepts

Patterns
Scale, proportion and quantity
Structure and function
Stability and Change

AZCCRS/ELA Literacy

RST7: Integration of knowledge and Ideas
WTS7: Research/investigate to answer a focused question
SL1: Comprehension and Collaboration

AZCCRS/Mathematics

Domains:
Number and Quantity
Measurement and Data
Statistics and Probability
Math Practices:
4. Model with mathematics.
5. Use appropriate mathematic tools strategically.

Student Worksheet
Bird Behavior Checklist

Name _____

Date: _____ Time: _____

Weather: _____

Bird Behavior	Observations (Where did you observe this behavior? How many birds were involved in it? Did you see it in more than one area?)
Flying	
Flocking	
Bathing/ Preening	
Walking/ Branch Hopping	
Foraging	
Singing/Alarm Calls	
Feeding/Drinking	
Territorial Behaviors	
Other Behaviors	