

What Happened to Robin? Unit Plan

Unit Overview

Unit Title

What Happened to Robin?

Unit Summary

Using actual wildlife injury data from a local wildlife rescue center, students learn what animal species have been injured and the causes of injury. Students use spreadsheet software to sort, organize, and evaluate their findings for recommendations to reduce human-caused injury to wildlife. Students prepare and present a summary of their findings and recommendations to the local Audubon Society, The Humane Society, neighborhood associations, and other interested groups. At the end of each public presentation, students gather public reaction to the data and collect ideas on how to reduce injury to wildlife. These recommendations are compiled into a newsletter and wiki for dissemination to a wider audience.

Subject Area

Biology, Data Analysis

Grade Level

6–8

Higher-Order Thinking Skills

Analysis, Evaluation, Investigation

Approximate Time Needed

3 weeks (may be spread out over a longer period of time)

Unit Foundation

Targeted Content Standards and Benchmarks

Targeted Oregon Content Standards and Benchmarks

Science

- Ask questions and form hypotheses that are based on observations and scientific concepts, and that can be explored through scientific investigations
- Collect sufficient data to investigate a question, clarify information, and support an analysis
- Explain results and offer reasonable and accurate interpretations and implications
- Identify and explain factors that influence or change the balance of populations in their environment
- Describe and explain the effect of species, including humans, on an ecosystem

Math

- Collect, organize, and interpret data
- Create, interpret, and analyze charts, tables, and graphs to display data, draw conclusions, and solve problems
- Evaluate and express statistical significance

Communication

- Communicate ideas using oral, visual, written, and multimedia forms in ways appropriate to topic, context, audience, and purpose

Student Objectives/Learning Outcomes

Students will be able to:

- Evaluate the factors related to wildlife injury in an urban area
- Collect public input and make recommendations for community action
- Use spreadsheets to collect, sort, and display data
- Create and deliver effective multimedia-enhanced speaking presentations
- Create newsletters or wikis that summarize findings and recommend community action

Curriculum-Framing Questions

Essential Question

How can I help protect urban wildlife?

Unit Questions

- How can we reduce the impact of modern society on urban wildlife?
- How can statistics help us understand a problem?
- What are some problems for wild animals that live in urban areas?

Content Questions

- What birds live in our community?
- What are the greatest risks to these birds?

Student Assessment Plan

Assessment Summary

Use questioning including the tapping prior knowledge questions to gauge student needs before project work begins, and provide instruction as necessary. Students use a presentation checklist and newsletter checklist to help guide their learning, stay on track, and self-assess their progress. Quality of journal entries and research help both teacher and students to monitor progress and understanding of content. Questioning is used throughout the unit to help students develop their higher-order thinking skills and process content. Individual conferences are used to help monitor progress and answer any questions. Ask students to use the presentation rubric and peer feedback form to help them self- and peer-assess work prior to completion. Use the same presentation rubric to assess and grade the final project.

Assessment Timeline

Before project work begins

- Questioning

Students work on projects and complete tasks

- Journals
- Tapping Prior Knowledge Questions

- Presentation Checklist
- Presentation Rubric
- Newsletter Checklist

- Peer Feedback Form
- Conferences

After project work is completed

- Questioning

- Presentation Rubric
- Journals

Unit Details

Prerequisite Skills

- Experience reading graphs and working with percentages
- Knowledge of bird anatomy
- Basic computer skills

Instructional Procedures

Preparation

Contact a local [Audubon Society](#)* center to arrange a field trip to the center and to inquire about working together to develop a service project for the center. In the sample project, students sorted, organized, and analyzed five years worth of data on bird injury. This was a much needed service that the staff at the Wildlife Care Center did not have time to do.

Have students prepare science journals to take notes, make observations, and reflect on questions and discussions throughout the unit.

Introduction to Birds

1. Introduce the topic of birds to students by asking them to list the names of birds that are familiar to them. Provide time to learn about the birds in your area. This can be done over a period of time as students study local birds and learn how to identify them. Purchase local field guides to help with identification (available at local centers of the [National Audubon Society](#)*).
2. Plan a birding outing to foster students' interest in birds and to develop their birding skills. Help students learn how to identify birds. Identification tips are available at [birding.com](#)*. The Web site also has tips for planning a bird watching outing.
3. On the birding outing and over the course of the project, have students keep track of the birds that they identify. Bird checklists for the United States are available from the Audubon Society or online at the [Northern Prairie Wildlife Research Center](#)*. After the designated time, have students graph their own data and compare with a partner. As an option, compile the class data. Discuss findings.

Urban Wildlife Issues

1. Ask students what they think are some urban wildlife issues. Ask the Unit Questions, *What are some problems for wild animals that live in urban areas?* and *How can we reduce the impact of modern society on urban wildlife?* Record responses on chart paper that has the tapping prior knowledge questions and hold a class discussion.
2. Choose a local wildlife research project as a case study. For example, students in Portland, Oregon read about Portland's effort to make a home for its growing [peregrine falcon](#)*

population. This can be done in small groups, with each small group becoming an “expert team” on one case and sharing their knowledge with the other groups.

3. Next, pose the Essential Question, *How can I help protect urban wildlife?* and have students reflect individually in their journals. Allow students to share their thoughts in pairs. Ask for volunteers to share with the whole class.

Wildlife Injury

1. Discuss predator and prey relationships. Have students make predictions about what causes injuries to birds. Again, instruct students to become keen observers by noticing if/when birds become injured and how it happens. Have students keep a record in their journals.
2. Plan a visit to a Wildlife Care Center. Check with your local [Audubon Society](#)* to locate a Wildlife Care Center in your area if available.
3. Present an overview of the project to the class with a descriptive brochure.
4. A field trip to a wildlife center should include a tour of the center to learn about its operations, explanations and discussion about wildlife injury, and hopefully, a visit with the birds there. The staff should explain the project that the students will be assisting them with and stress the importance of the students’ work. Provide students with a [handout](#) to take to the center to collect information during their visit. Collect injury records from the center to bring back to school. Upon returning to school, have students reflect on their experience, what made an impact on them, what they learned, and any new questions they have by recording their thoughts in their science journals.
5. Begin the next day by sharing journal entries and discussing any questions that arose from the field trip experience.

Data Analysis

1. Students are now prepared to investigate the Unit Question, *How can statistics help us understand a problem?* To begin, provide students with a copy of the wildlife injury spreadsheet directions. Use this document to help students learn how to use spreadsheet software to enter data and create graphs, charts, and tables if they have not used spreadsheet software before.
2. After the data is entered, students can make graphs, charts, and tables to show an analysis of the results. Encourage students to focus on creating meaningful visual representations of the data that can be used to interpret the data and to educate others about injury to wildlife rather than become too focused on the appearance of the graphs, charts, and tables. Meet with students individually to answer questions and monitor progress.
3. With results in hand, students are ready to prepare slideshow presentations that share their results and educate others about causes and prevention of wildlife injury. Hand out the presentation checklist and presentation rubric, review expectations, and answer any questions. The presentations can be done in small groups with each student preparing a few slides. Each student should use the presentation checklist to guide their progress and record feedback they receive from their peers after they practice their presentations.

Community Action

1. As a class, select audiences for small groups to present the data, educate others about injury to wildlife, and discuss ways to prevent injuries. This might include other students, The Humane Society, neighborhood associations, and other interested groups.
2. Instruct students to develop and practice speeches for presentation to the center and to other audiences. Have students use the peer feedback form to assess their presentations, make modifications, and prepare properly. Each presenter should acquire feedback from at least one peer on the slides they present and on the presentation as a whole.
3. Have students create a newsletter. Review the newsletter checklist with students and ask them to use it to help guide their work. Students can come up with article ideas related to their

project work. Articles can be combined into a single newsletter, which can be handed out at public meetings and left at reception areas of local veterinary offices.

4. After presenting the data to different groups, students should get public reaction to the data and ask for input on how to reduce wildlife injuries. Explain that students should then relate findings to their hypotheses and write a report informing the Wildlife Care Center about the major causes of injuries to urban wildlife as well as the public's reaction and suggestions.
5. Finally, have students educate a broader audience by creating a [wiki](#) with recommendations for community action. They can also write press releases for the local newspaper.

Revisit the Essential Question

To complete the unit, have students reflect on the Essential Question, *How can I help protect urban wildlife?* again in their journals. Encourage students to look back at their initial responses and reflect on the direction the unit took them. Have them consider how the information and experiences they had have affected their initial thinking. Encourage discussion among class members to elaborate, share, and expand on their thinking.

Accommodations for Differentiated Instruction

Special Needs Student	<ul style="list-style-type: none"> Provide an alternate activity, such as: Have the student develop a small book of bird case studies in which the student studies five species, provides drawings or photos from the Web or a digital camera, and lists information about biology and habitat. Have the student evaluate and describe the status of the birds locally using the data provided by the Audubon Wildlife Care Center.
Nonnative Speaker	<ul style="list-style-type: none"> Have the student study science vocabulary and practice oral presentations with an ELL assistant during supplemental instruction outside of class Pair the student with another student during project work when the language load indicates this, and have the student complete visual parts of the project independently (such as spreadsheets, graphs, and illustrations) Shorten oral speaking activities or allow extra practice time Have the student prepare materials in the student's first language to educate others about wildlife injury
Gifted/Talented Student	Require the student to write a scientific article on the results to be published in a scientific journal, coauthored with the director of the Wildlife Care Center

Materials and Resources Required For Unit

Technology – Hardware (Click boxes of all equipment needed)

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|---|---|--|
| <input type="checkbox"/> Camera | <input type="checkbox"/> Laser Disk | <input type="checkbox"/> VCR |
| <input checked="" type="checkbox"/> Computer(s) | <input checked="" type="checkbox"/> Printer | <input type="checkbox"/> Video Camera |
| <input type="checkbox"/> Digital Camera | <input checked="" type="checkbox"/> Projection System | <input type="checkbox"/> Video Conferencing Equip. |
| <input type="checkbox"/> DVD Player | <input type="checkbox"/> Scanner | <input type="checkbox"/> Other |
| <input checked="" type="checkbox"/> Internet Connection | <input type="checkbox"/> Television | |

Technology – Software (Click boxes of all software needed.)

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|--|--|---|
| <input checked="" type="checkbox"/> Database/Spreadsheet | <input type="checkbox"/> Image Processing | <input type="checkbox"/> Web Page Development |
| <input type="checkbox"/> Desktop Publishing | <input checked="" type="checkbox"/> Internet Web Browser | <input checked="" type="checkbox"/> Word Processing |
| <input type="checkbox"/> E-mail Software | <input checked="" type="checkbox"/> Multimedia | <input type="checkbox"/> Other |
| <input type="checkbox"/> Encyclopedia on CD-ROM | | |

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| Printed Materials | <ul style="list-style-type: none"> National Audubon Society. (1987). <i>Pocket guide to familiar birds: Eastern region</i>. New York: Alfred A. Knopf. National Audubon Society. (1987). <i>Pocket guide to familiar birds: Western region</i>. New York: Alfred A. Knopf. Robbins, C. S. (2001). <i>Birds of North America: A guide to field identification</i>. New York: St. Martin's Press. Salmansohn, P., & Kress, S. W. (2003). <i>Saving birds—Heroes around the world</i>. Gardiner, ME: Tilbury House. |
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Supplies

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| Internet Resources | <ul style="list-style-type: none"> National Audubon Society
www.audubon.org*
Access the National Audubon Society Web site to locate bird publications as well as find a local center near you in order to partner with them to develop a service-learning project Birding.com
www.birding.com*
Information about bird identification and tips for birding North Prairie Wildlife Research Center
www.npwrc.usgs.gov*
Bird checklists for your state Audubon Society of Portland
www.audubonportland.org/livingwithwildlife*
Article about Portland's peregrines as well as other research projects Thayer Birding Software
www.thayerbirding.com*
Multimedia CD-ROMs containing information about birds for each state |
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Other Resources

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