

Teachers Guide

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“Northern Saw-Whet Owl 10-583” Multidisciplinary Classroom Activities

Teachers guide for the Young Naturalists article “Northern Saw-Whet Owl 10-583” by Kathleen Weflen with photographs by Mike Dvorak. Published in the March–April 2011 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/saw_whet_owl.

Young Naturalists teachers guides are provided free of charge to classroom teachers, parents, and students. This guide contains a brief summary of the article, suggested independent reading levels, word count, materials list, estimates of preparation and instructional time, academic standards applications, preview strategies and study questions overview, adaptations for special needs students, assessment options, extension activities,



Web resources (including related Conservation Volunteer articles), copy-ready study questions with answer key, and a copy-ready vocabulary sheet and vocabulary study cards. There is also a practice quiz (with answer key) in Minnesota Comprehensive Assessments format. Materials may be reproduced and/or modified a to suit user needs. Users are encouraged to provide feedback through an online survey at www.mndnr.gov/education/teachers/activities/ynstudyguides/survey.html. If you are downloading articles from the website, please note that only Young Naturalists articles are available in PDF.

Summary

“Northern Saw-Whet Owl 10-583” tells the compelling story of a saw-whet owl’s recovery from a life-threatening injury. In photos and text readers follow the little owl from its discovery on the Twin Cities campus of the University of Minnesota to its arrival at The Raptor Center. The owl’s diagnosis and treatment by Raptor Center staff, physical therapy to ready her for flight, and, finally, her prognosis for release back into the wild are interspersed with facts about the owl’s biology and behavior.

Suggested reading levels:

Intermediate through middle/junior high school grades

Total words:

2,404

Materials:

Paper, poster board, colored pencils, crayons, pens, markers, owl pellets (see Web resources for order information) as well as print and online resources your media specialist may provide

“Northern Saw-Whet Owl 10-583”—Teachers Guide

Preparation time: One to two hours, not including time for extension activities

Estimated instructional time: One or two 50-minute class periods (not including extensions)

Minnesota Academic Standards applications: “Northern Saw-Whet Owl 10-583” may be applied to the following Minnesota Department of Education standards:

Language Arts

Reading Benchmarks

Informational Text K–5; 6–12

Key Ideas and Details

Craft and Structure

Integration of Knowledge and Ideas

Range of Reading and Level of Text Complexity

Foundational Skills K–5

Phonics and Word

Recognition

Fluency

Writing Benchmarks K–5; 6–12

Text Types and Purposes

Writing Process (6–12: Production and Distribution of Writing)

Research to Build and Present Knowledge

Range of Writing

Speaking, Viewing, Listening and

Media Literacy Benchmarks K–5

Comprehension and Collaboration

Presentation of Knowledge and Ideas

Media Literacy

Language Benchmarks K–5

Conventions of Standard English

Knowledge of Language

Vocabulary Acquisition and Use

Reading Benchmarks: Literacy in Science and Technical Subjects 6–12

Key Ideas and Details

Craft and Structure

Integration of Knowledge and Ideas

Range of Reading and Level of Text Complexity

Writing Benchmarks: Literacy in

History/Social Studies, Science and Technical Subjects 6–12

Text Types and Purposes

Writing Process: Production and Distribution of Writing

Research to Build and Present Knowledge

Range of Writing

Mathematics

Grades 3–5

Number and Operation

Add and subtract multi-digit whole numbers; represent multiplication and division

in various ways; solve real-world and mathematical problems using arithmetic.

Data Analysis

Collect, organize, display, and interpret data. Use labels and a variety of scales and units in displays.

Science

Life Science

Grades 3, 5

3.4.1. Structure and Function in Living Organisms

5.4.1 Structure and Function in Living Organisms

5.4.2 Interdependence Among Living Systems

5.4.4 Human Interaction with Living Systems

Grades 3, 7

3.4.3 Evolution in Living Systems

7.4.2 Interdependence Among Living Systems

7.4.3 Evolution in Living Systems

7.4.4 Human Interaction with Living Systems

**Minnesota
Academic
Standards
applications
continued:**

Arts

Grades K–12

1. Artistic Foundations: Visual Arts
2. Artistic Process: Create or Make: Visual Arts
3. Artistic Process: Perform or Present: Visual Arts
4. Artistic Process: Respond or Critique: Visual Arts

Current, complete Minnesota Academic Standards are available at www.education.state.mn.us. Teachers who find other connections to standards are encouraged to contact Minnesota Conservation Volunteer.

Preview

Your preview will depend on how you apply the content to the standards. For example, if you are reading the article in science you may ask students to survey the article. Examine the photographs and illustrations. Use the **KWL** strategy (Ogle, 1986) to find out what your students already know (**K**) about animal rehabilitation and/or owls, what they would like to learn (**W**), and eventually what they learned (**L**) while reading the article and related materials, and through participating in extension activities. You might begin by asking small groups to brainstorm their ideas. Then combine the groups’ data to make a class list. Display your **K** and **W** ideas on poster board or paper (see Vocabulary preview). Add to your **L** list as you read and discuss the article. See www.teach-nology.com/web_tools/graphic_org/kwl for a KWL generator that will produce individual organizers for your students. Individual organizers may be useful as students read the article for answers to **W** questions. KWL also gives you the opportunity to introduce interdisciplinary connections you will make during extension activities. If you use the article in math, science, or art class you may wish to focus your prereading discussion on academic standards that apply for that class.

Another strategy for accessing prior knowledge is a brainstorming web. You may download a printable web at www.teachervision.fen.com/tv/printables/TCR/0743932080_007.pdf. As with KWL, you may focus your discussion on animal rehabilitation and/or owls.

There are lots of numbers in this story. Tell your students to be on the lookout for numbers as they read, because numbers will be important in the activities that follow the story.

**Vocabulary
preview**

See the copy-ready vocabulary list included in this guide. You may wish to modify the list based on your knowledge of your students’ needs or the subject you are teaching. Pretesting vocabulary individually, in small groups, or with your entire class can be an effective vocabulary preview strategy. You may then post-test at the conclusion of this activity (see Assessment section below). Pay particular attention to words in italics. Definitions are provided in the text.

You may wish to use the study cards found at the end of this guide. Cut along the horizontal line; fold in the middle and tape or staple. Study cards (see *Strategic Tutoring*, Hock, Deshler, and Schumaker 2000) can be applied to any subject area. On one side of the card, in large letters, write a key word or phrase that students are expected to know. In smaller letters frame the word or phrase in a question or statement. On the other side of the card, in large letters, write the answer to the question. Finally, in smaller letters, frame the answer in a question or statement. Blanks are provided to allow you or your students to add new words or phrases.

“Northern Saw-Whet Owl 10-583”—Teachers Guide

Study questions overview

Study questions parallel the story (the answer to the first question appears first in the article, followed by the second, and so on). Preview the entire guide with your class before you read the article. You may wish to read the story aloud and complete the study questions in class, in small groups, or as an independent activity. The questions may be assigned as homework, depending on the reading ability of your students. Inclusion teachers may provide more direct support to special needs students (see Adaptations section). The study questions may be also used as a quiz. Note: Items 1, 2, 9, 10, 11, 12, 18, 19, 20 and the *Challenge* require varying degrees of critical thinking.

Adaptations

Read aloud to special needs students. Abbreviate the study questions or highlight priority items to be completed first. If time allows, remaining items may be attempted. Peer helpers, paraprofessionals, or adult volunteers may lend a hand with the study questions. With close teacher supervision, cooperative groups can also offer effective support to special needs students, especially for extension activities.

Assessment

You may use all or part of the study guide, combined with vocabulary, as a quiz. Other assessment ideas include: (1) Have students complete the main idea and supporting details activity found at www.teachervision.fen.com/tv/printables/scottforesman/Math_2_TTM_25.pdf. You or your students can select main ideas. If you wish to include more than two main ideas, use more than one sheet. (2) Have students write multiple-choice, true-false, or short-answer questions, then select the best items for a class quiz. (3) Poster presentations may display colored illustrations from the article or freehand drawings. Allow students to choose the topic. For example, some students may describe the rehab process, while others may displays facts about the owl's adaptations and how each adaptation gives the owl an advantage. Posters may be presented to the class and/or displayed in the classroom. (4) Ask students to sequence events in the story in writing, illustrations, or both. (5) Cut out and scramble photos on pages 24, 25, 27, 28, and 31. Ask students to arrange photos in correct order and write captions for each photo.

Extension activities

1. Invite a DNR nongame biologist to visit your classroom to present information about the northern saw-whet owl. See <http://www.dnr.state.mn.us/eco/nongame/index.html>.
2. Students can learn more about wildlife rehabilitation in Minnesota and in the U.S. at the websites listed below. You may contact the DNR to find out if there is a wildlife rehabilitation specialist in your area that may visit your classroom.
3. The *Volunteer* has published several articles about owls you may wish to bundle with this article. See Related Articles.
4. Challenge students to learn more about owl adaptations. See Web Resources. Adaptations can be related to climate change as owls extend their range to find food or favorable weather conditions.
5. Challenge students to write their own story about an injured animal. Stories may take the form of a graphic novel (text and illustrations) and may be shared with classmates.
6. There are many numbers in this story, from the identification number of the owl to dates, measurements, and flight laps. Ask students to collect and categorize the numbers. Use numbers from the story in math word problems. For example, “Write a problem to find out how much weight 10-583 gained.” Or, “Make a bar graph for laps flown.”
7. Challenge students to write and illustrate haiku poems about winter, owls, their prey, and their habitats. See www.wikihow.com/Write-a-Haiku-Poem for excellent step-by-step haiku instructions with accompanying video.
8. Dissect owl pellets and catalog the contents. See Web resources. This works well as a partners activity.

Web Resources*

Minnesota DNR

www.dnr.state.mn.us/eco/nongame/index.html
www.dnr.state.mn.us/snas/index.html
www.dnr.state.mn.us/nature_viewing/index.html

Owl Adaptations

www.worldofowls.com/whatareowls.htm
www.owlpages.com/articles.php?section=Owl+Physiology&title=Feathers
www.seaworld.org/animal-info/info-books/raptors/adaptations.htm

Owl Pellets

www.kidwings.com/owlpellets/flash/v4/index.htm
www.biologycorner.com/worksheets/owlpellet.html
www.hometrainingtools.com/owl-pellet-dissection-project/a/1244/
www.hawkquest.org/TA/XL/Pellet.pdf

Wildlife Rehabilitation

www.nwrawildlife.org/home.asp
www.dnr.state.mn.us/eco/nongame/rehabilitation/index.html <http://www.wrcmn.org/wildlife.rescueshelter.com/Minnesota>

Owls of Minnesota

www.dnr.state.mn.us/birds/index.html
www.dnr.state.mn.us/birds/northernsawwhetowl.html

Minnesota DNR Teacher Resource

www.mndnr.gov/education/teachers/index.html

**Note: All websites were active at the time of this guide's publication. However, some may no longer be active when this guide is accessed.*

Related articles

Many related *Minnesota Conservation Volunteer* articles are available online at www.dnr.state.mn.us/volunteer/past_issues.html, including:

September–October 1992

“Awesome Owls” (YN article)
www.dnr.state.mn.us/young_naturalists/awesomeowls/index.html

January–February 1995

“What’s Making that Racket?” (YN article with great photo of feet)
www.dnr.state.mn.us/young_naturalists/woodpeckers/index.html

March–April 2001

“Whoooo’s Watching?” (YN article)
www.dnr.state.mn.us/young_naturalists/owladventures/index.html

“Northern Saw-Whet Owl 10-583”—Teachers Guide

May–June 2002

“Curious Creatures” (YN article)

files.dnr.state.mn.us/publications/volunteer/young_naturalists/curiosities/curious_creatures.pdf

January–February 2004

“The Nature of Feathers” (YN article with teachers guide with great photo)

files.dnr.state.mn.us/publications/volunteer/young_naturalists/feathers/feathers.pdf

September–October 2005

“Wild Vision” (YN article with teachers guide)

files.dnr.state.mn.us/publications/volunteer/young_naturalists/vision/vision.pdf

January–February 2006

“Great Gray Owl”

www.dnr.state.mn.us/volunteer/janfeb06/mp.html

“A Storm of Owls”

www.dnr.state.mn.us/volunteer/janfeb06/owl_storm.html

July–August 2008

“Burrowing Owl”

www.dnr.state.mn.us/volunteer/julaug08/mp.html

January–February 2011

“The Greatest of Feet”

www.dnr.state.mn.us/young_naturalists/feet/index.html

- References** Hock, M.F., Deshler, D.D., and Schumaker, J.B. *Strategic Tutoring*. Lawrence, Kan.: Edge Enterprises, 2000.
- Ogle, D.S. K-W-L Group Instructional Strategy. In A.S. Palincsar, D.S. Ogle, B.F. Jones, and E.G. Carr (Eds.), *Teaching Reading as Thinking: Teleconference Resource Guide*, pp.11–17. Alexandria, Va.: Association for Supervision and Curriculum Development, 1986.

Study Questions

Teachers guide for the Young Naturalists article “Northern Saw-Whet Owl 10-583” by Kathleen Weflen. Published in the March–April 2011 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/saw_whet_owl.

1. Describe the mission of The Raptor Center. _____

2. About how many birds per month are treated at the center? How did you find your answer?

3. Why is the person in the photo on page 23 wearing gloves? _____

4. How did Joey know the bird was a northern saw-whet owl? _____

5. Why are windows a danger to owls? _____

6. This owl was probably migrating south. Why? _____

7. Explain why The Raptor Center labeled the bird 10-583. _____

8. How did the center staff decide if 10-583 was a boy or a girl? _____

9. Why do you suppose Dr. Paula wanted to radiograph 10-583? _____

10. Describe the sequence of photos on page 27. _____

11. How long did 10-583 have to wear her body wrap? How long would you have had to wear a sling if you broke your collarbone? Why the difference? _____

“Northern Saw-Whet Owl 10-583”—Teachers Guide

12. Why do you think little raptors like 10-583 get their own flight space? _____

13. 10-583 was fed at sunset. Why? _____

14. What can pellets tell you about an owl? _____

15. Why did center staff pay close attention to 10-583’s perch? _____

16. Why was Dr. Paula happy when she unwrapped 10-583’s bandage? _____

17. What is physical therapy? Why was it important for 10-583? _____

18. Examine the photos on page 31. What did you learn about owls? _____

19. Compare and contrast human eyes and owl eyes:

Alike

Different

_____	_____
_____	_____
_____	_____

20. Do you think 10-583 will become an “education bird?” Why or why not? _____

Challenge: When bird 10-583 arrived at The Raptor Center she weighed 95 grams. In about two months she gained five grams. What percentage of her original weight is five grams? How much weight would you have to gain to equal that percentage? Explain how you got your answers. _____

Study Questions Answer Key

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1. Describe the mission of The Raptor Center. **Responses will vary. You may need to discuss the meaning of “mission.” In addition to rehabilitating injured or sick raptors, the center educates the public about raptor conservation. See the center website for its mission statement. www.raptor.cvm.umn.edu**
2. About how many birds per month are treated at the center? How did you find your answer? **The center typically treats about 60 birds per month. Answers will vary regarding how that number was found.**
3. Why is the person in the photo on page 23 wearing gloves? **For protection. Raptors have sharp beaks and talons.**
4. How did Joey know the bird was a northern saw-whet owl? **It was a small bird with gold eyes and a brown and white pattern on its feathers that is unique to northern saw-whet owls.**
5. Why are windows a danger to owls? **To birds, windows often look like the sky.**
6. This owl was probably migrating south. Why? **Many birds fly south in the fall as food supplies in colder climates decline.**
7. Explain why The Raptor Center labeled the bird 10-583. **It was the 583rd bird turned in to the center in 2010.**
8. How did the center staff decide if 10-583 was a boy or a girl? **They decided 10-583 was a female because she was heavier than most males and her primary flight feathers were longer than typically seen in males.**
9. Why do you suppose Dr. Paula wanted to radiograph 10-583? **Answers will vary. She suspected a broken bone. A radiograph was one way to be sure.**
10. Describe the sequence of photos on page 27. **Answers will vary. Encourage students to add details not mentioned in the caption on page 26. Some students will be aided by using the words “first,” “second” and “third,” or “first,” “next” and “last.”**
11. How long did 10-583 have to wear her body wrap? How long would you have had to wear a sling if you broke your collarbone? Why the difference? **She had to wear a wrap for two–three weeks. A person would need much longer to heal, 12 weeks. Why do birds heal faster? Answers will vary. They are smaller. Their metabolism is faster. This a good question for further research.**
12. Why do you think little raptors like 10-583 get their own flight space? **If they shared a space with larger raptors they would be in danger of being injured or even killed.**
13. 10-583 was fed at sunset. Why? **Owls are nocturnal (active at night). Sunset was a natural time for 10-583 to begin feeding.**
14. What can pellets tell you about an owl? **What the owl ate.**
15. Why did center staff pay close attention to 10-583’s perch? **They were concerned that she would develop sores on her feet.**
16. Why was Dr. Paula happy when she unwrapped 10-583’s bandage? **She could feel a bump on the broken bone, which meant it was healing.**
17. What is physical therapy? Why was it important for 10-583? **In physical therapy the therapist moves the injured animal’s or person’s body to stretch muscles and keep joints flexible.**
18. Examine the photos on page 31. What did you learn about owls? **Answers will vary. Call attention to details. Notice how the owl approaches the perch. Describe the position of her body as she slows down and comes to a stop. Do all birds land this way?**
19. Compare and contrast human eyes and owl eyes: Alike Different **Answers will vary. We both have two eyes, pupils, irises, and upper and lower eyelids. Owls do not have tear ducts. Instead, they have a third eyelid to keep their eyes moist. Owls can see much better in the dark than people can. Challenge students to be as creative as possible in extending alike and different lists. A Venn diagram may be helpful for some students. www.eduplace.com/graphicorganizer/pdf/venn.pdf**
20. Do you think 10-583 will become an “education bird”? Why or why not? **Responses will vary. Is there anything in the article to suggest that 10-583 will not make a full recovery? What if keeping her at the center increases her dependence on people? Encourage as many predictive scenarios as possible.**

Challenge: When bird 10-583 arrived at The Raptor Center she weighed 95 grams. In about two months she gained five grams. What percentage of her original weight is five grams? How much weight would you have to gain to equal that percentage? Explain how you got your answers. **Answers regarding method will vary. Five grams is 5.3 percent of 95 grams. A fifth grader weighing 90 pounds would have to gain 4.8 pounds to increase 5.3 percent.**

Minnesota Comprehensive Assessments Practice Items

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1. Who takes care of sick or injured birds at The Raptor Center?

- A. volunteers
- B. veterinarians
- C. wildlife rehabilitators
- D. all of the above.

2. Bird 10-583 gained _____ grams in about two months.

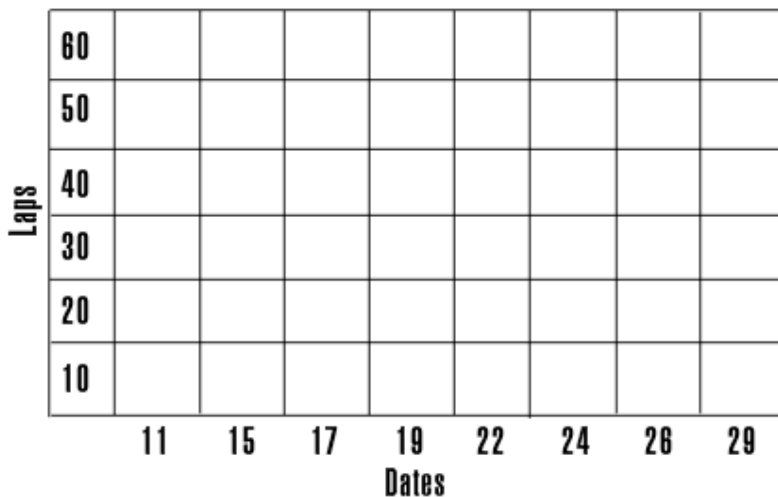
- A. 10
- B. 5
- C. 0
- D. 7

3. What would you do if you found an injured northern saw-whet owl in your backyard?

4. Why do northern saw-whet owls have unevenly placed ears?

- A. to pinpoint the location of prey
- B. to fly safely at night
- C. because they do not need to hear well
- D. they do not have unevenly placed ears

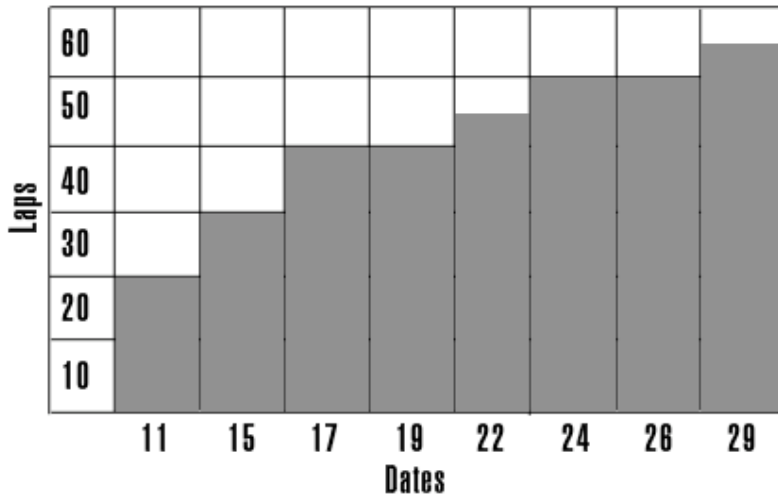
5. Represent 10-583’s test flights on the graph below.



Minnesota Comprehensive Assessments Answer Key

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1. Who takes care of sick or injured birds at The Raptor Center? **D. all of the above.**
2. Bird 10-583 gained **B. 5 grams in about two months.**
3. What would you do if you found an injured northern saw-whet owl in your backyard? **Answers will vary. Keep it warm, contact a wildlife rehabilitator, and/or bring it to The Raptor Center.**
4. Why do northern saw-whet owls have unevenly placed ears? **A. to pinpoint the location of prey**
5. Represent 10-583’s test flights on the graph below.



Vocabulary

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anesthesia	loss of the ability to feel things
nocturnal	active at night
predator	animal that kills and eats other animals
primary flight feathers	long, stiff, paired feathers on a bird’s wings and tail
raptor	bird of prey
species	animals that resemble one another and may interbreed
talons	curved raptors’ claws
veterinarian	animal doctor
wildlife rehabilitator	person who cares for sick or injured wild birds or animals

Vocabulary Study Cards

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Cut along the horizontal lines, fold in the middle and tape or staple. Blanks are provided to allow you or your students to add new words or phrases.

What is
anesthesia?

FOLD HERE

**A loss of the ability
to feel things is called**

Nocturnal
animals are

FOLD HERE

Animals that are
active at night are

A **predator**
is

FOLD HERE

**An animal that kills and
eats other animals is a**

What are **primary
flight feathers?**

FOLD HERE

The **long, stiff, paired feathers
on a bird’s wings and tail** are

What is a
raptor?

FOLD HERE

A
bird of prey
is a

What is a
species?

FOLD HERE

A group of **animals that resemble one another and may interbreed** is called a

What are
talons?

FOLD HERE

Curved raptors’
claws are called

A **veterinarian**
is

FOLD HERE

Another name for an
animal doctor is

What is a **wildlife**
rehabilitator?

FOLD HERE

A **person who cares for sick or injured wild birds or animals** is a

“Northern Saw-Whet Owl 10-583”—Teachers Guide

FOLD HERE

FOLD HERE

FOLD HERE

FOLD HERE

FOLD HERE