

Teachers Guide

Prepared by **“Who Is *Alces alces*?” Multidisciplinary Classroom Activities**

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Teachers guide for the Young Naturalists article “Who Is *Alces alces*?” Published in the November–December 2012 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/taxonomy

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 Minnesota 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 to suit user needs. Users are encouraged to provide feedback through an online survey at www.mndnr.gov/education/teachers/activities/ynstudyguides/survey.html.

New digital archives: All *Minnesota Conservation Volunteer* articles published since 1940 are now online in searchable PDF format. Visit www.mndnr.gov/magazine and click on *past issues*.

Summary

“Who Is *Alces alces*?” introduces young readers to the taxonomic names of 25 native Minnesota plants and animals photographed by prominent artists, including Jim Brandenburg, Bill Marchel, and Judy Olausen. Readers are challenged to provide the common names for each photo. An answer key is provided on page 28.



Suggested reading levels:

Third through middle school grades

Total words:

594

Materials:

Mammals of Minnesota, The Great Minnesota Fish Book (See References), Plants of Minnesota, Animals of Minnesota (See Web Resources), paper, poster board, colored pencils, crayons, pens, markers

Preparation time:

One to two hours, not including time for extension activities

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Estimated instructional time:

One or two 50-minute class periods (not including extensions)

Minnesota Academic Standards Applications:

“Who Is *Alces alces*?” may be applied to the following Minnesota Department of Education standards:

Language Arts

Reading Benchmarks

Informational Text 3-8

Key Ideas and Details

Craft and Structure

Integration of Knowledge and Ideas

Range of Reading and Level of Text Complexity

Writing Benchmarks 3-8

Text Types and Purposes

Writing Process

Research to Build and Present Knowledge

Range of Writing

Reading Benchmarks: Literacy in Science and Technical Subjects 6-8

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 6-8

Text Types and Purposes

Writing Process: Production and Distribution of Writing

Research to Build and Present Knowledge

Range of Writing

Mathematics

Grades 3, 4, 5, 6

Number and operation

3.1.2.4; 4.1.1.6; 4.1.2.5; 5.1.1.1;

5.1.1.2; 5.1.1.3; 5.1.1.4; 6.1.3.1;

6.1.3.4

Science

Grade 3

Structure and Function in

Living Systems

3.4.1.1.2

Grades 5 & 7

Interdependence Among

Living Systems

5.4.2.1.1; 7.4.2.1.1

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*.

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Preview Tell students that this article is unlike most other Young Naturalists articles. Instead of lots of text and photos or illustrations, this article is composed mainly of photos. The reader’s task is to match each photo with its scientific (taxonomic) name. Then ask small groups to brainstorm a list of organisms that are native to Minnesota. Combine the groups’ lists to make a class list. Display the class list on poster board or paper. Refer to the list as you work on the article. How many organisms on your list are in the article?

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.

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). Italicized words are not generally included on the list or in the study cards.

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 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.

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. Compare-and-contrast tools in Web resources may assist students with questions 3, 4, 7, and 10. Note: Items with an asterisk 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) Students may write an essay describing a personal experience with one or more of the organisms in the article. (2) Students may write multiple-choice, true-false, or short-answer questions. Select the best items for a class quiz. (3) Poster presentations may supplement or take the place of essays. Students may work in small groups, with each group focusing on a different organism.

Extension activities

1. “Mirrors of Minnesota,” a YN article with teachers guide, makes an excellent companion piece for “Who Is *Alces alces*?” See Related Articles for link.
2. Encourage students to select one or more of the organisms in the article for further research. See Web resources and Related Articles to get started. Research may be shared in writing,

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Extension activities continued

- visual art, or poster sessions that combine writing, art, and oral presentations.
3. Provide index cards for students to make flashcard decks of the organisms. Make copies of the article so students can attach the photo to one side of their cards.
 4. Challenge students to find out more about the discipline of taxonomy. Can they find other organisms not pictured in the article that share the same kingdom, phylum, etc.? See Web resources for more information, including lesson plans.
 5. Students can use the Ojibwe People’s Dictionary, developed at the University of Minnesota, to learn the Ojibwe words for the animals and plants in this article. See ojibwe.lib.umn.edu.
 6. The organisms in this are excellent topics for haiku poetry. See www.gigglepoetry.com/poetryclass/Haiku.html.

Web resources

Minnesota DNR

www.dnr.state.mn.us/animals/index.html
www.dnr.state.mn.us/fish/yellowperch.html
www.dnr.state.mn.us/birds/index.html
www.dnr.state.mn.us/plants/index.html
www.dnr.state.mn.us/fish/index.html
www.dnr.state.mn.us/mammals/index.html
www.dnr.state.mn.us/insects/index.html
www.dnr.state.mn.us/reptiles_amphibians/index.html
files.dnr.state.mn.us/education_safety/education/kids_pages/mn_symbols_colorbook.pdf

Spiders in Minnesota

www.health.state.mn.us/divs/idepc/dtopics/pests/spiders.html
video.nationalgeographic.com/video/kids/animals-pets-kids/bugs-kids/spider-daddy-longlegs-kids

Taxonomy

www.kidsbiology.com/biology_basics/classification/classification1.php
www.biology4kids.com/files/studies_taxonomy.html
science.pppst.com/sorting.html
www.kidzone.ws/animals/animal_classes.htm
www.youtube.com/watch?v=kKwOLAqQoLk
www.mensaforkids.org/lessons/kingdomanimalia/mfklessons-animalia-all.pdf (Grade 3 lesson plans and materials)
www.youtube.com/watch?v=Gb_IO-SzLgk

Compare and Contrast

www.readwritethink.org/files/resources/interactives/compcontrast/
www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm
www.readingquest.org/strat/compare.html

Minnesota DNR Teacher Resources

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

In addition to the related articles listed below, every *Minnesota Conservation Volunteer* article published since 1940 is now online at webapps8.dnr.state.mn.us/volunteer_index

May–June 1993

“Buffalo are Back” (YN article)

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

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Related Articles continued

January–February 1994

“Wild Cats” (YN article)

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

July–August 1994

“Butterflies: Flying Flowers (YN article)

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

March–April 1995

“Wild Dogs” (YN article)

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

May–June 1996

“Fish Sense” (YN article with teachers guide)

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

September–October 1996

“Oh, Deer!” (YN article with teachers guide)

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

January–February 2001

“Scampering Mammals” (YN article)

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

May–June 2001

“Six Slippery Salamanders” (YN article with teachers guide)

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

September–October 2003

“Mirrors of Minnesota” (YN article with teachers guide)

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

November–December 2006

“Wild Engineers” (YN article with teachers guide)

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

July–August 2007

“Hoot, Tremolo, Yodel, and Wail” (YN article with teachers guide)

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

January–February 2012

“Ubiquitous Conifers” (YN article with teacher guide)

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

January–February 2012

“The Fabulous Fox Family” (YN article with teachers guide)

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

September–October 2012

“Forest Delicacies”

www.dnr.state.mn.us/volunteer/sepoct12/mushrooms.html

References

Dickson, Tom. *The Great Minnesota Fish Book*, Minneapolis: University of Minnesota Press, 2008.

Hazard, Evan B. *Mammals of Minnesota*. Minneapolis: University of Minnesota Press, 1982.

Hock, M.F., Deshler, D.D., and Schumaker, J.B. *Strategic Tutoring*. Lawrence, Kan.: Edge Enterprises, 2000.

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Study Questions

Teachers guide for the Young Naturalists article “Who Is *Alces alces*?” Published in the November–December 2012 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/taxonomy

Name _____ Period _____ Date _____

1. What language do biologists most often use to name living organisms? _____

2. Who was Carl Linnaeus? _____

3. What do the animals in photos A and B on page 19 have in common? _____

4. How are they different? _____

5. What relationship might the animals in photo C have with the animal in photo E? _____

6. Why do you suppose the bird in photo G has a hard time walking on land? _____

7. Compare and contrast the plants in photos F and I. _____

8. Feline is another name for _____.

9. What is the oldest living thing in this article? _____

10. Compare and contrast the plants in photos P and Q. _____

11. If 4,000,000 pounds of *Sander vitreus* are caught in Minnesota each year, and the average fish weighs 1.25 pounds, how many fish are caught? _____

12. Can you name another species in the *Xysticus* genus? _____

Challenge: Divide the organisms pictured in this article into categories. How many categories do you have? What names have you given each category? How many organisms are in each category?

Study Questions Answer Key

Teachers guide for the Young Naturalists article “Who Is *Alces alces*?” Published in the November–December 2012 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/taxonomy

1. What language do biologists most often use to name living organisms? **Latin**
2. Who was Carl Linnaeus? **Carl Linnaeus was a Swedish botanist who in the 1700s devised the naming system all biologists use today.**
- *3. What do the animals in photos A and B on page 19 have in common? **Responses will vary, depending upon the student’s existing knowledge. Encourage students to list at least three similarities.**
- *4. How are they different? **Responses will vary. Encourage students to list at least three differences.**
- *5. What relationship might the animals in photo C have with the animal in photo E? **Some students’ initial response might be predator and prey; however, wolves do not often prey upon porcupines. Wolves and porcupines share the same habitat.**
- *6. Why do you suppose the bird in photo G has a hard time walking on land? **Responses may vary, depending upon students’ knowledge of loons. A loon’s legs are located toward the rear of its body, throwing its weight forward. As a result, loons tend to tip forward when they walk. See www.youtube.com/watch?v=XkQeJzJ2k3E.**
- *7. Compare and contrast the plants in photos F and I. **See guidelines for question 3.**
8. Feline is another name for **cat**.
9. What is the oldest living thing in this article? **Red pines may live for 400 years.**
- *10. Compare and contrast the plants in photos P and Q. **See guidelines for question 3.**
- *11. If 4,000,000 pounds of *Sander vitreus* are caught in Minnesota each year, and the average fish weighs 1.25 pounds, how many fish are caught? **$4,000,000 \div 1.25 = 3,200,000$**
12. Can you name another species in the *Xysticus* genus? **Any crab spider species of the genus *Xysticus* will do. Daddy long legs are not spiders.**
- *Challenge: Divide the organisms pictured in this article into categories. How many categories do you have? What names have you given each category? How many organisms are in each category? **Responses will vary. There are mammals, arthropods, plants, birds, fish, and a fungus.**

Minnesota Comprehensive Assessments Practice Items

Teachers guide for the Young Naturalists article “Who Is *Alces alces*?” Published in the November–December 2012 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/taxonomy

Name _____ Period _____ Date _____

1. *Zizania palustris* grows in _____.
 - A. deserts
 - B. lakes and streams
 - C. upland prairies
 - D. arctic tundra
2. The *Ursus americanus* cubs in photo U are climbing a _____.
 - A. *Quercus rubra*
 - B. *Kalmia polifolia*
 - C. *Pinus resinosa*
 - D. *Morchella esculentoides*
3. *Necturus maculosus* lives its entire life in _____.
 - A. underground burrows
 - B. water
 - C. the treetops
 - D. the intestines of bison
4. Over 5,000,000 _____ live in Minnesota.
5. In July you can observe *Junco hyemalis* in _____.
 - A. southwestern Minnesota
 - B. south-central Minnesota
 - C. northwestern Minnesota
 - D. northeastern Minnesota

Minnesota Comprehensive Assessments Answer Key

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1. *Zizania palustris* grows in **B. lakes and streams**.
2. The *Ursus americanus* cubs in photo U are climbing a **C. *Pinus resinosa***.
3. *Necturus maculosus* lives its entire life in **B. water**.
4. Over 5,000,000 ***Homo sapiens*** live in Minnesota.
5. In July you can observe *Junco hyemalis* in **D. northeastern Minnesota**.

Vocabulary

Teachers guide for the Young Naturalists article “Who Is *Alces alces*?” Published in the November–December 2012 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/taxonomy

angler	person who fishes with a hook, line, and rod
biologist	a person who studies living things
botanist	a person who studies plants
feline	an animal that belongs to the cat family
genus	a group of closely related species
herbivore	an animal that eats only plants
Latin	ancient Roman language
nectar	sweet liquid that flowering plants produce to attract insects and small birds
omnivore	animal that eats many different foods
predator	animal that kills and eats other animals
prey	animals that are killed and eaten by other animals
species	individuals that resemble one another and may interbreed

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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 an
angler?

FOLD HERE

**A person who fishes with a
hook, line and rod**
is an

A
biologist
is a person who

FOLD HERE

A person who
studies living things
is a

A
botanist
is a person who

FOLD HERE

A person who
studies plants
is a

A
feline is

FOLD HERE

**An animal belonging to
the cat family** is a

What is a
genus?

FOLD HERE

A **group of closely related species** is called a

An **herbivore**
is an

FOLD HERE

An **animal that eats only plants** is an

What is
Latin?

FOLD HERE

The **language spoken in ancient Rome** was

Plant
nectar is

FOLD HERE

The **sweet liquid that flowering plants produce that attracts insects and small birds** is

An
omnivore is

FOLD HERE

An **animal that eats many different foods** is an

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A
predator is

FOLD HERE

An animal that kills and
eats other animals is a

A prey
animal is

FOLD HERE

Animals that are
killed and eaten by
other animals are called

A species
is

FOLD HERE

A group of individual organisms
that resemble one another and
may interbreed is a

FOLD HERE

FOLD HERE