Young Naturalists

Teachers Guide

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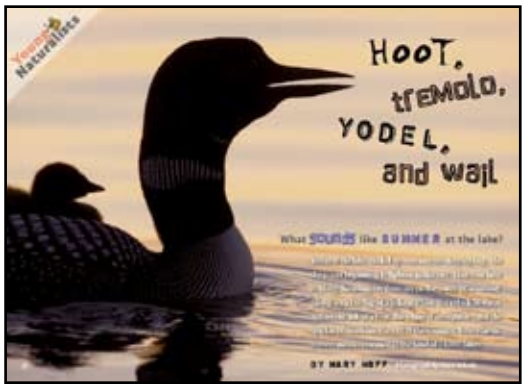
"Hoot, Tremolo, Yodel, and Wail" Multidisciplinary Classroom Activities

Teachers guide for the Young Naturalists article "Hoot, Tremolo, Yodel, and Wail" by Mary Hoff. Published in the July–August 2007 *Minnesota Conservation Volunteer*, or visit www.dnr.state.mn.us/young_naturalists/loons.



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.dnr.state.mn.us/education/teachers/activities/ynstudyguides/survey.html. Please note if you are downloading* Conservation Volunteer *articles from the Web site that only Young Naturalists articles are available in PDF.*

Summary

"Hoot, Tremolo, Yodel, and Wail" describes the life cycle of our Minnesota state bird, the common loon. Readers learn about the loon's behaviors (migratory, mating, parenting, and territorial), its unique anatomical characteristics, and environmental challenges loons face.

Suggested reading levels: third through seventh grades

Total words: 1,373

Materials: Paper, poster board, pencils, pens, markers, and print resources from your media center as well as Web sites, blank map of North America

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

Estimated instructional time: Two to three 50-minute class periods (not including extensions)

Minnesota Academic Standards applications: "Hoot, Tremolo, Yodel, and Wail" may be applied to the following Minnesota Department of Education Academic Standards:

Language Arts

I. Reading and Literature
- A. Word Recognition, Analysis and Fluency
- B. Vocabulary Expansion
- C. Comprehension

II. Writing
- A. Types of Writing
- B. Elements of Composition
- C. Spelling
- D. Research
- E. Handwriting and Word Processing

III. Speaking, Listening and Viewing
- A. Speaking and Listening
- B. Media Literacy

Minnesota History and Social Studies

I. U.S. History and III. World History

Grades K–3
- A. Family Life Today and In the Past: The student understand how families live and in earlier recognizing aspects change time while others the same.

II. Minnesota History

Grades 4–8
- A. Pre-Contact to 1650: The student will demonstrate knowledge of Minnesota's indigenous peoples.

IV. Historical Skills

Grades K–3
- B. Historical Resources: The student will understand that we can learn about the past from different sorts of evidence.

Grades 4–8
- B. Historical Resources: The student will begin to use historical resources.

V. Geography

Grades 4–8
- B. Map Use: The student will make and use maps to acquire, process, and report on the spatial organization of people and places on Earth.
- D. Interconnections: The student will describe how humans influence the environment and in turn are influenced by it.

Science

Grade 3

IV. Life Science
- B. Diversity of Organisms
- C. Interdependence of Life

Grade 4
IV. Life Science
B. Diversity of Organisms
Grade 5
IV. Life Science
F. Flow of Matter and Energy
Grade 7
IV. Life Science
B. Diversity of Organisms
C. Interdependence of Life
F. Flow of Matter and Energy

Arts
Artistic Expression: Visual Arts

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

Before you read, ask students to survey the article. Examine the photos. Use the **KWL** strategy (Ogle, 1986) to find out what your students already know (**K**) about ants, what (**W**) they would like to learn, and eventually, what they learned (**L**) while reading the article and related materials, and through participating in extension activities. 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. **KWL** also gives you the opportunity to introduce interdisciplinary connections you will make during extension activities. For example, if you plan to use the article during social studies, science, or art, you may ask students to review their **KWL** for concepts that are specific to those disciplines. The Young Naturalists article "Mirrors of Minnesota," also by Mary Hoff, provides information on the common loon as Minnesota's state bird, and may be useful in previewing the current article. See Web resources section below.

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. 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).

Connections to vocabulary in the article may also be made during KWL. If students are not familiar with some of the terms, include them in the W list. Other terms may be added to the W list as they read the article. Eventually they can be moved to the L list. You may write vocabulary from the article in green ink, while other ideas are written in black. Note: Some of the words in the vocabulary list definitions may require further explanation. Also preview the study questions for unfamiliar terms.

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.

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, 4, 5, 6, 7, 12, 13, 15, 17 and the Challenges require varying degrees of analytical thinking.

Adaptations

Read aloud to special needs students. Abbreviate the study questions or highlight priority items to be completed first, for example, items 2, 3, 5, 6, 7, 10, 12, and 15. 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: (1) Students may write an essay describing the seasonal changes in the life of the common loon. (2) Students may, on a map of North America, illustrate the loon's migratory routes. (3) Poster presentations may describe the loon's life cycle, how mercury and lead are threatening the loon, or how lakeshore development is affecting the loon. (4) Play recordings of loon calls as part of a quiz and ask students to match the meaning to the call.

Extension activities

1. Your class can learn about the work of the Loon Preservation Committee. See www.loon.org for information on monitoring loon population and breeding success. In Minnesota the DNR has conducted a loon monitoring program since 1994 (call 651-259-5120). Your students can also become volunteer loon watchers by contacting Pam Perry at pam.perry@dnr.state.mn.us or at 218-828-2228).
2. Invite a DNR nongame naturalist (www.dnr.state.mn.us/ecological_services/nongame) to your classroom or visit one of Minnesota's 72 state parks (www.dnr.state.mn.us/state_parks/list.html) for presentations on loons.
3. After reading one or more Native American loon legends or stories

about loon legends (see References), challenge your students to write their own original loon legends.

4. Students may investigate the threats to loons posed by lead fishing tackle and lead shot. Posters can illustrate the chain of events that introduce lead into the loon's environment. The same approach can be applied to mercury contamination of lakes and rivers.
5. After listening to recordings of loon calls, ask students to imitate the calls and to explain what each call communicates.
6. Read and discuss Mary Oliver's poem "The Loon on Oak-Head Pond." The poem can be found at www.poetrysociety.org/motion/mapsite/pimpoems/newyork/ny.html. Loons make especially good subjects for haiku poems (see volweb.utk.edu/school/bedford/harrisms/haiku.htm).

Web resources

Native American loon legends
- www.zadjik.com/flutes/legends.htm#LOON
- www.learner.org/jnorth/tm/loon/Legends.html
- www.bsc-eoc.org/download/CLLSteacherguide2005.pdf

General information about loons
- en.wikipedia.org/wiki/Loon
- www.dnr.state.mn.us/snapshots/birds/commonloon.html
- www.ffdp.ca/hww2.asp?cid=7&id=53

Maps/migration
- www.umesc.usgs.gov/terrestrial/migratory_birds/loons/migrations.html

Mercury and lead poisoning
- www.dnr.state.mn.us/ecological_services/nongame/projects/leadout.html
- www.adkscience.org/loons/lead.htm
- www.ffdp.ca/hww2.asp?cid=7&id=53

Minnesota Loon Monitoring Program
- www.dnr.state.mn.us/ecological_services/nongame/projects/mlmp_state.html

Audio and video of loon calls and behavior
- www.birds.cornell.edu/AllAboutBirds/BirdGuide/Common_Loon.html#fig1

Teacher resources
- www.umesc.usgs.gov/teachers.html
- www.dnr.state.mn.us/education/teachers

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

November–December 2002
"Farewell to a Young Loon"
www.dnr.state.mn.us/volunteer/novdec02/closeencounters.html

May–June 2003
"Tackling Toxic Tackle"
www.dnr.state.mn.us/volunteer/mayjun03/toxictackle.html

September–October 2003
"Mirrors of Minnesota" (with study guide)
www.dnr.state.mn.us/young_naturalists/symbols

References

1. Hock, M.F., Deshler, D.D., and Schumaker, J.B. *Strategic Tutoring.* Lawrence, Kan.: Edge Enterprises, 2000.
2. Kinsey-Warnock, Natalie. *In the Language of Loons.* New York: Dutton, 1998.
3. 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.
3. Strong, Paul. Call of the Loon. Minnetonka, Minn.: Creative Publishing, 1995.
4. Tekiela, Stan. *Fascinating Loons.* Cambridge, Minn.: Adventure Publications, 2006. (Audio CD also available)
5. Wargin, Kathy-Jo. *Legend of the Loon.* Chelsea, Minn.: Sleeping Bear Press, 2003.

Study Questions

"Hoot, Tremelo, Yodel, and Wail" by Mary Hoff.
Minnesota Conservation Volunteer, July–August 2007
www.dnr.state.mn.us/young_naturalists/loons

Name _____ Period _____ Date _____

1. The loon's cry is described as "haunting." Why? _____

2. In the spring in Minnesota what silhouettes might you see in the sky? _____

3. Where do loons spend the winter months? _____

4. How is a loon similar to a torpedo? _____

5. What type of sound does the male loon make to tell other male loons to stay away? _____

6. What advantage does the loon gain from heavy bones? What disadvantage? _____

7. Explain how a loon's hoot is different from its wail. _____

8. Which call is unique to each loon? _____

9. Describe two major environmental threats to loons in Minnesota. _____

10. Where do loons build their nests? _____

11. Which direction do nesting loons face? Why? _____

12. How do loons catch their food? What do they eat? _____

_____

_____

13. How can anglers help save loons? _ _____

_____

14. How do young loons differ in appearance from their parents? _____

_____

_____

15. List three interesting facts you learned about loons in this article. _____

_____

_____

_____

_____

16. How do loons know when to migrate south and where to go? _____

_____

_____

17. Why do you think loons have red eyes? _____

_____

_____

Challenges: Young loons do not migrate back to Minnesota until they are two and a half years old. Why? _____

_____

_____

_____

How do you think the loon got its name? _____

_____

Study Questions Answer Key

"Hoot, Tremelo, Yodel, and Wail" by Mary Hoff.
Minnesota Conservation Volunteer, July–August 2007
www.dnr.state.mn.us/young_naturalists/loons

1. The loon's cry is described as "haunting." Why? **Answers will vary, and depend on knowledge of meaning of haunting. Synonyms include: unforgettable and memorable. Students may describe the loon's call as scary or disturbing.**
2. In the spring in Minnesota what silhouettes might you see in the sky? **Answers will vary, and depend on knowledge of the meaning of silhouette. Hundreds of species of birds, including loons, may be seen in the spring skies.**
3. Where do loons spend the winter months? **Atlantic and gulf coasts**
4. How is a loon similar to a torpedo? **Answers will vary. Loons are similar in shape and behavior to torpedoes.**
5. What type of sound does the male loon make to tell other male loons to stay away? **Yodel**
6. What advantage does the loon gain from heavy bones? What disadvantage? **Heavy bones make it easier for the loon to dive, but harder for it to take flight.**
7. Explain how a loon's hoot is different from its wail. **A hoot is soft and short. Loons hoot to let other loons know where they are. A wail is higher and louder than a hoot. Loons wail to communicate with other loons who are far away.**
8. Which call is unique to each loon? **The yodel. Some people can even recognize loons by their yodel.**
9. Describe two major environmental threats to loons in Minnesota. **Loons' nesting is disrupted by shoreline development. Mercury contaminates loons' prey, which then affects the loons' ability to reproduce. A third threat is fishing line and lead tackle.**
10. Where do loons build their nests? **Loons prefer private spots near the shoreline for their nests.**
11. Which direction do nesting loons face? Why? **When loons sit on their nests they face the water so they can quickly escape predators.**
12. How do loons catch their food? What do they eat? **They dive and swim under the water, catching fish and leeches in their bills.**
13. How can anglers help save loons? **Do not throw line into the water. Use nontoxic tackle.**
14. How do young loons differ in appearance from their parents? **Adults are black and white with iridescent green heads. Babies are a dull brown with white bellies**.

15. List three interesting facts you learned about loons in this article. **Answers will vary.**
16. How do loons know when to migrate south and where to go? **Their instinct guides them.**
17. Why do you think loons have red eyes? **Answers may include those in the article: red eyes are signals to mate or competitors, or light filters to help see underwater. Students may add their own theories.**

Challenges: Young loons do not migrate back to Minnesota until they are two and a half years old. Why? **Answers will vary. There is no information about this in the article; however, students may conclude that young loons are not ready to mate or to compete with older loons for mates, so why should they migrate?**

How do you think the loon got its name? **Answers will vary. Students may associate the loon’s name with the sounds of its calls.**

Minnesota Comprehensive Assessments Practice Items

"Hoot, Tremelo, Yodel, and Wail" by Mary Hoff.
Minnesota Conservation Volunteer, July–August 2007
www.dnr.state.mn.us/young_naturalists/loons

Name _____Period _____Date_____

1. Loons take mercury into their bodies when they
   A. fly south.
   B. have babies.
   C. eat fish.
   D. yodel.

2. Researchers use _____ to track migrating loons.
   A. satellites.
   B. radio transmitters.
   C. airplanes.
   D. volunteer observers

3. Loons rid their bodies of excess salt through
   A. glands near their eyes.
   B. their feathers.
   C. airplanes.
   D. their bills.

4. The scientific name for the common loon is
   A. *Luna immer.*
   B. *Gavia immer.*
   C. *Immer luna.*
   D. *Immer gavia.*

5. Loons must incubate their eggs for
   A. six weeks.
   B. two weeks.
   C. three weeks.
   D. four weeks.

Minnesota Comprehensive Assessments Practice Items Answer Key

"Hoot, Tremelo, Yodel, and Wail" by Mary Hoff.
Minnesota Conservation Volunteer, July–August 2007
www.dnr.state.mn.us/young_naturalists/loons

1. Loons take mercury into their bodies when they **C. eat fish.**
2. Researchers use **B. radio transmitters** to track migrating loons.
3. Loons rid their bodies of excess salt through **A. glands near their eyes.**
4. The scientific name for the common loon is **B. *Gavia immer.***
5. Loons must incubate their eggs for **D. four weeks.**

Vocabulary

"Hoot, Tremelo, Yodel, and Wail" by Mary Hoff.
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www.dnr.state.mn.us/young_naturalists/loons

angler	person who fishes with a hook and line
aquatic	living in or near water
down	soft, first feathers of a baby bird
haunting	evoking strong emotion, especially sadness; memorable
instinct	inborn pattern of behavior, not learned
iridescent	brilliant appearance
mercury	poisonous metal released into the air from burning coal
nontoxic	not harmful
predators	animals that kill and eat other animals
silhouette	dark shape or outline against a bright background
soggy	soaked through with moisture
torpedo	cylinder-shaped, self-propelled missile that travels under water
tremolo	rapid repetition of two tones

unique	only one of its kind
warbling	trilling or quavering sound
yodel	to sing, changing rapidly between normal and falsetto (high) tones

Vocabulary Study Cards

"Hoot, Tremelo, Yodel, and Wail" by Mary Hoff.
Minnesota Conservation Volunteer, July–August 2007
www.dnr.state.mn.us/young_naturalists/loons

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.

A **haunting** sound is	A **memorable and sad** sound is
What is a **silhouette?**	**A dark shape or outline against a bright background** is
A **torpedo** is	**A self-propelled underwater missile** is a

The **warbling** call is also known as its	The loon’s **yodel** is also known as
The loon’s **tremelo** call sounds like	A loon sometimes makes **a laughing sound** called a
The loon’s **yodel** is	**Rapid alternation between normal and high notes** is called a
What is **mercury?**	**A poisonous metal produced by burning coal** is called

Predators are	**Animals that kill and eat other animals** are called
When baby birds are **soggy** they are	When something is **soaked with moisture** it is
Loons are called **aquatic** birds because they	Animals that **live in or near water** are
A baby loon’s **down** is its	A baby bird’s **soft, first feathers** are called

What does
iridescent
mean

Brilliantly colored
feathers are

A
nontoxic
substance is

If a substance is
not poisonous or harmful
it is

When a loon uses
instinct
to migrate it exhibits

An animal’s
inborn, unlearned behavior
is called

If something is
unique
it is

A loon’s yodel is
the only one of its kind
so it is

An
angler
is a person who

A person who
fishes with a hook and line
is an