

Teachers Guide

Prepared by **“Chirp, Croak, and Snore” Multidisciplinary Classroom Activities**

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Teachers guide for the Young Naturalists article “Chirp, Croak, and Snore” by Mary Hoff. Published in the March–April 2014 *Minnesota Conservation Volunteer*, or visit www.dnr.state.mn.us/young_naturalists/frogs-and-toads-of-minnesota/index.html.

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.

***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

“Chirp, Croak, and Snore” surveys Minnesota’s 14 frog and toad species. Young readers will learn about these amphibians’ physical characteristics, life cycles, habitats, behaviors, and predator-prey relationships. This article offers the opportunity to introduce your students to binomial nomenclature. See Extensions for suggested activities.

Suggested reading levels:

Third through middle school grades

Total words:

1,780

Materials:

Amphibians and Reptiles in Minnesota (see page 35 in the article), “Froggy Went A-Courtin” lyrics, copies of photos from article for flashcards, index cards, paper, poster board, colored pencils, crayons, pens, markers, print and online resources your media specialist may provide

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:

“Chirp, Croak, and Snore” 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

Science

Grades 3, 4, 5, 7, and 8

Life Science

3.4.1.1.1; 3.4.1.1.2; 5.4.1.1.1;

7.4.2.1.2;

Mathematics

Grade 6

Number and operation

6.1.1.3; 6.1.1.4; 6.1.2.2; 6.1.3.3

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 (1) Ask students to scan the photos in the article. What do they predict they will learn? (2) Play Bob Dylan’s version of “Froggy Went A Courtin’” (www.azlyrics.com/lyrics/bobdylan/froggiwentacourtin.html). Lyrics are available at the same site. What do students learn about predator-prey relationships? (3) Another preview strategy is **KWL** (Ogle, 1986). To find out what your students already know (**K**) about frogs and toads, ask small groups to brainstorm their ideas. Then combine the groups’ data to make a class list. Repeat step one by asking what students would like to learn (**W**). As you read and discuss the article you will begin to compile the (**L**) list, or what they learn while reading the article and related materials and participating in extension activities. Display your **K** and **W** ideas on poster board or paper. See http://www.teach-nology.com/web_tools/graphic_org/kwl for a KWL generator that will produce individual organizers for your students. KWL gives you the opportunity to introduce interdisciplinary connections you will make during extension activities. If you use the article in science, math, or art class, you may wish to focus your prereading activity on academic standards that apply for that class. (4) See www.teachervision.fen.com/tv/printables/TCR/0743932080_007.pdf for a brainstorming web download.

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. 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 compare and contrast two species of frogs, two species of toads, true frogs and treefrogs, or frogs and toads as generic groups. See compare and contrast tools in Web resources. (2) Students may write multiple-choice, true-false, or short-answer questions. Select the best items for a

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Assessment continued

class quiz. (3) Students may make flash cards with any of the following combination: photos from the article on one side and scientific names on the other, common names and photos, common and scientific names. (4) Students may create posters that combine visual art, writing, and oral presentations. Posters may be combined with the compare and contrast activity in Assessment (1). Students may work in small groups or as individuals.

Extension activities

1. “The Magic of Morphing” and “Special Delivery,” also by Mary Hoff (See Related Articles), make great companion pieces for “Chirp, Croak, Snore.” You may encourage students to include content from related articles in evaluation and/or extension activities.
2. How is it possible that some species of frogs and toads freeze solid in winter? Why wouldn't they die? Can mammals freeze solid and survive? Challenge your students to find the answers.
3. The class Amphibia is composed of thousands of species worldwide. See Web resources for images, videos, and print resources. Compare and contrast the life cycle of an African or South American frog or toad species with one from this article.
4. What if humans or other mammals experienced a metamorphosis similar to frogs and toads? What would we look like when we are born? When we are toddlers? When we are teenagers?
5. Your students can learn more about the evolution of amphibian species (see Web resources). How are amphibians being challenged to adapt to changing environmental conditions?
6. This article may be used to introduce students to the field of taxonomy. See Web resources. What if your class discovered a new species of treefrog near your school? What would you choose for its common and scientific names?
7. Participate in the annual Minnesota Frog and Toad Survey. See Web Resources below.

Web resources

DNR

www.dnr.state.mn.us/reptiles_amphibians/index.html
www.dnr.state.mn.us/volunteering/frogtoad_survey/index.html

Binomial nomenclature/taxonomy

animaldiversity.ummz.umich.edu/animal_names/scientific_name/
biology.wisc.edu/documents/dichotomous_key.pdf
www.youtube.com/watch?v=M51AKJqx-7s&noembed=1
www.biologycorner.com/worksheets/dichoto.html
www.stanford.edu/group/lpchscience/cgi-bin/wordpress/images/Taxonomy-T.pdf

Amphibian images

animals.nationalgeographic.com/animals/amphibians/
www.animalplanet.com/amphibians/amphibian-pictures.htm

Amphibian evolution

<https://www.zsl.org/zsl-london-zoo/exhibits/reptile-house/amphibians/early-amphibians,2015,AR.html>
www.edgeofexistence.org/amphibian_conservation/ancient_amphibians.php

Amphibian hibernation

www.backyardnature.net/amph-hib.htm
frogsaregreen.org/tag/amphibian-hibernation/
www.scientificamerican.com/article/how-do-frogs-survive-wint/

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Web resources continued

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 in searchable PDF.

See webapps8.dnr.state.mn.us/volunteer_index.

May–June 2001

“Six Slippery Salamanders” (Young Naturalists article with teachers guide)

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

March–April 2004

Special Delivery (Young Naturalists article with teachers guide)

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

March–April 2008

“The Magic of Morphing” (Young Naturalists article with teachers guide)

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

“Spring Soundscapes”

https://webapps8.dnr.state.mn.us/volunteer_index/past_issues/article_pdf?id=3587

May–June 2008

“Spring to Life Ponds” (Young Naturalists article with teachers guide)

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

January–February 2011

“The Greatest of Feet” (Young Naturalists article with teachers guide)

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.

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Study Questions

Teachers guide for the Young Naturalists article “Chirp, Croak, and Snore” by Mary Hoff. Published in the March–April 2014 *Minnesota Conservation Volunteer*, or visit www.dnr.state.mn.us/young_naturalists/frogs-and-toads-of-minnesota/index.html

Name _____ Period _____ Date _____

1. Why do you think a frog fills its throat with air? _____

2. About what percent of the year do frogs and toads spend in hibernation? _____

3. What do you think the phrase “cycle of life” means? _____

4. It is a quiet spring evening. You hear frogs or toads calling from a nearby pond. Who is calling? What do the songs mean? _____

5. How are tadpoles similar to fish? _____

6. How long does it take frogs and toads to develop from tadpoles into adults? _____

7. Are frogs and toads predators or prey? Explain. _____

8. How can you tell if a frog is a true frog? _____

9. Match terms from List A with terms from List B.

A

B

Wood Frog

Northern Leopard Frog

Chicken Egg

Sylvaticus

Chuckles

Mink Frog

Clamitans

Bullfrog

“Rum ... rum.”

Green Frog

Stinks

Pickerel Frog

10. Are treefrogs true frogs? Why or why not? _____

11. Mark T for true or F for false:

a. Blanchard’s cricket frog was once known as the southern cricket frog. _____

b. *Hyla versicolor* is always gray. _____

c. *Pseudacris crucifer* has an X on its back. _____

d. You can tell Cope’s gray treefrog from eastern gray treefrogs by the sound of its call. _____

e. All treefrogs are good climbers. _____

12. You are hiking in northwestern Minnesota and find a toad in a grove of aspen trees. How can you tell if it is an American toad or a Canadian toad? _____

Challenge: Use the table below to compare and contrast Minnesota’s true frogs and treefrogs, true frogs and toads, or treefrogs and toads. Differences go in the outside boxes and similarities in the middle box.

Differences

Similarities

Differences

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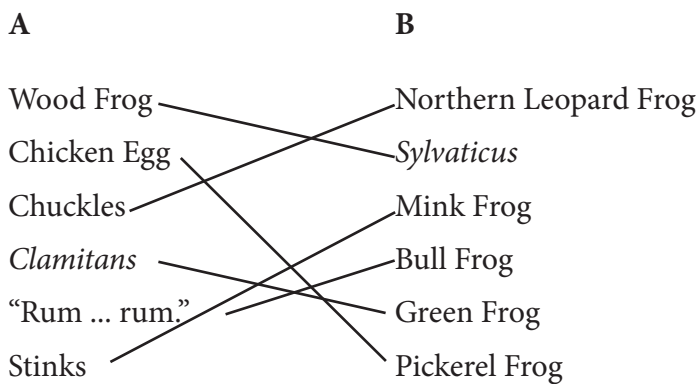
Study Questions Answer Key

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- *1. Why do you think a frog fills its throat with air? **Answers may vary. Air, when pushed out from its throat, makes the frog’s song.**
- *2. About what percent of the year do frogs and toads spend in hibernation? **Frogs and toads spend six to seven months in hibernation. $6 \div 12 = .50$ or 50%; $7 \div 12 = .58$ or 58%**
- *3. What do you think the phrase “cycle of life” means? **Answers may vary. An animal’s cycle of life refers to the changes it undergoes through its life.**
4. It is a quiet spring evening. You hear frogs or toads calling from a nearby pond. Who is calling? What do the songs mean? **Males are calling. Their calls attract females for mating.**
- *5. How are tadpoles similar to fish? **Like fish, tadpoles breathe through gills and swim with tail movements.**
6. How long does it take frogs and toads to develop from tadpoles into adults? **It varies from two months to two years.**
- *7. Are frogs and toads predators or prey? Explain. **They are both predators and prey. Frogs and toads eat other animals and are eaten by other animals.**

8. How can you tell if a frog is a true frog? **True frogs have webbing between their toes.**

9. Match terms from List A with terms from List B.



*10. Are treefrogs true frogs? Why or why not? **No, because they do not have webbing between their toes.**

*11. Mark T for true or F for false:

- Blanchard’s cricket frog was once known as the southern cricket frog. **F**
- Hyla versicolor* is always gray. **F**
- Pseudacris crucifer* has an X on its back. **T**
- You can tell Cope’s from eastern gray treefrogs by the sound of their calls. **T**
- All treefrogs are good climbers. **F**

12. You are hiking in northwestern Minnesota and find a toad in a grove of aspen trees. How can you tell if it is an American or a Canadian toad? **Unlike the American toad, the Canadian toad has a large bump between its eyes.**

*Challenge: Use the table below to compare and contrast Minnesota’s true frogs and treefrogs, true frogs and toads, or treefrogs and toads. Differences go in the outside boxes and similarities in the middle box.

Answers will vary. Encourage students to think creatively. You may wish to ask students to do all three combinations.

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Minnesota Comprehensive Assessments Practice Items

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Name _____ Period _____ Date _____

1. A toad inflates its body and pees to
 - A. attract a mate.
 - B. attract prey.
 - C. scare away predators.
 - D. give people warts.
2. There are _____ species of frogs and toads in Minnesota.
 - A. 44
 - B. 24
 - C. 14
 - D. 4
3. Before it becomes an adult, a frog or toad spends from two months to two years as a
 - A. tadpole.
 - B. true frog.
 - C. treefrog.
 - D. snake.
4. Frogs and toads eat
 - A. insects.
 - B. worms.
 - C. fish.
 - D. A, B, and C
5. To find a bullfrog you might look in _____ and _____ counties.
 - A. Beltrami and Cass
 - B. Clay and Polk
 - C. Washington and Hennepin
 - D. Houston and Winona

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Minnesota Comprehensive Assessments Answer Key

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1. A toad inflates its body and pees to **C. scare away predators**.
2. There are **C. 14** species of frogs and toads in Minnesota.
3. Before it becomes an adult, a frog or toad spends from two months to two years as a **A. tadpole**.
4. Frogs and toads eat **D. A, B, and C**
5. To find a bullfrog you might look in **D. Houston and Winona** counties.

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Vocabulary

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amphibian	cold-blooded, four-legged vertebrate that typically starts out life as an aquatic animal with gills and develops into an air-breathing adult
aspen	deciduous tree of the poplar genus common in the northern and western U.S.
embryo	early stage of an animal’s development before it is born or hatched
gill	organ found in many aquatic organisms that allows them to absorb oxygen from the water
hibernate	spend the winter in a deep sleep
species	group of organisms that resemble each other and may reproduce
sperm	male reproductive cells
tadpole	larval stage in the life cycle of an amphibian, especially frogs and toads

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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
amphibian?

FOLD HERE

A cold-blooded, four-legged, vertebrate that typically starts out life as an aquatic animal with gills and develops into an air-breathing adult is an

What is an
aspen?

FOLD HERE

A deciduous tree of the poplar genus common in the northern and western U.S. is an

An **embryo** is

FOLD HERE

The early stage of an animal’s development before it is born or hatched is an

A **gill** is

FOLD HERE

An organ found in many aquatic organisms that allows them to absorb oxygen from the water is a

To **hibernate** is

FOLD HERE

To **spend the winter in a deep sleep** is to

What is a **species**?

FOLD HERE

A **group of organisms that resemble each other and may reproduce** is a

What are **pectoral fins**?

FOLD HERE

Fins of a fish that correspond to the forelimbs of four-legged animals or to the arms of primates are

What are **sperm**?

FOLD HERE

Male reproductive cells are called

A **tadpole** is

FOLD HERE

The **larval stage in the life cycle of an amphibian, especially frogs and toads** is a

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FOLD HERE

FOLD HERE

FOLD HERE

FOLD HERE

FOLD HERE