

Teachers Guide

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“Fabulous Fox Family” Multidisciplinary Classroom Activities

Teachers guide for the Young Naturalists article “Fabulous Fox Family” by Michael Furtman.
Published in the January–February 2012 *Minnesota Conservation Volunteer*, or visit
www.mndnr.gov/young_naturalists/fox_family.

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 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

The red fox (*Vulpes vulpes*) is one of four species of wild dogs native to Minnesota. Readers will learn about the red fox’s diet and hunting strategies, as well as its territorial and reproductive behavior patterns. Photographs taken by the writer enrich the text.

Suggested reading levels:

Primary through middle/junior high school grades

Total words:

1,570

Materials:

Paper, poster board, colored pencils, crayons, pens, markers, as well as print and online resources your media specialist may provide

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)

www.mndnr.gov/young_naturalists/fox_family



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Minnesota Academic Standards Applications:

“Fabulous Fox Family” 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

Science

Grade 3

3.4.1.1.1: Structure and Function in Living Systems

3.4.3.2.2: Evolution in Living Systems

Grade 5

5.4.1.1.1: Structure and Function in Living Systems

5.4.2.1.2: Interdependence Among Living Systems

Grade 7

7.4.2.1.1; 7.4.2.1.2; 7.4.2.1.3;

7.4.2.2.1; 7.4.2.2.2; 7.4.2.2.3:

Interdependence Among Living Systems

7.4.3.2.3: Evolution in Living Systems

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 Before students read the article, survey the photos. Follow with the KWL strategy (Ogle, 1986) to find out what your students already know (K) about foxes, and if desired, the wild dog family. You might begin by asking 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 to 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 Vocabulary preview). See 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, 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.

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). 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 1, 4, 6, 8, 10, 11, and 14 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) Students may write an essay describing one or more of the main ideas in the article. For example, essays could focus on mating and reproduction, denning, hunting, interactions with other predators, or physical/behavioral adaptations. (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 the essays. Students may work in small groups with each group member focusing on a different main idea. (4) Have students complete the main idea and supporting details activity found at www.teachervision.fen.com/tv/printables/scottforesman/Math_2_TTM_25.pdf.

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Extension activities

1. Invite a DNR wildlife biologist to visit your classroom to present information about the red fox and other wild dog species. See www.dnr.state.mn.us/eco/nongame/index.html.
2. The *Conservation Volunteer* has published several articles about wild dogs you may wish to bundle with this article. See Related Articles. You may wish to challenge students to compare and contrast the author’s point of view in “Red Fox - Resourceful Resource” with those of the authors of “The Wolves of Camp Ripley” and “The Cunning Colonist.”
3. Challenge students to learn more about red fox adaptations. See Web resources.
4. Challenge students to write and illustrate haiku poems about foxes, their prey, and their habitats. See www.wikihow.com/Write-a-Haiku-Poem for excellent step-by-step haiku instructions with accompanying video.
5. Use this article in your life science unit on evolution to explore how plants and animals adapt to environmental conditions.
6. Explore the relationship of predator/prey populations through related readings and class discussion. See Rodents of Minnesota in Web resources.
7. Foxes, like their relative the coyote, have adapted well to the presence of humans. Ask students to compare and contrast the fox with the domesticated dog.

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

Fox/Wild Dog Adaptations

www.blueplanetbiomes.org/gray_wolf.htm

www.macalester.edu/~montgomery/graywolf.html

www.press.uchicago.edu/Misc/Chicago/516962.html

www.desertmuseum.org/kids/oz/long-fact-sheets/coyote.php

www.pbs.org/wnet/nature/interactives-extras/animal-guides/animal-guide-red-fox/2212

Wild Dogs of Minnesota

www.dnr.state.mn.us/mammals/grayfox.html

www.dnr.state.mn.us/mammals/redfox.html

www.dnr.state.mn.us/mammals/coyote.html

www.dnr.state.mn.us/mammals/graywolf.html

Rodents of Minnesota

www.dnr.state.mn.us/mammals/chipmunk.html

www.dnr.state.mn.us/mammals/beaver.html

www.dnr.state.mn.us/mammals/mice_voles_rats/index.html

www.dnr.state.mn.us/mammals/easterncottontail.html

www.dnr.state.mn.us/mammals/snowshoehare.html

www.dnr.state.mn.us/mammals/whitetailedjackrabbit.html

www.dnr.state.mn.us/mammals/muskrat.html

www.dnr.state.mn.us/mammals/porcupine.html

www.dnr.state.mn.us/mammals/flyingsquirrel.html

www.dnr.state.mn.us/mammals/foxsquirrel.html

www.dnr.state.mn.us/mammals/graysquirrel.html

www.dnr.state.mn.us/mammals/redsquirrel.html

www.dnr.state.mn.us/mammals/thirteenlinedgroundsquirrel.html

Minnesota DNR Teacher Resource

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

www.dnr.state.mn.us/dnrkids/index.html

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Related articles

Related *Minnesota Conservation Volunteer* Young Naturalists articles are available online at www.mndnr.gov/volunteer/articles/index.html, including:

September-October 1946

“Red Fox - Resourceful Resource”

webapps8.dnr.state.mn.us/volunteer_index/past_issues/article_pdf?id=5010

November-December 1994

“Shadow Tails”

www.dnr.state.mn.us/young_naturalists/squirrels/index.html (YN article)

March-April 1995

“Wild Dogs”

www.dnr.state.mn.us/young_naturalists/wilddogs/index.html (YN article)

November-December 1997

“Who Made These Tracks?”

www.dnr.state.mn.us/young_naturalists/tracks/index.html (YN article)

January-February 2001

“Scampering Mammals”

www.dnr.state.mn.us/young_naturalists/scamperingmammals/index.html (YN article)

January-February 2003

“Minnesota Is Hopping With Hares and Rabbits”

www.dnr.state.mn.us/young_naturalists/hares_rabbits/index.html (YN article with teachers guide)

March-April 2005

“The Parenting Game”

www.dnr.state.mn.us/young_naturalists/parenting/index.html (YN article with teachers guide)

September 2005

“Wild Vision”

www.dnr.state.mn.us/young_naturalists/vision/index.html (YN article with teachers guide)

January-February 2007

“The Wolves of Camp Ripley”

webapps8.dnr.state.mn.us/volunteer_index/past_issues/article_pdf?id=2280

July-August 2009

“The Cunning Colonist”

webapps8.dnr.state.mn.us/volunteer_index/past_issues/article_pdf?id=5267

January-February 2011

“The Greatest of Feet”

www.dnr.state.mn.us/young_naturalists/feet/index.html (YN article with teachers guide)

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 “Fabulous Fox Family” by Michael Furtman. Published in the January–February 2012 *Minnesota Conservation Volunteer*, or visit www.mndnr.gov/young_naturalists/fox_family

Name _____ Period _____ Date _____

1. Why do you think the fox chose a knoll to sleep on? _____

2. If you see a red fox you are lucky. Why? _____

3. The Canidae family includes what other Minnesota natives? _____

4. Describe the red fox in as much detail as possible. _____

5. If you see tracks in the snow or soft ground, how can you tell if a fox left them? _____

6. What are some prey animals the fox typically hunts for? Can you think of some that are not listed in this article? _____

7. Describe an unusual hunting behavior of the fox. _____

8. What determines the size of a fox’s territory? _____

9. Why did the male fox urinate on bushes, stumps and rocks? _____

10. Another name for the male fox is _____. How do you suppose it got this name? _____

11. The female fox is called the _____. How do you think she got this name? _____

12. Describe the place the foxes picked for their den. Why did they find two dens? _____

13. Where around the world do red foxes range? _____

14. Are kits able to care for themselves when they are born? Explain your answer. _____

Challenge: Draw and label a time line in the space provided that starts when the parent foxes mated and ends when the kits left the den.

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Study Questions Answer Key

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1. Why do you think the fox chose a knoll to sleep on? **Answers may vary, but must demonstrate understanding of the meaning of knoll. The choice of an elevated site gives the fox a good view of its surroundings.**
 2. If you see a red fox you are lucky. Why? **If you see a fox you are lucky because foxes are shy, secretive animals.**
 3. The Canidae family includes what other Minnesota natives? **Other members of the Canidae family native to Minnesota include the gray wolf, gray fox, and coyote.**
 4. Describe the red fox in as much detail as possible. **Answers may include comparisons to wolves, coyotes and gray foxes, weight, length, color, bushy hair, and pointed nose and ears.**
 5. If you see tracks in the snow or soft ground, how can you tell if a fox left them? **Foxes travel in straight lines, while domesticated dogs wander in unpredictable directions.**
 6. What are some prey animals the fox typically hunts for? Can you think of some that are not listed in this article? **Students may list: mice, voles, rabbits, squirrels, rats, birds, snakes, fish and insects. Other prey not listed that students may know from personal experience, books, or television are chipmunks, gophers, weasels, and domesticated animals like cats and chickens.**
 7. Describe an unusual hunting behavior of the fox. **The fox leaps high in the air and then falls directly on its prey.**
 8. What determines the size of a fox’s territory? **The primary determinant is availability of prey. Students may also mention competition from other predators or quality of habitat for prey.**
 9. Why did the male fox urinate on bushes, stumps, and rocks? **Foxes mark their territory with urine to let competitors and potential mates they are there.**
 10. Another name for the male fox is **dog-fox**. How do you suppose it got this name? **Answers will vary. Perhaps because foxes look like domestic dogs.**
 11. The female fox is called the **vixen**. How do you think she got this name? **Students’ answers will depend on their understanding of vixen. A common meaning for vixen is an evil-tempered woman. Perhaps the fox’s habit of preying upon domestic animals led to the conclusion that it is bad tempered.**
 12. Describe the place the foxes picked for their den. Why did they find two dens? **Answers may vary. The den was in a large pile of boulders with lots of spaces within. There were two entrances for escape from predators. The front entrance faced south to capture heat from the sun. The den was on high ground with a good view of the area. The interior of the den was lined with dry grass and leaves. They made two dens in case the first choice became unsafe or unhealthy.**
 13. Where around the world do red foxes range? **Red foxes are found in North America, Europe, and Asia.**
 14. Are kits able to care for themselves when they are born? Explain your answer. **No. Red fox babies are born blind, deaf and without teeth, so they are helpless.**
- Challenge:* Draw and label a time line in the space provided that starts when the parent foxes mated and ends when the kits left the den. **The length of the time line should be about eight months. Encourage students to include as many details as possible. What happened between mating and the birth of the cubs? What happened between birth and the end of summer? Students may wish to consult other sources of information.**

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Minnesota Comprehensive Assessments Practice Items

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Name _____ Period _____ Date _____

1. All foxes

- A. are red in color.
- B. hunt alone.
- C. eat chickens.
- D. live in North America.

2. By the age of six months fox kits are

- A. ready to leave their parents.
- B. as tall as their parents.
- C. ready to hunt on their own.
- D. all of the above

3. Is the red fox a predator or a prey animal? Explain.

4. The vixen fox feeds her newborn babies with

- A. milk.
- B. mice.
- C. snakes.
- D. gophers.

5. Young red foxes stay in their parents’ territory for two years.

- A. True
- B. False

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1. All foxes **B. hunt alone.**
2. By the age of six months fox kits are **D. all of the above**
3. Is the red fox a predator or a prey animal? Explain. **The correct answer is both. Foxes prey primarily on rodents and are preyed upon by wolves and coyotes.**
4. The vixen fox feeds her newborn babies with **A. milk.**
5. Young red foxes stay in their parents’ territory for two years. **B. False**

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Vocabulary

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habitat	environment in which an organism lives
knoll	a small hill
nursing	mammals feeding their young with milk produced by the mother
parasite	organism that lives on or in another organism
predator	animal that kills and eats other animals
rodent	small gnawing mammal whose teeth grow continuously
territory	area animals consider their own
tussle	to wrestle or play in a rough manner
vixen	female fox
vole	small rodent resembling a mouse but with a stouter body, a shorter hairy tail, a slightly rounder head, and smaller ears and eyes

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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 a
habitat?

FOLD HERE

**The environment in which an
organism lives is its**

A **knoll** is a

FOLD HERE

A **small hill**
may be called a

When a mother is
nursing she is

FOLD HERE

When a female mammal is
feeding her young with milk
she produces she is

What is a
parasite?

FOLD HERE

An **organism that lives on or in
another organism** is a

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A **predator**
is an

FOLD HERE

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

What is a
rodent?

FOLD HERE

A **small gnawing mammal** is a

An animal's
territory is

FOLD HERE

**The area it considers
its own** is called an animal's

To
tussle
is to

FOLD HERE

To **wrestle or play in a
rough manner**
is to

A
vixen
is a

FOLD HERE

A **female fox**
may be called a

A
vole
is a

FOLD HERE

What is **small rodent resembling a mouse but with a stouter body, a shorter hairy tail, a slightly rounder head, and smaller ears and eyes?**

FOLD HERE

FOLD HERE

FOLD HERE

FOLD HERE