



Grade Level:

1st Grade

Time:

90 Minutes

Season:

Spring

Objectives:

Students will be able to...

- Identify and match two prairie wetland parents with their offspring
- Differentiate between geese/goslings and ducks/ducklings
- Give an example of offspring and parents that look similar to each other and that look different from each other
- Recognize that not all life cycle stages look like the adult
- Enjoy exploring the prairie and wetlands and observing animal families



Prairie Wetlands Learning Center

Animal Families

1st Grade Animals and Habitat Series

Summary

During an investigation, students make predictions as well as ask and answer their own questions about animal families. They search for animals in the prairie and a wetland to observe parents and offspring. Using a checklist, they track which parents and which offspring they find. Back inside, students compare their results to their predictions and share other discoveries

Background

The purpose of this lesson is to introduce 1st graders to animal families and give them an enjoyable first-hand experience searching for and watching prairie and wetlands animals. Using the KWL model, students design an investigation based upon their own questions about animal families. Their field work helps answer those questions and allows for additional discovery.

Members of animal families may include parents, offspring, siblings, and other relatives. Animal families are part of the elaborate realm of animal behavior. "All species of animals have intricate and purposeful patterns of behavior. Some behaviors are learned while others are inherited... Animal behavior refers to the way in which an animal responds to its environment. The behavior takes many forms including communication, courtship, caring for young, territorial disputes, finding and consuming food, and for some species, migration or hibernation." (Wildlife Forever) Many offspring are not parented but are genetically programmed for survival, such as insects, reptiles, and amphibians. Offspring living in the family social unit, such as mammals and birds, learn many of their behaviors from siblings, parents, and/or relatives.

Among most animals, it is the mother who typically cares for the young.

- Female birds incubate the clutch of eggs and warm the brood after hatching. Some mother birds provide more care than others, depending upon the type of bird. *Precocial* birds like prairie chickens and waterfowl, for example, hatch with eyes open and with downy feathers.

Minnesota Academic Standards

Subjects Covered:
Science

Helps support 13 standards and 14 benchmarks. See section "2019 Minnesota Academic Standards in Science" and "2009 Minnesota Academic Standards in Language Arts."



Background, *continued*

Materials:

- ☐ Clipboards, pencils, check lists
- ☐ Life cycle photo sets,
- ☐ pond nets and tubs,
- ☐ laminated copies of "Ducks and Geese" for chaperones

Skills Used

Observing, matching, listening and following directions, examining, socializing, cooperating, exploring, asking and answering questions, thinking critically

- They can walk, run, and feed themselves right away. *Altricial* species like bobolinks and red-winged blackbirds, however, hatch with eyes closed and without feathers. They cannot walk or run yet. Their parents must provide food in order for their offspring to survive. Both Canada goose parents care for the young. The father's role in this case is to watch for and alert the family to danger, defend the territory, and protect the family from harm.
- Adult females are usually the primary care provider amongst mammals as well. Raccoons are ready to leave their tree den to explore at about 10 weeks of age and are fully independent at four to six months of age. Gray squirrels and striped skunks wean at about two months of age but stay with their mother for two more months. The young of cottontails, muskrats, and meadow mice leave their mother at about four weeks of age. Both coyote parents help raise their young by regurgitating food for them to eat, and the pups are independent of their parents by six to nine months of age. Mammal families remain intact for varying periods of time depending upon the species.

During their spring visit, 1st graders are encouraged to notice if parents and offspring look alike or completely different. For example...

- Parents and offspring of aquatic mammals like mink and muskrats look nearly identical except for differences in size. Prairie mammal parents and offspring also look similar, such as 13-lined ground squirrels and plains pocket gophers, especially the older the offspring become.
- Offspring of ducks and geese are the same shape but different sizes. Both parents and offspring have feathers, swim, and search for food. They are less identical looking than aquatic mammals but more so than some insects.
- Also, parents and offspring of insects which undergo simple metamorphosis (grasshoppers for instance) look nearly identical except for differences in size. They begin life as an egg. The nymph hatches from the egg and looks like a miniature adult. The nymph sheds its skin several times to accommodate the growth and development of its body until it reaches adult size and maturity.

However, parents and offspring of insects which undergo complete metamorphosis (butterflies) look entirely different from each other. These insects also start life as an egg from which the larva (caterpillar) emerges, grows, and sheds its skin several times. The caterpillar makes a chrysalis within which the pupa transforms into the adult form and emerges.

Although students likely will not witness every life cycle stage of the animals they observe, they can search for and find as many as possible. Classroom follow-up can help fill in the gaps.

A complete animal family 1st graders are likely to see is the scud, which reproduces in wetlands in spring. Scuds apparently mate in a piggyback like fashion. Females carry and brood 15 to 50 eggs in a protected pouch beneath the thorax, called a marsupium. Pregnant females have a pink or orange colored spot in the middle of their body.



Background, *continued*

The orange spot is the marsupium. The eggs hatch after one to three weeks but the young remain within the marsupium for about one more week. The mother scud releases her young from the pouch the first time she sheds her skin after mating. Juveniles look like adults but smaller. As they grow, they shed their exoskeleton, becoming mature adults after the eighth or ninth time. After each molt, the young scud looks blue-gray in color.

In addition, the chart below lists other animals by habitat as well as the name used for their young.

Habitat	Animal	Offspring Names (Life Cycle)
Prairie	Killdeer and sparrows	Egg, hatchling, chick, fledgling, juvenile, brood
	13-lined ground squirrels	pup
	Grasshoppers and crickets	Egg in egg pods, nymph
	Millipedes	Egg, larva/nymphs
	Ladybugs and ants	Egg, larva, pupa
Wetland	Egrets and herons and red-winged blackbirds	Egg, hatchling, chick/nestling, fledgling, juvenile
	American coots	Egg, chick, fledgling, juvenile
	Mallards	Egg, duckling, brood, fledgling, juvenile
	Muskrats	kit
	Turtles	Egg, hatchling
	Frogs and Toads	Frog spawn, egg, tadpole, polliwog, froglet
	Scuds	Egg, juvenile
Both Habitats	Swans	Egg, hatchling/cygnet, fledgling, brood
	Canada geese	Egg, hatchling, gosling, juvenile, fledgling, brood
	Purple martins, swallows	Egg, hatchling, chick/nestling, fledgling, juvenile, brood
	Hawks	Egg, hatchling, nestling/eaglet, fledgling, juvenile, brood
	Eagles	Egg, hatchling, nestling/eyas/hawkling, fledgling, juvenile, brood
	American white pelicans	Egg, hatchling/chick, nestling/chick, fledgling, juvenile
	Gulls	Egg, hatchling, chick/nestling, fledgling, juvenile
	Garter snakes	Egg, hatchling, juvenile
	Dragonflies	Egg, larva/nymph, teneral
	Damselflies	Egg, larva, teneral
	Butterflies and Moths	Egg, larva or caterpillar, pupa in chrysalis/cocoon
	Snails	Egg, hatchling
	Spiders	Egg, spiderling



Background, *continued*

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As spring progresses, the abundance and diversity of wildlife increases. The best time to visit the Prairie Wetlands Learning Center to observe animal families during the school year is mid- to late spring.

Prairie Wetlands Learning Center Springtime Animal Phenology

Habitat	Early Spring	Mid-Spring	Late Spring
Prairie			
Killdeer and sparrows	✓	✓	✓
Millipedes		✓	✓
Ladybugs and ants		✓	✓
13-lined ground squirrels			✓
Grasshoppers and crickets			✓
Wetland			
Egrets, herons and red-winged blackbirds	✓	✓	✓
American coots	✓	✓	✓
Mallards	✓	✓	✓
Muskrats	✓	✓	✓
Frogs and Toads	✓	✓	✓
Scuds	✓	✓	✓
Turtles			✓
Both Habitats			
Hawks	✓		
Swans	✓	✓	✓
Canada geese	✓	✓	✓
Eagles	✓	✓	✓
Snails	✓	✓	✓
Spiders	✓	✓	✓
Purple martins, swallows		✓	✓
American white pelicans		✓	✓
Gulls		✓	✓
Dragonflies		✓	✓
Butterflies and Moths		✓	✓
Garter snakes			✓
Damselflies			✓



Background, *continued*

As spring continues and summer begins, the Prairie Wetlands Learning Center can be a great place to observe animal families, including ducks and geese. The Prairie Wetlands Learning Center is part of the Fergus Falls Wetland Management District, which emphasizes waterfowl production and ensures the preservation of habitat for migratory birds, threatened and endangered native species, and resident wildlife. The District encompasses land within five counties of western Minnesota: Otter Tail, Wilken, Wadena, Douglas, Grant. In this area, freshwater prairie wetlands and associated northern tallgrass prairie join to form a zone of transition with the northern hardwood forest. Wetlands offer a buffet of aquatic invertebrates which waterfowl consume to refuel their energy reserves during migration, produce eggs, and fuel rapid growth of their offspring. Grasslands and woodlands provide nesting habitat for various species including blue-winged teal, mallards, and wood ducks. This blend of habitats provides for an impressive diversity of over 290 bird species observed within the District. About 54% of them nest here (156 species). Agricultural changes to the landscape include the loss of most native prairie and the drainage of over 80% of the small wetlands. Nonetheless, the area remains a critical waterfowl production and migration area - the highest waterfowl nesting density in Minnesota was recorded here (3.5 nests per acre).

The Prairie Wetlands Learning Center is located on the eastern edge of North America's Prairie Pothole Region, 300,000 square miles in size, also known as the "duck factory." Over 50% of the continent's ducks hatch from the Prairie Pothole Region. It is the complex of prairies and wetlands that makes the Prairie Pothole Region the most important breeding and nesting site for the North American population of dabbling ducks (such as mallard, wood duck, and blue-winged teal). First graders visiting the Prairie Wetlands Learning Center in spring have the first-hand opportunity to view and witness this phenomenon as they search for animal families.

Teacher Preparation

To maximize outdoor classroom time at the Prairie Wetlands Learning Center, teachers may

- Conduct the introduction in the section "Field Investigation Procedure" at school. Upon arrival at the Prairie Wetlands Learning Center, the Prairie Wetlands Learning Center instructor may conduct a quick review before proceeding, allowing for more time in the outdoor classroom.
- Organize students into small groups, each group led by a chaperone, everyone wearing nametags. Each chaperone is responsible for helping their students to follow-through with directions and with dispersal and collection of materials. Their job is not to provide the answers but to guide students to make their own discoveries. The Prairie Wetlands Learning Center staff person's job is to manage and guide the entire large group, distribute equipment to chaperones, and provide trail leadership
- We highly recommend conducting one or more of the suggested extensions before your visit in order to integrate this field investigation into the classroom study of animals, families, life cycles, habitats, or other topics. We believe such integration enhances student motivation for learning in other curricular areas.



Prairie Wetlands Learning Center Instructor Prep

Prepare and organize materials, and select field location, either the Mallard Marsh Trail or the trail to the Adams Pond platform.

Field Investigation Procedure

Introduce the Topic

1. In the amphitheater or classroom, welcome students, teachers, and chaperones to the Prairie Wetlands Learning Center. Review rules for the trail.
2. Explain to students that they will have the chance to search for animals and animal families when they go outside. Ask them to tell you some things that they already know about animal families. (This is the K part of the KWL model; what do students already know?) Prairie Wetlands Learning Center instructors may help prompt students as they see fit with questions such as: Have they seen any animal families before? How about goose or duck families? Which members of those families did they see? Are there other animal families in the prairie or wetlands?
3. Ask them what they would like to find out about animal families when they are outside. What would they like to find out about animal families today when they go outside in the prairie and in a wetland? Jot down their questions on a clipboard. (This is the W part of the KWL model; what do students wonder or want to find out?)
4. Ask the class what kinds of animal families they think they might see? Which ones might they see the most or least? Write down their predictions on the clipboard.
5. Provide students with clipboards, checklist, and pencils. Tell them to write their name and the date at the top. See student materials, "Animal Families Checklist." When they find an animal outside, they can write the name of the animal and make a check mark in the appropriate column.
6. Before heading out on the trail, review the rules of respect for the trail – just the same as at school, plus special trail rules (such as no picking plants, follow the leader, be kind to animals, stay on the trail, etc.)

Explore Outside

7. Most of the class visit to the Prairie Wetlands Learning Center should be spent outside with the exact amount of time at the discretion of the Prairie Wetlands Learning Center instructor. Explore a wetland and a prairie together outside, searching for animal families. Prairie Wetlands Learning Center instructors use their discretion depending upon the current spring phenology. Suitable locations include the Mallard Marsh Trail or the trail to the Adams Pond dock. Help the class notice when they are entering a new habitat (prairie, wetland, oak savanna).
8. In each habitat, look and listen carefully for animals.
 - Look in soil, muck, and water for invertebrates. Use tubs and nets to collect and examine aquatic invertebrates.
 - Watch the water, grasses, and sky for perching, singing, and flying birds and flying and skating insects.
 - Search grasses for insects and other invertebrates on leaves and stems.
 - Check the mowed lawn around the barn for 13-lined ground squirrels.
 - Check the water surface for a swimming muskrat or turtle.





Field Investigation Procedure, *continued*

9. Provide chaperones with laminated copies of “Ducks and Geese” to use as a visual aid if needed within their small groups. Assist with identification of animals by name (such as goose) and by family role (such as gosling). If possible, help students differentiate between ducks and geese and ducklings and goslings.
10. When animals are observed, prompt students with questions as appropriate to encourage thinking and discussion.
 - How do the animals use their scales/feathers/webbed feet/colors/wings to help them survive?
 - Which family member are they observing? (parent or offspring) If offspring, students may write down the name of the offspring on their checklist with the check mark (such as fawn).
 - How are the parents and young different? Similar?
 - What behaviors can they observe in parents and offspring that help offspring survive?
 - What stage of life are they observing? (for example, egg, larva/caterpillar, pupa/chrysalis, or adult butterfly?)
11. If students do not see many animal families, suggest that they flip over their paper and sketch one of the families they did see. Sketching provides a chance to ask them the same questions as in step 10, above
12. To wrap-up, sit together as a whole class back inside and ask the class to share what they discovered outside. When you ask them “how do you know?” encourage them to answer based upon their observations
12. Answer the questions that students generated as recorded on the clipboard. (This is the L part of the KWL model; what have we learned?) Review the kinds and numbers of different animals and families observed as recorded on their check lists and compare to their predictions. How do they think animal families might be important? Provide them with a handout to take home depicting duck and goose families (see section, “Ducks and Geese”). Thank them all for coming!

Reflection



Vocabulary

Family, gosling, duckling, life cycle, offspring, sibling



Weather Alternatives

Field investigations take place rain or shine. Everyone should dress appropriately for the weather. In the event of unsafe weather (lightning, high winds) or pouring rain, everyone must come indoors. Prairie Wetlands Learning Center staff make every effort to make your travel worthwhile despite the weather and prepare indoor, age-appropriate plans. Prairie Wetlands Learning Center staff welcome teacher input into these plans. Some possible alternatives might include:

- Go outside for a very short amount of time, even if only under the deck, to search for animals and their families. Look up for bird nests constructed on the tops of the pillars. Look down for invertebrates and look out for other birds.
- Tour the exhibit area and watch prairie wetlands seasonal video footage with the objective of finding examples of animal families. Complete the checklist accordingly. In which seasons do most animals raise their families at the Prairie Wetlands Learning Center? Which kinds are present?
- Read one of the stories available at the Prairie Wetlands Learning Center. See section, “References and Resources,” for possibilities.
- Conduct the activity, “Are You Me?” from Aquatic Project WILD, steps one and seven through nine.
- Provide sets of life cycle photos of different animals that people observe in spring at the Prairie Wetlands Learning Center. Challenge students to sequence them correctly. Use some of the same question prompts as in step 10 above.
- Provide Canada goose and mallard mounts. Help students study their similarities and differences. Provide crayons and paper so students can draw them.





Teacher-Led Extensions and Assessment Ideas

Try these activities at school to extend your visit!

- Search the school grounds. Can you find any animal families, or evidence of them? (such as squirrel and bird nests, bird houses, ant hills)
- Visit other habitats where animals raise their young such as a local lake, river, stream, prairie, or forest. Compare and contrast what you find there with your discoveries at the Prairie Wetlands Learning Center.
- Conduct the activity, "Are You Me?" from Aquatic Project WILD, steps two through six. (Students bring in photos themselves as a child and baby or of relatives as a child and adult.)
- Introduce the concept of mass. Compare your newborn baby weight and current weight. Can you find something in the classroom or at home which weighs the same? How much have you grown? Compare your own baby weight to that of a baby animal. Who is larger/smaller? Who grows to an adult size first?
 - For example, a mallard hatchling weighs about 32 grams (1.13 ounces or 0.07 pounds). By about 56 days or almost two months of age when it is first able to fly, it weighs about 740 grams (26.10 ounces or 1.63 pounds). In two months it gains 708 grams of weight, a 2,300% increase in weight. A human baby weighing 7 pounds at birth and growing at the same rate would weigh 116 pounds by two months of age. Many humans would not reach that weight until they were in high school, after much more time, about 15 years. Ducks grow much faster than humans because ducks must be large enough and strong enough to disperse and migrate by late summer through mid-fall.
- Act out the stages of complete and incomplete metamorphosis of two different insects (such as ants and grasshoppers).

For the Prairie Wetlands Learning Center Educator

Prairie Wetlands Learning Center Theme – the Prairie Pothole Region

Primary Environmental Education Message – The prairie pothole region is valuable and in need of restoration and protection.

Sub-message – Wildlife: The Prairie Pothole Region is home to a variety of resident and migratory wildlife.

Prairie Wetlands Learning Center Environmental Education

Objectives – Use scientific methodology to explore the environment (ask question, hypothesize, collect data, analyze data, form conclusions, make recommendations). (Wildlife and Habitat)

– Identify the components and functions of a given ecosystem by observing, counting, and describing the animals and plants in that ecosystem (Wildlife and Habitat)





2019 Minnesota Academic Standards in Science

This lesson helps support the following state standards with **blue representing Science and Engineering Practices**, **orange representing Disciplinary Core Ideas**, and **green representing Crosscutting Concepts** found in Three-Dimensional Learning.

Strand 1 Exploring phenomena or engineering problems

Substrand 1.1 Asking questions and defining problems

Standard 1.1.1 Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read.

Benchmark 1L.1.1.1 **Ask questions based on observations about the similarities and differences between young plants and animals and their parents. (Patterns)** (P: 1, CC: 2, CI: LS3) *Examples of observations may include leaves from the same kind of plant are the same shape but can differ in size; and a particular breed of dog looks like its parents but is not exactly the same.*

Strand 3 Developing possible explanations of phenomena or designing solutions to engineering problems

Substrand 3.1 Developing and using models

Standard 3.1.1 Students will be able to develop, revise, and use models to represent the students' understanding of phenomena or systems as they develop questions, predictions and/or explanations, and communicate ideas to others.

Benchmark 1L.3.1.1 **Develop a simple model based on evidence to represent how plants or animals use their external parts to help them survive, grow, and meet their needs. (Structure and Function)** (P: 2, CC: 6, CI: LS1) *Examples of external parts may include acorn shells, plant roots, thorns on branches, turtle shells, animal scales, animal tails, and animal quills.*

Strand 4 Communicating reasons, arguments and ideas to others

Substrand 4.2 Obtaining, evaluating and communicating information

Standard 4.2.1 Students will be able to read and interpret multiple sources to obtain information, evaluate the merit and validity of claims and design solutions, and communicate information, ideas, and evidence in a variety of formats

Benchmark 1L.4.2.1.2 **Obtain information using various features of texts and other media to determine patterns in behavior of parents and offspring that help offspring survive. (Patterns)** (P: 8, CC: 1, CI: LS1) *Examples of text features include headings, glossaries, electronic menus, pictures, illustrations, icons, etc. Examples of behavior patterns may include the signals that offspring make (such as crying, chirping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).*





2009 Minnesota Academic Standards in Language Arts

This lesson supports the following state standards...

Strand INFORMATIONAL TEXT

Substrand Informational Text K-5

Standard Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

Benchmark 1.2.1.1 Ask and answer questions about key details in a text.

Standard Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

Benchmark 1.2.3.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text.

Standard Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Benchmark 1.2.4.4 Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

Standard Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.

Benchmark 1.2.5.5 Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.

Standard Read and comprehend complex literary and informational texts independently and proficiently.

Benchmark 1.2.10.10 With prompting and support, read informational texts appropriately complex for grade 1, as well as select texts for personal enjoyment, interest, and academic tasks.

Strand FOUNDATIONAL SKILLS

Substrand Foundational Skills K-5

Benchmark 1.3.0.4 Read with sufficient accuracy and fluency to support comprehension. a. Read grade level text with purpose and understanding to promote oral and silent reading fluency. c. Use context and other cues (e.g. phonics, word recognition skills, prior knowledge) to confirm or self-correct word recognition and understanding, re-reading as necessary.

Strand SPEAKING, VIEWING, LISTENING AND MEDIA LITERACY

Substrand Speaking, Viewing, Listening and Media Literacy K-5

Standard Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

Benchmark 1.8.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).





Language Arts Standards, *continued*

- b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
- c. Ask questions to clear up any confusion about the topics and texts under discussion.
- d. Listen to others' ideas and identify others' points of view.
- e. Follow two-step oral directions.

Standard Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Benchmark 1.8.2.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media (e.g., stories, poems, rhymes, songs).

Standard Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Benchmark 1.8.3.3 Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Standard Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

Benchmark 1.8.4.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.

Strand LANGUAGE

Substrand Language K-5

Standard Demonstrate understanding of figurative language, word relationships and nuances in word meanings.

Benchmark 1.10.5.5 With guidance and support from adults, demonstrate understanding of word relationships and nuances in word meanings to develop word consciousness.

- a. Sort words into categories (e.g., colors, clothing) to gain a sense of the concepts the categories represent.
- b. Define words by category and by one or more key attributes (e.g., a duck is a bird that swims; a tiger is a large cat with stripes).
- c. Identify real-life connections between words and their use (e.g., note places at home that are cozy).

References and Resources

For Children

- *A Monarch Butterfly's Life* by John Himmelman
- *An Egg is Quiet* by Dianna Aston and Sylvia Long
- *Animal Babies in Towns and Cities* by Editors of Kingfisher
- *Animal Families* by Colin Threadgall
- *Animal Families* by DK Publishing
- *Animal Families, Animal Friends* by Gretchen Woelfle
- *Baby Animal Families* by Gyo Fujikawa



References and Resources, *continued*

- *Baby Bear Discovers the World* by Marion Dane Bauer
- *Canada Goose, Life Cycles* by Jason Cooper
- *Carry Me! Animal Babies on the Move* by Susan Stockdale
- *Creepy, Crawly Caterpillars* by Margery Facklam
- *Duckling at Home on the Pond* by Sarah Toast
- *From Tadpole to Frog* by Kathleen Weidner Zoehfeld
- *Have You Seen My Duckling?* By Nancy Tafuri
- *Hop Frog* by Rick Chrustowski
- *Little Lost Fox Cub* by Louis Espinassous and Claudine Routiaux
- *My Little Book of Painted Turtles* by Hope Irvin Marston
- *See How They Grow, Frog* by Angela Royston, a Dorling Kindersley Book
- *Starting Life, Butterfly* by Claire Llewellyn and Simon Mendez
- *Starting Life, Ducks* by Claire Llewellyn and Simon Mendez
- *The Very Hungry Caterpillar* by Eric Carle
- *Watch Me Grow, Duckling* by Lisa Magloff

For Adults

- *A Guide to Common Freshwater Invertebrates* of North America by J. Reese Voshell, Jr.
- *A Season with Eagles* by Dr. Scott Nielson
- *Aquatic Project WILD, Aquatic Education Activity Guide* by the Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council
- *Damselflies of the Northwoods* by Bob DuBois
- *Dragonflies of the Northwoods* by Kurt Mead
- *Early Themes: Life Cycles: Butterflies, Chicks, Frogs, and More! (Grades K-1)* by Maria L. Chang
- *Wild Animal Families* by Margaret Davidson
- *Wildlife Forever CD ROM Curriculum for Elementary Grades 3-6* by Ann E. McCarthy
- Names of Animals, Babies, and Groups, on the Enchanted Learning web site
- Scuds, a Stillwater Staple on the BC Adventure Network website
- Snail life cycle found on the applesnails website

Credits

This field investigation was developed and written by Prairie Wetlands Learning Center Staff, U.S. Fish and Wildlife Service. Thanks to Prairie Science Class naturalist Deb Strege for reviewing this lesson plan. Thanks to the following teachers for reviewing this lesson plan: Angela Nord, home school parent/educator, Fergus Falls; Sarah Collins, kindergarten and home school parent/educator, Deer Creek/Hewitt; Renee Feddersen, Breckenridge Elementary; and Jill Damrau, Adams School, Fergus Falls. Photos provided by Dave Ellis and Molly Stoddard/USFWS.

