

TEACHERS GUIDE

to “Now You See Me, Now You Don't”

Multidisciplinary classroom activities based on the Young Naturalists nonfiction story in *Minnesota Conservation Volunteer*, Jan-Feb 2025, mndnr.gov/mcvmagazine.

Minnesota Conservation Volunteer magazine tells stories that connect readers to wild things and wild places. Subjects include earth science, wildlife biology, botany, forestry, ecology, natural and cultural history, state parks, and outdoor life.

Education has been a priority for this magazine since its beginning in 1940. “One word—Education—sums up our objective,” wrote the editors in the first issue. Thanks to the MCV Charbonneau Education Fund, every public library and school in Minnesota receives a subscription. Please tell other educators about this resource.

Every issue now features a Young Naturalists story and an online Teachers Guide. As an educator, you may download Young Naturalists stories and reproduce or modify the Teachers Guide. The [student portion of the guide](#) includes vocabulary words, study questions, and other materials.

Readers’ contributions keep *Minnesota Conservation Volunteer* alive. The magazine is entirely financially supported by its readers.

Find every issue online. Each story and issue is available in a searchable PDF format. Visit mndnr.gov/mcvmagazine and click on *past issues*.

Thank you for bringing Young Naturalists into your classroom!

“Now You See Me, Now You Don't”

Multidisciplinary classroom activities based on the Young Naturalists nonfiction story in *Minnesota Conservation Volunteer*, Jan-Feb 2025, mndnr.gov/mcvmagazine.



SUMMARY. Camouflage is very helpful to animals. Camouflage helps animals blend into their surroundings, increasing their chances of survival. “Now You See Me, Now You Don’t” helps Young Naturalists learn about four different types of camouflage through examples of Minnesota wildlife that have mastered the art of blending in!

SUGGESTED READING LEVELS. Third through middle school grades

MATERIALS. KWL organizer; optional resources include dictionaries, video viewing equipment, Internet access and other print and online resources your media specialist may provide.

PREPARATION TIME. 10–15 minutes, not including time for extension activities.

Estimated instruction time. 30–60 minutes, not including extension activities.

MINNESOTA ACADEMIC STANDARDS APPLICATIONS. “Now You See Me, Now You Don’t” activities described below may be used to support the following Minnesota Department of Education standards for students in grades 3–8. For more information on the Minnesota Academic Standards, see www.education.state.mn.us.

WRITING BENCHMARKS (GRADES 3-8)

Text Types and Purposes (Benchmarks 3.6.2.2, 4.6.2.2, 5.6.2.2, 6.7.1.1, 6.7.2.2, 7.7.1.1, 7.7.2.2, 8.7.1.1, 8.7.2.2)

Research to Build and Present Knowledge (Benchmarks 3.6.7.7, 3.6.8.8, 4.6.7.7, 4.6.8.8, 4.6.9.9, 5.6.7.7, 5.6.8.8, 5.6.9.9, 6.7.7.7, 7.7.7.7, 8.7.7.7,)

LANGUAGE BENCHMARKS GRADES 3-8)

Vocabulary Acquisition and Use (Benchmarks 3.10.4.4, 3.10.5.5, 3.10.6.6, 4.10.4.4, 4.10.6.6, 5.10.4.4, 5.10.6.6, 6.11.4.4, 6.11.5.5, 6.11.6.6, 7.11.4.4, 7.11.5.5, 7.11.6.6, 8.11.4.4, 8.11.5.5, 8.11.6.6)

READING BENCHMARKS Informational Text

Key Ideas and Details (Benchmarks 3.2.1.1, 3.2.2.2, 4.2.1.1, 4.2.2.2, 5.2.1.1, 5.2.2.2, 6.5.1.1, 6.5.2.2, 7.5.1.1, 8.5.1.1)

Craft and Structure (Benchmarks 3.2.4.4, 3.2.5.5, 4.2.4.4, 5.2.4.4, 6.5.4.4, 7.5.4.4, 8.5.4.4)

Integration of Knowledge and Ideas (Benchmarks 3.2.7.7, 4.2.7.7, 4.2.9.9, 5.2.7.7, 5.2.9.9, 6.5.7.7)

WRITING BENCHMARKS:

Text Types and Purposes (Benchmarks 3.6.2.2, 4.6.2.2, 5.6.2.2, 6.7.1.1, 6.7.2.2, 7.7.1.1, 7.7.2.2, 8.7.1.1, 8.7.2.2)

Research to Build and Present Knowledge (Benchmarks 3.6.7.7, 3.6.8.8, 4.6.7.7, 4.6.8.8, 4.6.9.9, 5.6.7.7, 5.6.8.8, 5.6.9.9, 6.7.7.7, 7.7.7.7, 8.7.7.7,)

SPEAKING, VIEWING, LISTENING AND MEDIA LITERACY (GRADES 3-8)

Comprehension and Collaboration (Benchmarks 3.8.1.1, 3.8.2.2, 4.8.1.1, 4.8.2.2, 5.8.1.1, 5.8.2.2, 6.9.1.1, 6.9.2.2, 7.9.1.1, 7.9.2.2, 8.9.1.1)

Presentation of Knowledge and Ideas (Benchmarks 3.8.4.4, 4.8.4.4, 5.8.4.4, 6.9.4.4, 7.9.4.4, 8.9.4.4)

READING BENCHMARKS: LITERACY IN SCIENCE AND TECHNICAL SUBJECTS

Key Ideas and Details (Benchmarks 6.13.1.1, 6.13.2.2)

Craft and Structure (Benchmarks 6.13.4.4, 6.13.6.6)

SCIENCE (*CODING IS BASED ON THE 2019 COMMISSIONER APPROVED DRAFT OF MN ACADEMIC STANDARDS IN SCIENCE)

SCIENCE AND ENGINEERING PRACTICES

1. Asking questions (for science) and defining problems (for engineering)
3. Planning and carrying out investigations
6. Constructing explanations and designing solutions

7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

CROSS CUTTING CONCEPTS

2. Patterns
3. Structure and function
7. Stability and change

DISCIPLINARY CORE IDEAS

- Life Sciences 1: From molecules to organisms: Structures and processes
- Life Sciences 2: Ecosystems: Interactions, energy, and dynamics
- Life Sciences 3: Heredity: Inheritance and variation of traits
- Life Sciences 4: Biological Evolution: Unity and diversity
- Earth and Space Sciences 3: Earth and human activity

SOCIAL STUDIES

History (Benchmark 7.4.4.20.7)

For current, complete Minnesota Academic Standards, see www.education.state.mn.us. Teachers who find other connections to standards are encouraged to contact *Minnesota Conservation Volunteer*.

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Preview. Share this scenario with students: They are wildlife biologists who have been hired to write a nonfiction story for kids about camouflage (you may need to provide a basic definition, such as how wildlife blend into their surroundings). Have students work with a partner to generate a list of possible questions readers might have about camouflage. Then, ask students to think about how the questions on their list would help them write the story. Would they try to answer every question? How would they decide which questions to cover in their story? Then introduce the Young Naturalists' story by reading out loud the story's title and subtitle, *Now You See Me, Now You Don't: Camouflage helps animals hide by using color and pattern to fool the eye*. Ask students to think about which of the questions on their list might be answered through the story. After the story is read, students can return to their list to see which questions the story answered. To extend their learning, students can be asked to choose one unanswered question from their list to research on their own, and report back to the class what they found.

VOCABULARY PREVIEW. You can find a copy-ready vocabulary list at the end of this guide. Feel free to modify it to fit your needs. Share the words with you students and invite them to guess what they think they mean. Tell them you will be reading a story that will help them understand these words so they can use them in the future! As your students encounter these vo-

cabulary words in the story, you may want to encourage them to infer meaning using context clues, such as other words in the sentence or the story's illustrations. Students also could be encouraged to compare their inferences as to what the words mean with their earlier guesses and with the definitions from the vocabulary list.

STUDY QUESTIONS OVERVIEW. Preview the study questions with your class before you read the article. Then read the story aloud. Complete the study questions in class, in small groups, or as an independent activity, or use them as a quiz.

ASSESSMENT. You may use all or part of the study guide, combined with vocabulary, as a quiz. Other assessment ideas include: (1) Have students write multiple-choice, true-false, or short-answer questions based on the story. Select the best items for a class quiz. (2) Use a "Round Robin Retell" format to assess what students learned through the story. Students sit in a circle, and each student paraphrases a key idea from the story. Each student must listen carefully to the ideas shared to avoid repeating something that was already shared.

1. The Young Naturalist story mentions countershading that is used by the walleye to make it less visible to fish-eating birds that might attack from above and to larger predatory fish that often approach from below. Invite students to think of land animals that use countershading to aid in their survival. This brainstorming can serve as a launching point for investigating the role of countershading in distorting shadows, or other related phenomenon, such as reverse countershading and counter-illumination. Invite students to learn more about an aspect of countershading that piques their interests through library or internet research and orally share what they have learned with their classmates.

2. Introduce students to the decorator crab ([Monterey Bay Aquarium's webpage](#) provides a good introduction). Invite students to compare and contrast the decorator crab with the camouflage examples in the Young Naturalist story. While Minnesota is not home to this fascinating crab species, invite students to use their imaginations to design a decorator crab for their classroom or schoolyard environment. Next, provide students time to place their creations within their "habitat" and see if their classmates can spot the camouflaged crabs.

3. Show students a picture of a nuthatch. Encourage them to notice the eye stripe and invite them to think about how eye stripes (also known as disruptive eye masks) might help nuthatches survive in their habitat.

4. Try this visual experiment with your students, described in [More Than Meets the Eye](#). Place a pile of kitchen utensils onto a tabletop. Then ask students to close their eyes and visualize a pair of scissors. Next, ask students to open their eyes and find a spatula. With scissors in mind, they likely will have difficulty locating the spatula. Now ask students

to imagine a whisk, and then open their eyes to find the whisk. They likely will find it much more quickly. Relate this to the ecological concept of search images, the strategy some predators use to more efficiently hunt prey by having an image in mind of their prey and focusing on that one particular type of prey.

5. Re-read with students the closing of the Young Naturalist story: Why Go Camo? As you can see—or not see—camouflage is quite common in nature. Unlike humans, who often wear flashy clothes and bling to stand out, many animals prefer to be inconspicuous. For them, winning isn't about seen. It's about being unseen so they can live another day. Ask students to review the story, finding examples of evidence (key details) that support the author's statement (main idea) that many animals prefer to be inconspicuous. Then, ask students to generate a list of examples of species that do not blend into their surroundings (for example, species that use motion dazzle camouflage, species that use warning coloration, or species that are colorful to attract a mate).

6. Camouflage is not just for wildlife. Humans have also learned the art of blending in! Ask students to think of present-day examples of human uses of camouflage. There also are examples from history, particularly military history. One historical example was spurred by the sinking of the British passenger ship, the Lusitania, by the Germans during World War I. In response, Norman Wilkinson of the Royal Navy came up with an unusual idea. Rather than trying to conceal the British ships, he suggested making the ships very conspicuous by painting them in black and white patterns, which came to be known as razzle dazzle camouflage. This unusual approach was somewhat successful in confusing the German submarine commanders, as the irregular shapes, stripes, and swirls made it difficult for them to determine the size, speed, distance, and direction of movement of these painted ships.

7. While camouflage can be very helpful in aiding in a species' survival, sometimes it isn't enough. The walking stick is a great example of a species that has evolved over time to use other forms of defense, beyond disguising as a twig. Some species of walking sticks have evolved the ability to secrete a liquid that temporarily blinds a predator, others can release bad-smelling chemicals to deter predators, and other species of walking sticks can even drop their legs when attacked by a predator. Explain to students that these examples are the result of evolution in a species. One single organism (one particular walking stick) does not decide to adapt. Whole populations adapt due to changes in habitat, or changes in the adaptations of other species in their habitat.

WEB RESOURCES

MINNESOTA DNR WEB PAGES

[Minnesota's Animals](#)

GENERAL TEACHER AND STUDENT RESOURCES

[Minnesota DNR Teachers' Resources](#)

YOUNG NATURALISTS STORIES:

[Nature's April Fools](#)

[Color by Nature](#)

[Wild Things in Winter](#)

MINNESOTA CONSERVATION VOLUNTEER STORIES

[Double Take](#)

[More Than Meets the Eye](#)

OTHER MATERIALS

[Project WILD and Project WILD Minnesota](#)

[Penn State Extension and Outreach Lesson: Animal Camouflage](#)

[Science Buddies Candy Camouflage STEM Activity](#)

[National Geographic Encyclopedic Entry: Camouflage](#)

STUDY QUESTIONS ANSWER KEY

1. Another term biologists use for camouflage is

- a) **Cryptic coloration**
- b) Adaptive camouflage
- c) Disguisable coloration
- d) Stealth Concealment

2. Name the four main types of camouflage. **concealing coloration, disruptive coloration, disguise, and mimicry.**

3. True or false: If you see a butterfly with fake eyes on the wings, these fake eyes are likely much smaller than the butterfly's actual eyes. **False. These "eyes" are much larger than their actual eyes, meant to trick predators into thinking they're seeing much bigger creature.**

4. Minnesota's fox snake is often mistaken for the venomous timber rattlesnake because of similar coloration, size, and behaviors. What type of camouflage does this represent?

- a) Concealing coloration
- b) Disruptive coloration
- c) Disguise
- d) **Mimicry**

5. Why are some female birds more mottled and drabber in color (more inconspicuous) than the males of the same species? **Suggested answer: Being inconspicuous helps the female (hen) hide so that she and the eggs don't become a meal for a predator.**

6. Counter-shading is a form of what type of camouflage?

- a) **Concealing coloration**
- b) Disruptive coloration
- c) Disguise
- d) Mimicry

7. True or false: Only mammals and birds use camouflage to help survive. **False. The story shares examples of fish, insects, amphibians, and reptiles that also use camouflage.**

8. List at least two examples of wildlife in the story that use camouflage to help them hunt for food. **American bittern, weasel, and bobcat are possible answers among others.**

9. If you saw eyes peering out at you from a tree cavity during walk through a forest in northeastern Minnesota, which of the following would it most likely be?

- a) American bittern
- b) **Boreal owl**
- c) Cope's tree frog
- d) Great gray owl

Challenge question: The story mentions that in the winter, Minnesota's short-tailed weasel turns from brown to completely white except for a dash of black on the tip of its tail. This seasonal change from brown to white helps the weasel sneak up on its prey, while being less visible to the animals that hunt it. Based on what you have learned about camouflage, how might having that black-tipped tail in the winter be helpful? Why wouldn't it be better for the weasel to be completely white, without a black-tipped tail? **Suggested answer: The black tip is a distraction for the predators, causing the predator to either hesitate and allowing more time for the weasel to escape, or causing the predator to strike at the tail, rather than at another part of the weasel's body.**

MINNESOTA COMPREHENSIVE ASSESSMENTS ANSWER KEY.

1. Using details from the story, compare and contrast disguise camouflage with concealing coloration. **Both are forms of camouflage that can be used by predators or prey that involve blending into their surroundings. Disguise camouflage is different from concealing coloration because it involves looking like another common object found in their habitat.**

2. The author of this nonfiction story concludes by writing, “Unlike humans, who often wear flashy clothes and bling to stand out, many animals prefer to be inconspicuous. For them, winning isn’t about seen. It’s about being unseen so they can live another day.” Which of the following details from the story provides supporting evidence of the author’s argument?

- a. The green-striped grasshopper is commonly found in meadows, pastures, road ditches, and other grassy areas in Minnesota.
- b. Adult roosters are gawdy as all get out with feathers of bronze, blue, green, and white.
- c. The American woodcock is just 10 to 12 inches long and spends much of its life on the forest floor searching for earthworms, grubs, and insects to eat.
- d. The countershading of the walleye helps it be less visible to fish-eating birds that might attack from above and to larger predatory fish that often approach from below.**

3. Based on the story title, what can you infer regarding the author’s purpose for writing this story?

- a. To help readers realize that Minnesota has many examples of wildlife that use camouflage to help them survive.
- b. To encourage people to conserve forests, lakes, and grasslands because they are important habitat for Minnesota wildlife.
- c. To help readers learn more about how camouflage works.**
- d. To convince readers that without camouflage, many wildlife species would become extinct.

VOCABULARY LIST

Conceal – to hide or keep out of sight

Savvy – clever or having a lot of practical knowledge

Adaptation – an inherited trait that helps a population of organisms survive in its habitat.

Dorsal – the back or upper side of an animal

Gawdy – showy, overly bright, with clashing colors or excessive ornamentation

Leaf litter – leaves and other dead plant material that have fallen to the ground

Hen – an adult female of some bird species, like chickens and pheasants

Rooster – an adult male of some bird species, like chickens and pheasants

Stealthy – sneaky

Discern - determine