

# TEACHERS GUIDE

## TO “ALL TOGETHER NOW!”

Multidisciplinary classroom activities based on the Young Naturalists story in *Minnesota Conservation Volunteer*, July-August 2021, [mndnr.gov/mcvmagazine](http://mndnr.gov/mcvmagazine).

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*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 cards, 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](http://mndnr.gov/mcvmagazine) and click on *past issues*.

**Thank you** for bringing Young Naturalists into your classroom!

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Multidisciplinary classroom activities based on the Young Naturalists story in *Minnesota Conservation Volunteer*, July-August 2021, [mndnr.gov/mcvmagazine](http://mndnr.gov/mcvmagazine).



**SUMMARY.** Pelicans are among the largest birds in North America—and also among the most unusual. With their large, expandable bills, their soaring in squadrons, and their massive nesting colonies, they open the door to a whole new dimension of Minnesota bird life for those most familiar with robins, chickadees, and the like.

**SUGGESTED READING LEVELS.** Third through middle school grades

**MATERIALS.** KWL organizer; optional resources include dictionaries, video viewing equipment, Internet access art supplies, large map of the Americas, and other print and online resources your media specialist may provide.

**PREPARATION TIME.** 15–30 minutes, not including time for extension activities.

**ESTIMATED INSTRUCTION TIME.** 30–60 minutes, not including extension activities.

**MINNESOTA ACADEMIC STANDARDS APPLICATIONS.** “All Together Now!” activities described below may be used to support some or all of the following Minnesota Department of Education standards for students in grades 3–8:

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

### SCIENCE AND ENGINEERING PRACTICES

1. Asking questions and defining problems
4. Analyzing and interpreting data
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

### CROSSCUTTING CONCEPTS

2. Cause and effect
6. Structure and function
7. Stability and change

### DISCIPLINARY CORE IDEAS

Life Sciences 2: Ecosystems: Interactions, energy, and dynamics  
Earth and Space Sciences 3: Earth and human activity

### MATH

Data Analysis (Benchmarks 4.4.1.1, 5.4.1.1, 7.4.1.1)

### SOCIAL STUDIES

Citizenship and Government (Benchmarks: 4.1.1.1.1, 6.1.1.1.0)

### ARTS

Artistic Process: Create or Make (Benchmark 0.2.1.5.1, 0.2.1.5.1, 0.3.1.5.1, 4.1.3.2.1., 4.2.1.2.1, 4.2.1.5.1, 6.1.2.2.1., 6.2.1.2.1., 6.2.1.5.1)

### ENGLISH LANGUAGE ARTS

Reading Benchmarks: Informational Text

Key Ideas and Details (Benchmarks 3.2.1.1, 3.2.2.2, 3.2.3.3, 4.2.1.1, 4.2.3.3, 6.1.2.2.1, 6.2.1.2.1., 6.2.1.5.1, 5.2.1.1, 5.2.3.3, 6.5.1.1, 7.5.1.1, 8.5.1.1)

Craft and Structure (Benchmarks 3.2.4.4, 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, 3.2.8.8, 3.2.9.9, 4.2.7.7, 4.2.8.8, 4.2.9.9, 5.2.7.7, 5.2.8.8., 5.2.9.9, 6.5.7.7, 6.5.8.8, 7.5.8.8, 8.5.8.8)

### WRITING BENCHMARKS

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

Comprehension and Collaboration Benchmarks 3.8.1.1, 4.8.1.1, 5.8.1.1, 6.9.1.1, 7.9.1.1, 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)

### LANGUAGE BENCHMARKS

Vocabulary Acquisition and Use (3.10.4.4, 4.10.4.4, 5.10.4.4, 6.11.4.4, 6.11.6.6, 7.11.4.4, 7.11.6.6, 8.11.4.4, 8.11.6.6)

## READING BENCHMARKS: LITERACY IN SCIENCE AND TECHNICAL SUBJECTS

Key Ideas and Details (Benchmarks 6.13.1.1, 6.13.2.2)

## WRITING BENCHMARKS: LITERACY IN SCIENCE AND TECHNICAL SUBJECTS

Research to Build and Present Knowledge (Benchmark 6.14.7.7)

For current, complete Minnesota Academic Standards, see [www.education.state.mn.us](http://www.education.state.mn.us). Teachers who find other connections to standards may contact *Minnesota Conservation Volunteer*.

**PREVIEW.** Ask your students if they have ever seen or heard of a pelican. Let them share their thoughts and stories. Then divide them into small groups to do a KWL activity. Within the groups, have students describe what they know (K) about pelicans and what they wonder (W) about them. Give each student a [copy of the organizer](#) and encourage each to make notes during the group discussion. As you read and discuss the article you can compile a list of what they learn (L) while reading the article and related materials and participating in extension activities.

**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 vocabulary 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.

**ADAPTATIONS.** Read aloud to special needs students. Abbreviate the study questions or focus on items appropriate for the students. Adapt or provide assistance with extension activities as circumstances allow.

**ASSESSMENT.** You may use all or part of the study guide, combined with vocabulary, as a quiz. Other assessment ideas include: (1) Ask students to describe what they learned about pelicans. See the "learned" list from your KWL activity. (2) Have students write multiple-choice, true-false, or short-answer questions based on the article. Select the best items for a class quiz. (3) Have students create posters, podcasts, or videos to share their new knowledge with others.

**EXTENSION ACTIVITIES.** Extensions are intended for individual students, small groups, or your entire class. Young Naturalists articles provide teachers many opportunities to make connections to related topics, to allow students to follow particular interests, or to focus on

specific academic standards.

1. A pelican's wingspan can be up to 9-1/2 feet across. What are your students' "wingspans"? If appropriate for your circumstances, have students measure the distance between each other's fingertips. Use the numbers you gather to practice data gathering and recording, graphing by hand, using spreadsheet software to generate graphs, and calculating elementary statistics. What are the mean, median, and mode? Does the graph illustrate a normal distribution? Do your results change if each student is measured three times instead of just once, and the three measurements are averaged? Or students could select a bird of choice and look up its wingspan, sharing their data as a classroom and creating data summaries or graphs of the wingspans of the birds they researched. Depending on the birds students select, there may be the opportunity to discuss the influence of an "outlier" on the mean, median, and mode of the dataset.

2. White pelicans were in the place we now call Minnesota long before European settlers arrived. Use the internet, interviews, and other resources to learn about the relationship between Native American Indians and pelicans.

3. The article shows pelicans and cormorants nesting together. Using the internet and interviews, find out why these two species share their space. What is the advantage to each? Are there any disadvantages?

4. The author of the article mentions the risk to pelicans from climate change, as their nesting habitat may be affected by drought and strong summer storms. Using the climate vulnerability map [provided by Audubon](#), explore how the birds' vulnerability status changes with the different warming scenarios and across summer and winter seasons. What other climate threats face the American white pelican? Then scroll down on the site to select the whooping crane and explore how it may be affected under different warming scenarios. Which bird is more vulnerable to changes in climate? Ask students to speculate why that might be the case, given what they have learned about feeding and nesting characteristics of each species.

5. In the late 1800s, the demand for bird feathers for women's hats led to the decline of bird populations and even to the brink of extinction for some species of birds to the brink of extinction. Concerned citizens and conservationists took action, encouraging President Roosevelt to set aside Pelican Island on the Atlantic Coast of Florida. With the establishment of the first national wildlife refuge on Pelican Island on March 14, 1903, Roosevelt created the National Wildlife Refuge System. Encourage students to learn more about the National Wildlife Refuge System and the role of citizens in its formation. Students could be prompted to locate refuges that are nearby or select a refuge and learn more about it. Students could make a brochure highlighting information about "their" refuge.

6. Minnesota has a city and a river named after the American white pelican (Pelican Rapids and the Pelican River in Otter Tail County). Minnesota also has 10 lakes that include “pelican” as part of their name. Ask students to find one of these lakes and learn a bit more about the lake and location. Students could be asked to imagine they own a resort on their Pelican Lake and have them design a small exhibit or poster or some other way of communicating to their resort guests some key facts about the pelican, as well as some suggestions for visitors that can help them enjoy viewing the pelicans without disturbing their habits nor habitat.

7. Minnesota Department of Natural Resources bird experts have analyzed eggs of American white pelicans in the Marsh Lake area. Ten percent of them were found to have oil and chemical dispersant on them. Have students put on their detective hats and dive into piecing together clues, using what they have learned about American white pelican and additional research to explain why this might be. (If you need them, you can find some clues by searching the internet using the search words “Minnesota,” “pelican,” and “oil.”).

### WEB RESOURCES

Check out the following if you'd like to dive deeper into some of the topics covered by this Young Naturalists feature.

#### MINNESOTA DNR

#### GENERAL TEACHER RESOURCES

[Minnesota DNR Teachers' Resources](#)

#### PELICANS

[American White Pelican](#)

[All About Birds: American White Pelican](#)

#### VIDEO

[American White Pelicans at Jay Cooke State Park](#)

### STUDY QUESTIONS

1. Why is this story called “All Together Now”?

**Because white pelicans do many things together rather than individually.**

2. Why are flocks of pelicans called squadrons?

**a. because the birds are lined up like fighter planes**

3. What happens when a flying pelican tips sideways? **It changes directions.**

4. True or false: A duck has a separate nose and mouth. **False. The story tells us that in all birds, the nose and mouth is combined to form a bill.**

5. Which of the pelicans in the photos on pages 54 and 55 are ready to mate? How can you tell? **The pelican on page 54 and the one on the left side of 55 are ready to mate. You can tell because they have a hornlike structure on the top of their bills.**

6. Name three things that make a pelican's bill unique. **Answers will vary, but may include it is very long, it is pointed like a broadsword, it has a pouch.**

7. What are three ways a pelican uses its bill? **Answers will vary, but may include gathering food, gathering water, signaling they are ready to mate, gathering sticks and pebbles to make a nest, protecting their nest from other pelicans, pecking their way out of the egg.**

8. The "neighborhood" in which pelicans nest is called a \_\_\_\_\_. **Colony**

9. True or false: Pelicans nest in trees. **False. We read that pelicans make their nest out of a ring of pebbles and sticks to keep the eggs from rolling away, and we can deduce from that that they nest on the ground.**

10. Why do pelicans cover their eggs with their feet? **To keep them warm.**

11. Put these events in the life of a pelican chick in order from first to last:

**The chick grows a downy covering**

**The chick grows feathers**

**The chick learns to swim**

**The chick learns to fly**

12. Match the event with the month:

**April – pelicans lay eggs**

**May – chicks hatch**

**October – pelicans fly south**

Challenge: A pelican's bill can hold up to three gallons of water. How many of your school lunch milk cartons would it take to fill it up? **Most school lunch milk cartons hold 8 ounces. There are 16 ounces in a pint, two pints in a quart, and four quarts in a gallon. A three-gallon bill would hold  $8 \times 2 \times 2 \times 4 \times 3 = 384$  milk cartons!**

## MINNESOTA COMPREHENSIVE ASSESSMENTS ANSWER KEY.

1. What does the writer mean by “snowy feathers”?

- a. The birds’ feathers were fluffy
- b. The birds’ feathers were cold
- c. The birds’ feathers were covered with snow
- d. The birds’ feathers were white**

2. The story describes how a pelican’s bill is “wonderfully different” from the bills of other birds. Name three ways a pelican’s bill is the same as those of other birds.

**Answers will vary, but might include: it is attached to the front of their head, they use it to gather food, it has nostrils**

3. Why would the Department of Natural Resources want to know how many pelicans there are in Minnesota? **Answers will vary; accept anything that’s plausible, but encourage students to think about the value of tracking populations over time in order to help them thrive with humans as neighbors. So, for instance, if a certain place appears to be good habitat for pelicans, we might want to make sure it isn’t developed. And if populations drop suddenly, we might want to find out why so we can take action to prevent populations from further plummeting.**

4. During what month do pelican chicks usually hatch? **May**

5. How much food does a pelican eat in a week? **A pelican eats 4 to 5 pounds of food in a day. Multiplying by 7, we get 28 to 35 pounds.**

6. Why do you think pelicans choose islands for their nesting sites? **Answers may vary, but a likely reason is that their nests would be vulnerable to predators such as coyotes and foxes, and the islands are less likely to have such animals than a mainland nesting site would.**

### VOCABULARY LIST

aerial – in or relating to the air

broadsword – a sharp, heavy weapon with a wide blade

census – survey

colony – group

habitat – the setting in which an organism lives

immature – not grown up

migrate – move from one place to another

**An aerial adventure** is an adventure that  
An adventure that **is in or relating to the air** is

A person armed with a **broadsword** is carrying  
**A heavy weapon with a wide blade** is called a

When we **census** a bird population, we conduct a  
When we **survey** a bird population, we conduct a

A **colony** is a  
A **group of birds living together** is called a\

**The setting in which an organism lives** is called its  
**Habitat** is

An animal that is **immature** is  
When you are **not grown up**, you are

When birds **move from one place to another** they  
To **migrate** is to

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