

TEACHERS GUIDE

TO “WILDFIRE HEROES”

Multidisciplinary classroom activities based on the Young Naturalists nonfiction story in *Minnesota Conservation Volunteer*, May–June 2018, www.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 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 www.mndnr.gov/mcvmagazine and click on *past issues*.

Thank you for bringing Young Naturalists into your classroom!

“WILDFIRE HEROES”

Multidisciplinary classroom activities based on the Young Naturalists nonfiction story in *Minnesota Conservation Volunteer*, May–June 2018, www.mndnr.gov/mcvmagazine.



SUMMARY. Wildland firefighters perform a variety of jobs as they work to extinguish forest and grassland blazes. “Wildfire Heroes” describes how three individuals work with many others to protect land, property, and people from wildfire.

SUGGESTED READING LEVELS. Third through middle-school grades

MATERIALS. KWL organizer, paper, poster board, colored pencils, crayons, pens, markers, other materials for preparing reports, print and online resources your media specialist may provide.

PREPARATION TIME. One to two hours, not including time for extension activities

ESTIMATED INSTRUCTION TIME. One or two 50-minute class periods (not including extensions)

MINNESOTA ACADEMIC STANDARDS APPLICATIONS. “Wildfire Heroes” 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 3, 5, AND 8

The Nature of Science and Engineering

3.1.3.2.2; 5.1.3.2.1

Earth and Space Science

5.3.4.1.1; 8.3.4.1.2

Life Science

5.4.4.1.1

SOCIAL STUDIES 3, 4, 6, AND 8

Citizenship and Government

3.1.4.7.1; 6.1.4.7.7

Economics

3.2.3.5.1; 4.2.3.3.1; 6.2.4.8.1

Geography

4.3.4.9.1; 6.3.4.10.1; 8.3.1.1.1; 8.3.1.2.1

ARTS 3, 4, 6, AND 8

1. Artistic Foundations: Visual Arts; Music

2. Artistic Process: Create or Make: Visual Arts

3. Artistic Process: Perform or Present: Visual Arts; Music

4. Artistic Process: Respond or Critique: Visual Arts; Music

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

PREVIEW. (1) You might use the How We Fight Wildfires video to introduce this topic. Brainstorm what it would be like to be a firefighter and what kinds of skills, knowledge, and other characteristics would be desirable. (2) You might follow with a KWL activity. To find out what your students already know (K) about wildfire firefighting, divide the class into small groups to brainstorm their ideas. Give each student a copy of the organizer (see www.teach-nology.com/web_tools/graphic_org/kwl.) and encourage each to make notes during the group discussion. Ask what students would like to learn, or what questions they have, about the topic (W). Record their questions on poster board for reference. As you read and discuss the article you will begin to compile the (L) lists, or what they learn while reading the article and related materials and participating in extension activities. KWL gives you the opportunity to introduce interdisciplin-

ary connections you will make during extension activities. If you use the article in science or art class, you may wish to focus your prereading activity on academic standards that apply for that class.

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 your students and invite them to guess what the words mean. Tell them you will be reading a story that will help them understand these words so they can use them in the future!

You might wish to use the study cards (adapted from *Strategic Tutoring*) found at the end of the [Study Questions](#) for this Young Naturalists feature. On one half of the card, in large letters, is a key vocabulary word or phrase with smaller letters framing the word or phrase in a question or statement. On the other half is the answer to the question or the rest of the statement. Cut along the horizontal line, fold in the middle, and tape or staple, then use like flash cards. We've included a few blanks so you or your students can add new words or phrases if you'd like.

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 fighting wildfires. 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) Posters, presentations, infographics, and audio or video reports are excellent tools for allowing students to demonstrate and share what they have learned.

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. Based on what they learned in this article and other background knowledge they have, invite students to use a mind map to brainstorm what knowledge, skills, and abilities wildland fighters need to have. Use additional resources to explore how, if they wanted to be a firefighter, they could gain these knowledge, skills, and abilities.
2. Invite a wildland firefighter to visit your class. Before the visit, use a source like Scholastic's How to Conduct a Journalistic Interview to develop reporters' skills of interviewing, taking notes, etc. Then have students write news stories for your school or community

newspaper based on the visit.

3. Research and report on various types of aircraft used in fighting fires.
4. Learn about one or more of Minnesota's historic fires: Compare and contrast how those fires were fought with how we fight fires today.
5. Research flame retardants used in fighting wildfires. What are they? How do they affect the land and water?
6. Learn about Lincoln-Douglas debate, then hold a debate over the proposition: Firefighters should be able to use bulldozers and flame retardants to fight fires in the Boundary Waters Canoe Area Wilderness.
7. Break into groups to research the kinds of equipment used in firefighting. Different groups can take different topics: firefighters' individual equipment, ground machines, aerial support, communication, logistics, etc.
8. Invite students to write and illustrate a mini-graphic novel depicting themselves fighting a wildfire in a specific place in Minnesota. They should research the place and view it on Google Earth to get a good sense of the terrain and the opportunities and challenges they might encounter.

WEB RESOURCES

GENERAL TEACHER AND STUDENT RESOURCES

[Minnesota DNR Teachers' Resources](#)

[DNR Kids Page](#)

BACKGROUND ON FIRES AND FIREFIGHTING

[Photos of Pagami Creek Fire](#)

[Pagami Creek Fire](#)

[How We Fight Wildfires \(YouTube video\)](#)

RELATED MCV ARTICLES

[Young Naturalists: Conservation Careers](#)

STUDY QUESTIONS ANSWER KEY

1. What kinds of fire do wildland firefighters fight? **Fires in forests and grasslands.**
2. Who do wildland firefighters work for? **The Department of Natural Resources and other government agencies.**
3. What are some ways the story says wildfires can be started? **Lightning strikes, careless behavior, unattended campfires.**
4. The story describes many different roles people play in fighting fires. List four of them. **b. Answers vary, may include: try to put out the fire from the ground, fly airplanes and helicopters as they work to extinguish the flames, make decisions about how fires should be fought, provide airborne traffic control.**

5. What are an airborne traffic control pilots's most important tools?
- their eyes and a radio headset**
 - air tankers, water scoopers, and helicopters
 - high-set wings
 - turbulence and thick smoke
6. Why did rangers go into dangerous areas during the Boundary Waters blaze? **To make sure campers were safe and could get out.**
7. To Brian Pisarek, what is the most important thing in fighting a fire? **To make sure every firefighter makes it home safely.**
8. . This story describes people working on putting out three wildfires. What is the location and the origin of each fire? **1. Gunflint Trail, Minnesota—unattended campfire; 2. Boundary Waters (Pagami Creek), Minnesota—lightning; 3. Williams Lake, British Columbia—lightning**
9. What does it mean to say people living in Williams Lake were “on edge”?
- They lived right next to the lake.
 - They were on the edge of a wildfire.
 - They were crabby.
 - They were worried a wildfire was going to start in their area.**
10. What conditions contributed to the Williams Lake fire? **The area hadn't gotten much rain so there was a lot of dry fuel to feed the fire.**
11. Why did British Columbia call for help in fighting the Williams Lake fire? **There were so many fires burning in British Columbia at the time that their own firefighters were busy elsewhere.**
12. Why did Meghan Ring and her team put out hose lines? **To provide a source of water for lateral hoses firefighters could use to spray water on the fire.**

Challenge: At the end the author writes, “It was also the first time that firefighters from Minnesota had been sent to British Columbia—and probably won't be the last.” Why do you suppose he thinks they will go again? **Answers may vary. Possibilities include that they did a good job; because the drought means there will be more fires in British Columbia; because they have the routine figured out, because they got to know a fire crew from Ontario.**

MINNESOTA COMPREHENSIVE ASSESSMENTS ANSWER KEY.

1. The article tells us forest and grassland fires can be caused by “careless behavior.” What does that mean? **Careless behavior is something a person might do without considering what might happen as a result. Examples of careless behavior that could result in a wildfire include playing with matches, not putting out a campfire properly, or discarding a lit cigarette.**
2. What is one way in which fighting a wildfire is like fighting a house fire? What is one way in which it is different? Use details from the story to support your answer. **Answers may vary. The goal of both is to extinguish flames and save things from**

being burned. Both are dangerous and hot. Both take special skills. Some of the tools used to fight the two kinds of fires are different: ladders and tools to gain entry to different parts of a house may be part of fighting a house fire, while aircraft and tools for dealing with brush and trees may be part of fighting a wildfire.

3. Why does the writer say that firefighter Luke Ettl didn't need his high-tech equipment to find his way through the air? **Because the thick gray smoke was telling him which way to travel.**

4. What two conditions contributed to the rapid spread of the Boundary Waters blaze?

a. thunder and lightning

b. low moisture and strong wind

c. mosses and dead plants

d. bulldozers and flame retardants

5. What do British Columbia and Ontario have in common? **They are both Canadian provinces**

VOCABULARY LIST

billowing rising in wave-like shapes

bulldozer a vehicle that pushes soil and other materials

cockpit the place in a plane where the pilot sits

extinguish put out

incident happening

monitored kept track of

province a regional division of government

retardant something that slows something down

turbulence bumpy flow

unfurled unfolded or unwrapped