

DRAFT

Lesson Slides
Middle School
Hazard Lesson: Wildfire



Megafires: Changes in Colorado Wildfire

These materials were developed by CIRES Education & Outreach at the University of Colorado Boulder.

<https://cires.colorado.edu/outreach/projects/HEARTForce>



Setting the Stage

The number, severity, size, and seasonal duration of wildfires is increasing. The 2012 and 2013 fire seasons were the most destructive in Colorado's history. The 2012 High Park Fire, west of Fort Collins, was the most destructive wildfire in the state when it occurred. But just a few days later, the Waldo Canyon Fire near Colorado Springs surpassed it.

The 2013 fire season turned out to be even worse, with the Black Forest Fire now ranking as the most destructive wildfire in the state to date. This trend continued in 2018 with the Spring Creek Fire ranking as the third largest wildfire in state history.



Wildfire burns through the Black Forest area near Colorado Springs, 2013. Photo Credit: <https://vimeo.com/84393594>

Driving Questions:

- What are the main causes and impacts of wildfires?
- When and where are wildfires most likely to occur in Colorado?
- What action should people take before, during, and after a wildfire?

Materials & Procedures

- Use a computer device and internet connection to complete the lesson activities.
- Record your activity responses in your student handout.



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Lesson Overview

- **Activity 1** (Engage): Introduction to Wildfire Concepts and Case Study
- **Activity 2** (Explore): Wildfire Data Analysis Jigsaw
- **Activity 3** (Explain): Community Wildfire Risk and Response



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Activity 1: Why are wildfires a risk in Colorado?

KWL Chart	
1. What I K now	
2. What I W onder	
What I L earned (Activity 3)	



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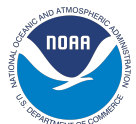
Activity 1: Why are wildfires a risk in Colorado?



Watch: [Colorado's Forests: Past, Present and Future](#)

Activity 1: Why are wildfires a risk in Colorado?

KWL Chart	
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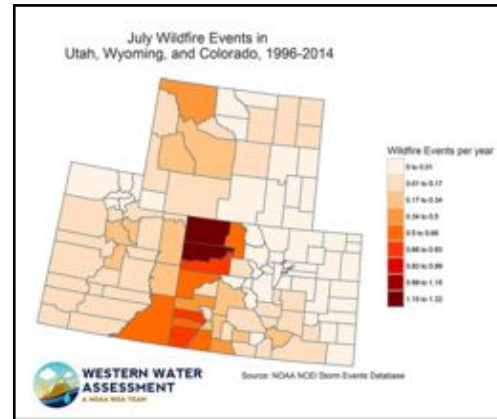
Station 1: Colorado Wildfire Fast Facts



Read: [Colorado Planning for Hazards—Wildfire](#) (First 3 sections only)

3. What are the main causes of wildfires?
4. What are the greatest risks that wildfires pose in Colorado?

Station 2: Location and Frequency of Wildfires in Colorado

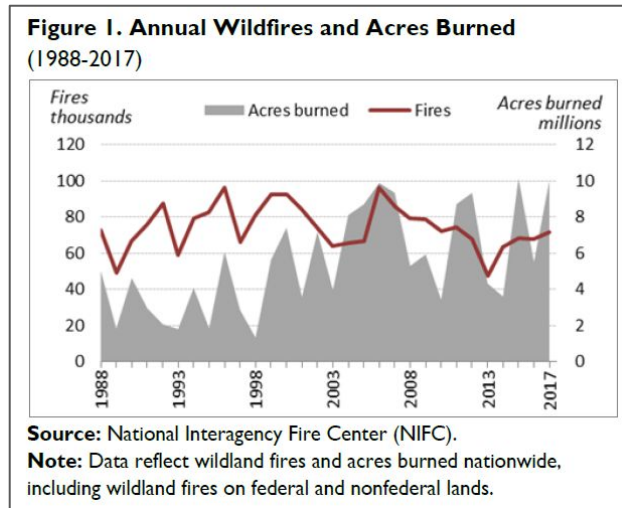


Explore: [Wildfire](#) maps (look at each month)

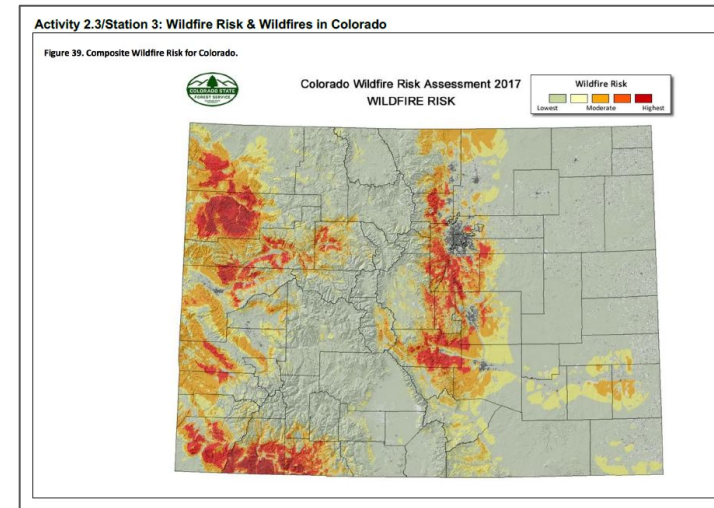
5. In Colorado, when does wildfire mainly occur (months/seasons)?
6. Do wildfires occur year-round in Colorado? Describe the seasonal pattern of wildfires in the state.
7. During times of high wildfire activity, where do wildfires mainly occur (geographic area/counties) in Colorado?

Station 3: Wildfire Trends

Identify patterns and trends in the graph and map below.



[Figure 1: Annual Wildfires and Acres Burned](#)



[Wildfire Risk map and Wildfires in Colorado map](#)

Station 3: Wildfire Trends, cont.

8. What data does the graph illustrate?
9. What is the independent variable and its units? What are the dependent variables and their units
10. Describe the trend for acres burned in relation to the number of fires over time?
11. Look at the Map of Wildfire Risk in Colorado. Describe the pattern of areas that have higher and lower wildfire risk throughout Colorado.
12. Focus on south Denver Metro and Colorado Springs areas, which have high populations and are located in the [Wildland-Urban Interface](#) (WUI). What do you observe about the number, location, and severity of wildfires in these areas?



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Station 4: Causes of Wildfires



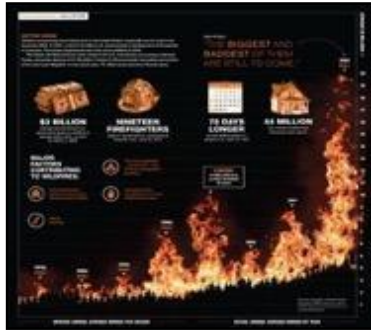
Compare: [Lightning-caused Fires](#)



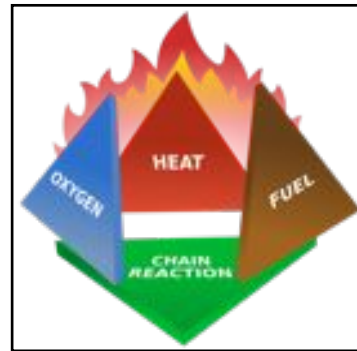
Compare: [Human-caused Fires](#)

13. Compare and contrast lightning-caused fires vs. human-caused fires. Describe the patterns in the data.
14. How does the Rocky Mountain region compare for lightning- and human-caused wildfires?

Station 5: Wildfire History & Behavior



Review: [Wildfire Infographic](#)



Review: [Fire Triangle & Fire Tetrahedron](#)



Review: [Fire Triangle & Fire Tetrahedron](#)

15. Describe what the infographic illustrates about wildfires.
16. Summarize the main factors that contribute to wildfires.
17. Describe the relationship between the different factors in the “fire triangle” and the “fire tetrahedron”.

Station 6: Wildfire Safety



Read: [Wildfires Ready.gov](https://www.ready.gov/wildfires)



Read: [Wildfire Safety](https://www.noaa.gov/wildfire-weather-safety)
(click on all tabs)

18. What are the main impacts of wildfire?
19. What is a “Fire Weather Watch” and what should you do in response to it?
What is a “Red Flag Warning” and what should you do in response to it?
20. If you live in an area at risk of wildfires, what should you and your family do to prepare? In the event of a wildfire warning, what should you do to protect yourself and others with you?

Activity 3.1 Wildfire Expert Interview

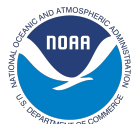


[Wildfire Expert Video](#)

Activity 3.2 Wildfire Virtual Diary

Next, watch the virtual diary on how people and communities prepared for, responded to, and rebounded from the devastating Waldo Canyon Fire. Feel free to use video or press coverage from a local wildfire in place of Waldo Canyon Fire information if available.

- [Evacuating the Waldo Canyon Fire](#) (3:42)
- [The Waldo Canyon fire: Remembering it five years later](#) (1:51)
- [The Waldo Canyon fire, five years later: Colorado Springs rebuilds](#) (1:14)
- [The Waldo Canyon fire, five years later: Restoring the fire ravaged land](#) (2:16)



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Activity 3.3 Local Wildfire News Story

Prompt: Create a local news story in a format of your choice (see options below), that summarizes important information about for people in your community to be “firewise” before, during, and after a wildfire.

The format choices for the local wildfire news story include:

- Newspaper article with one picture and one graph or map (one page)
- Radio story (2-3 minutes in length)
- Video newscast (2-3 minutes in length)

Follow the steps in the table to create your news story. Be creative, but accurate.



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Activity 3.3 Local Wildfire News Story, cont.

In addition to using your student handout, check out some of these additional resources:

- The National Fire Protection Association (NFPA) leads the [Firewise USA program](#). Their motto is “residents reducing wildfire risk.” Check out their [wildfire preparedness tips](#) and [preparing homes for wildfire](#) for more information as you develop your news story.
- In Colorado, the Colorado State Forest Service (CSFS) and NFPA implement the Colorado Firewise USA program, which teaches people how to adapt to living with wildfire in Colorado and encourages neighbors to work together and take action now to prevent losses. Check out the CSFS’s [Are You FireWise?](#) guide for more information as you develop your news story.



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Activity 3.3 Local Wildfire News Story, cont.

Local Wildfire News Story

1) KWL Chart
“What I Learned”
(see page 2)

Check when completed

As a group, reflect on what was learned in Activities 1, 2, and 3. Then independently complete the “What I Learned” section of your KWL Chart (see page 2 in the student handout) to summarize your learning. Use these prompts to reflect on what you learned:

- What important things do you now know about wildfires that you didn’t know before?
- What should people do to be “firewise” before, during, and after a wildfire?

KWL Chart

What I
Learned
(Activity 3)

Activity 3.3 Local Wildfire News Story, cont.

Local Wildfire News Story

2) Choose a Format

Check when completed

As a team, choose one of the following formats for your group's news story:

- Newspaper article with one picture and one graph or map (one page)
- Radio story (2-3 minutes in length)
- Video newscast (2-3 minutes in length)

3) Create a Draft

Check when completed

Referring to notes and responses in your student handout, make a quick draft of your group's product ideas. Your team's product should summarize and share information about:

- Causes and impacts of wildfires in Colorado
- Locations and times of higher wildfire risk in Colorado
- How to prepare for a wildfire
- How to respond and stay safe during a wildfire
- Describe how people and communities rebound from wildfire

Activity 3.3 Local Wildfire News Story, cont.

Local Wildfire News Story

4) Create the Final Product

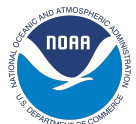
Check when completed

Create your team's Local Wildfire News Story. Remember to keep your product brief and summarize these key elements for your community audience:

- What are the causes and impacts of wildfires in Colorado?
- Which regions and times of the year have higher wildfire risk in Colorado?
- How can people prepare for a wildfire?
- How should people respond to stay safe during a wildfire?
- What are some ways that people and communities have rebounded after a wildfire?

Lesson Rubric

Refer to the [rubric](#) to understand expectations for your final product.



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