



## Exploring Local Hazard Mitigation Plans

### Setting the Stage

In order to be eligible for pre- and post-disaster grants from the Federal Emergency Management Agency (FEMA), each county must undergo a hazard mitigation planning process every five years. The purpose of the planning process is to reduce the impact of natural hazards to people, property, and infrastructure. Each Hazard Mitigation Plan must include several elements, including a summary of the planning process, a risk assessment, and hazard mitigation strategies.

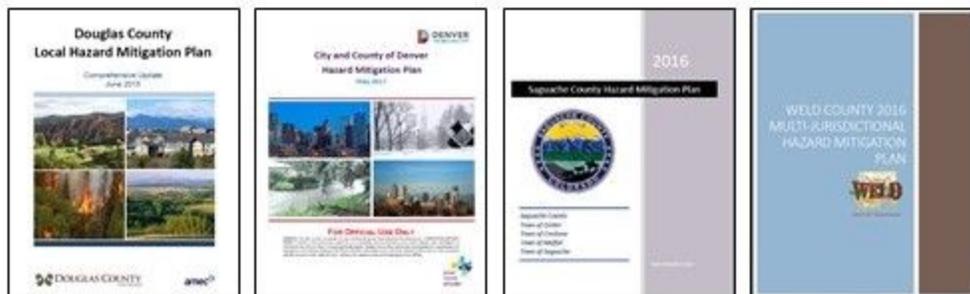


Photo: Hazard Mitigation Plans from around Colorado

### Lesson Overview

Students will explore their county Hazard Mitigation Plan to gain understanding about the hazard (flooding, wildfire, or drought) in their area, including historic hazards, probability of future occurrences of the hazard, and vulnerability of the area to the hazard.

- **Activity 1 – Engage (15 minutes) Warm-Up Brainstorm**  
Students will collectively brainstorm what they know about the chosen natural hazard in their community.
- **Activity 2 – Explore (30 minutes) Text Structure Reading Comprehension Exercise**  
Individually, students will read a part of their county’s Hazard Mitigation Plan and take notes using a graphic organizer.
- **Activity 3 – Explain (5 minutes) Quiz Questions**  
Students create three multiple choice questions about the Hazard Mitigation Plan using their notes from the reading to be incorporated into a Kahoot for the following day.



Instructional Overview	
<b>Grade Level</b>	Middle/High School
<b>Instructional Time</b>	50 minutes
<b>Standards Alignment</b>	NGSS: <a href="#">MS-ESS3-2</a> , <a href="#">HS-ESS3-1</a> CDE: <a href="#">MS3.ESS.GLE9</a> , <a href="#">HS3.ESS.GLE9</a>
<b>Anchoring Phenomenon</b>	<ul style="list-style-type: none"><li>Local governments undergo planning processes to understand the community's vulnerability to natural hazards and minimize the impacts of those hazards.</li></ul>
<b>Driving Question</b>	<ul style="list-style-type: none"><li>What are the impacts of the hazard [wildfire, flooding, or drought] in our community?</li><li>What is the likelihood of the hazard occurring and what is our vulnerability to the hazard?</li><li>What actions are being taken in our community to mitigate impacts of hazards?</li></ul>
<b>Learning Goals</b>	<ul style="list-style-type: none"><li>Students will understand the vulnerability of their community to [wildfire, flooding, or drought].</li><li>Students will be able to explain the mitigation actions being taken in their county to address [wildfire, flooding, or drought].</li></ul>
<b>Materials</b>	<ul style="list-style-type: none"><li><input type="checkbox"/> Six large pieces of poster paper</li><li><input type="checkbox"/> Tape</li><li><input type="checkbox"/> Markers for all students</li><li><input type="checkbox"/> One copy of the <a href="#">Local Mitigation Plan Graphic Organizer</a> for each student</li><li><input type="checkbox"/> One copy of the appropriate section (see below, Material Preparation) of your county's Hazard Mitigation Plan for each student (or the reading can be posted digitally)</li></ul>
<b>Material Preparation</b>	<ul style="list-style-type: none"><li><input type="checkbox"/> Download your county <i>Hazard Mitigation Plan</i> from <a href="https://www.colorado.gov/pacific/mars/approved-plans">https://www.colorado.gov/pacific/mars/approved-plans</a></li><li><input type="checkbox"/> Read through your county's hazard mitigation plan. Most plans throughout Colorado include roughly the same information, but may be structured differently, and may or may not address some of the aspects/questions outlined in the graphic organizer. Make sure to go through the graphic organizer and check to see whether students will be able to answer the questions using the mitigation plan as a resource. If the mitigation plan doesn't adequately answer the questions, consider looking for supplementary resources or omitting the section on the graphic organizer.</li><li><input type="checkbox"/> Note: Many plans have unique (and potentially confusing) page numbering systems. Decide whether you'd like students to learn how to</li></ul>





	use the page numbering system, or if you'd like to provide specific pages from the plan and avoid having students find sections on their own.
<b>Vocabulary</b>	<p><u>Hazard Mitigation Plans</u> are required for each county to receive grant funding from the Federal Emergency Management Agency for hazard relief or preparation.</p> <p><u>Vulnerability</u> is the potential of a community to be harmed by natural hazards. Some communities may be more vulnerable to certain hazards than others, depending on local geography, climate, population, and other factors.</p> <p><u>Mitigation</u> uses planning tools and strategies to reduce a community's risk to natural and man-made hazards (e.g., reduce risk <a href="http://coresiliency.com">coresiliency.com</a>).</p>
<b>Instructional Strategies</b>	<ul style="list-style-type: none"> <li>• <u>Text Structures</u>: Writers use text structures to organize their writing, and they are a useful tool for reading comprehension of non-fiction. Examples of text structures include sequence, description, compare-contrast, cause-effect, and problem solution. Find more information about text structures at <a href="https://www.cultofpedagogy.com/text-structures/">https://www.cultofpedagogy.com/text-structures/</a></li> </ul>

<b>Activities</b>	<b>Web Links for Lesson Resources</b> Note: all resources are downloaded as pdfs in the <i>Activity Resources Folder</i>
Activity 2	<ul style="list-style-type: none"> <li>• Text: Colorado Approved Regional and Local Hazard Mitigation Plans <a href="https://www.colorado.gov/pacific/mars/approved-plans">https://www.colorado.gov/pacific/mars/approved-plans</a></li> </ul>



## Activity 1 (Engage)

Warm-up Brainstorm (15 minutes)

What are the impacts of the hazard (wildfire, flooding, or drought) in our community?

Create two sets of three posters to post around the room. Write the following questions on the posters:

- Has a [wildfire, flood, or drought] happened in our community before? When? What happened?
- What is the likelihood of a [wildfire, flood, or drought] occurring in our community?
- Is our local government planning for a [wildfire, flood, or drought] to occur? How can they mitigate impacts to our community if the hazard occurs?

Post the posters around the room in places where students can easily access them.

Divide the class into small groups of three to five students. Begin by assigning each group a poster to start with. Give students 3 minutes to respond to the questions with words, short phrases, or pictures on the paper. Ask the students to rotate to the next two posters, so each group has a chance to answer all three questions. Once the activity is over, review the answers as a whole class.

## Activity 2 (Explore)

Text Structure Reading Comprehension Exercise (30 minutes)

What is the likelihood of the hazard occurring, and what is our vulnerability to the hazard?

### Activity 2.1 Text Structure Reading Comprehension

Introduce your students to the idea of text structures. In the case of hazard mitigation planning, local governments are given a text structure to use as they write their plan. FEMA has developed guidelines for Hazard Mitigation Plans, including requirements for descriptions of each hazard.

- Using a blank graphic organizer, model how to find information in a Hazard Mitigation Plan using a different hazard than the one your class is studying (e.g., avalanche, earthquake, or tornado). Read the section outloud and model the use of the graphic organizer to read for specific information and take notes as you read.

### Activity 2.2 Graphic Organizer Reading Comprehension

After modeling how to use the graphic organizer, give each student a graphic organizer. Ask them to read the hazard section on your chosen hazard and take notes in each section of the graphic organizer.





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Students can work in pairs or individually. Allow for quiet reading time for students to read the chosen hazard section of your county Hazard Mitigation Plan. Ask them to fill out notes for each section as they read.

### Activity 3 (Explain)

Quiz Questions (5 minutes)

What actions are being taken in our community to mitigate impacts of hazards?

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As a formative assessment, ask students to develop three multiple choice questions based on their reading of the Hazard Mitigation Plan. Questions must include the question and four multiple choice answers, with the correct answer marked. Ask students to develop questions to address:

- Local history of the hazard
- Likelihood of the hazard occurring
- Vulnerability of the community to the hazard
- Local mitigation strategies

Collect the questions as an exit ticket to create a Kahoot for the following day of class.

