



## Building Community Resilience to Drought

### Anchoring Phenomenon

Humans have been affected by severe drought throughout history, which in some cases has led to the collapse of civilizations. While technology has increased our ability to deal with drought, it still causes significant economic damage in the United States today.



Photo Credit: Whitney Fullmer

### Lesson Overview

Students will identify a resilience strategy to make their community more resilient to drought.

- *Activity 1 - Identify (30 minutes) What strategy will you investigate?*  
Students review the virtual expo and identify a drought resilience strategy they would like to focus on.
- *Activity 2 – Research (30 minutes) Would your strategy work? Is it needed?*  
Students interview family and friends about what they know about drought, and look into the feasibility of their idea.
- *Activity 3 – Prototype (45 minutes) Create a pitch for your idea*  
Students create a draft of their idea proposal.
- *Activity 4 - Iterate (30 minutes) Improve your idea based on feedback*  
Students present their prototypes to their peers, and/or a community expert for feedback.
- *Activity 5 - Launch (45 minutes) Create your presentation.*  
Students incorporate feedback to create their final presentation for submission.



Instructional Overview	
<b>Grade Level</b>	Middle/High School
<b>Instructional Time</b>	180 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.GLE10</a>
<b>Driving Question</b>	How can we mitigate the impacts of drought and create a more drought resilient community?
<b>Learning Goal</b>	Students will create a project proposal to increase community resilience to drought that they could implement.
<b>Materials</b>	<input type="checkbox"/> Computer and internet access are essential for this activity. Ideally each student will have access to a computer or tablet.
<b>Material Preparation</b>	<input type="checkbox"/> Post the <a href="#">Activity 1 Identifying a Drought Resilience Strategy Handout</a> and an editable copy of the <a href="#">Activity 1 Drought Resilience Strategies Class List</a> to Google Classrooms or class website. Students will need digital access to the worksheets to access the links for each activity. <input type="checkbox"/> Print copies of the <a href="#">Activity 3 Drought Resilience Strategy Outline</a> for each student. <input type="checkbox"/> Optional: Download your Local Hazard Mitigation Plan from here: <a href="https://www.colorado.gov/pacific/mars/approved-plans">https://www.colorado.gov/pacific/mars/approved-plans</a> . Look for a list of hazard mitigation strategies to share with students as examples of projects they could pursue. <i>*Note: Though there are a general set of guidelines for local hazard mitigation plans, not all plans are organized the same. Spend some time exploring the document before teaching the lesson to avoid confusion.</i>
<b>Vocabulary</b>	<p><u>Preparedness</u> is to have plans in place for communities to respond when a disaster or emergency happens in order to protect lives and community assets (coresiliency.com; i.e., ready to respond).</p> <p><u>Mitigation</u> uses planning tools and strategies to reduce a community's risk to natural and man-made hazards (coresiliency.com; i.e., reduce risk).</p> <p><u>Resilience</u> is the capacity of community members and organizations, such as schools, businesses, or hospitals, to maintain essential functions before, during, and after a hazard event (i.e., the ability for a community to bounce back).</p>
<b>Opportunities for Bringing Experts into the Classroom</b>	<ul style="list-style-type: none"> <li>• Activity 1: Kick off the lesson with a local expert (water utility professional, local extension agent, water conservation board member, farmer or rancher) talking about drought to give students ideas for resilience strategies.</li> <li>• Activity 2: Compile a list of contact information for local experts for</li> </ul>





	<p>students to interview as they research their idea.</p> <ul style="list-style-type: none"><li>• Activity 4: Invite local experts to give students feedback on their project ideas.</li></ul>
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## Activity 1 (Identify)

What strategy will you investigate?

Use the [Activity 1 Handout](#) to complete this activity.

- 1) Read the [Guidelines for the Virtual Expo](#).
- 2) Review the FEMA Drought Mitigation Ideas and Project Examples on the Virtual Expo. Which of these ideas would you like to focus on? Or do you have a different idea?

Resources:

- Project Examples and Strategies from Local Mitigation Plans (midway down the [Resilient Colorado Virtual Expo](#) page)
  - [FEMA's Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards guide for Drought](#)
- 3) Write a 2 sentence description of your drought mitigation strategy in [this document](#).

## Activity 2 (Research)

Would your strategy work? Is it needed?

Use the [Activity 2 Handout](#) to guide students through this activity.

Research the feasibility of your strategy idea, and whether it's needed. Interview 5 friends or family members in your community to get ideas for your proposal, or create a short Google form survey to collect ideas and learn more about the community's need for a solution.

Consider the following questions as you are interviewing or surveying people:

1. Are you concerned about drought in your community? Why or why not?
2. What is our risk for drought in our community? Are droughts common here?
3. How would drought affect you if one occurs?
4. Do you know what to do if a drought happens?
5. *Share your idea for a solution.* What do you think of this solution?
6. Do you have ideas of what we can do in our community to be prepared for and mitigate the impacts of a drought?





7. Do you have ideas for solutions that I could implement to increase our community's resilience to drought?

### Activity 3 (Prototype)

Create a pitch for your idea

Create a poster or a 2-5 minute video to share your proposal idea with your peers. Begin by filling out the [Drought Resilience Strategy Outline](#) to collect your ideas.

The presentation should include:

- Project Description: What is your solution?
  - What do you plan to do?
  - Where do you plan to do it?
  - Who are the stakeholders? Who will you involve and what will their role in the project be?
  - What resources do you need to complete the project? How do you plan to get these resources?
  - What is a suggested timeline (and how will you take into account potential social-distancing requirements due to COVID-19?)
- Project Justification
  - Why is your project important? What is your evidence, and/or how do you know this is a need in your community?
  - Who will the project benefit?

### Activity 4 (Iterate)

Improve your project based on feedback

Present your project proposal to your classmates and/or an expert for feedback on the idea. After you've explained your idea (and shown them your poster or video), use the following questions to get feedback.

- 1) What did you like about the project proposal?
- 2) What could we do to improve our proposal?
- 3) Would this project be feasible?
- 4) Does this proposal provide a solution to a demonstrated problem? If not, how could we change it?
- 5) Is there enough information in our proposal?
- 6) Are the stakeholders clearly identified? Is it clear who will be able to complete the work?





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- 7) Are the resources to complete the plan readily available? If not, are they easily attainable?

### Activity 5 (Launch)

Create your presentation

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Using the feedback you got, revise your prototype and prepare your final presentation to submit to the Virtual Expo.

Submit your poster or video [here](#).

