The Vocabulary of Hazards - Teacher Guide

Setting the Stage
Vocabulary that experts use can often become overwhelming and cause confusion, even for the experts themselves! This lesson builds students’ understanding and familiarity with the difference between the terms preparedness, mitigation, and resilience. Understanding the difference between these terms will be essential for students to develop their own resilience ideas and engage in conversation with local experts and stakeholders at the Resilience Expo.

Lesson Overview
Students will access prior knowledge to understand the three terms (preparedness, mitigation, and resilience), then use that knowledge to categorize different community actions.

- **Part 1 – Engage (10 minutes) Alien Invasion Warm-Up Activity**
  In small groups, students will create cartoons to illustrate preparedness, mitigation, and resilience in response to an alien invasion of their town or neighborhood.

- **Part 2 – Explore (15 minutes) Vocabulary Card Game**
  In the same small groups, students will categorize different actions into the appropriate terminology while playing a vocabulary game.

- **Part 3 – Explain (5 minutes) Review Vocabulary**
  As a class, review the meaning of each term.

- **Part 4 – Elaborate & Evaluate (10 minutes) Brainstorm**
  Students will individually create ideas of how to apply the concepts in their own community.

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| **Building Toward** | NGSS: MS-ESS3-2, HS-ESS3-1  
CDE: MS3.ESS-GLE9, HS3.ESS.GLE10 |
| **Three Dimensions** | Science and Engineering Practices:  
- Obtaining, Evaluating, and Communicating Information  
Disciplinary Core Ideas:  
- ESS3.B: Natural Hazards  
Crosscutting Concepts:  
- Patterns |
| **What Students Will Do** | Use patterns to evaluate different actions to address natural hazards and sort based on which definitions are a best fit for each action. |
| **Materials** | Sets of the Vocabulary of Hazards Venn Diagram on 11” x 17” paper and Vocabulary of Hazard Action Cards—enough for the class divided into groups of two or three.  
- OR -  
Vocabulary of Hazards Jamboard |
| **Material Preparation** | Make copies of the Vocabulary of Hazards Venn Diagram (on 11” x17” paper) and cut out Vocabulary of Hazards Action Cards. Laminate them if you plan on reusing them. Make sure you print the correct materials for the hazard you are teaching - flood (page 1), wildfire (page 2), or drought (page 3). |
| **Vocabulary** | Preparedness 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).  
Mitigation uses planning tools and strategies to reduce a community’s risk to natural and man-made hazards (coresiliency.com; i.e., reduce risk).  
Resilience 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). |

[Link to CIRES Outreach](https://cires.colorado.edu/outreach/)
Part 1 (Engage)
Alien Invasion Warm-Up Activity (10 minutes)

What are the different ways communities prepare for and respond to hazards?

Create small groups of students (2 or three per group) for the activity. Tell students that an alien invasion is currently occurring in their neighborhood. Several spaceships of extraterrestrial beings have landed, and they are currently invading homes, businesses, and soon, the school. So far, the aliens have been nonviolent, but they are demanding food and candy from everyone they meet. The aliens walk on two feet, and normal rules of physics apply to them. That is all the information currently available regarding the invasion.

- Ask each group of students to fold their paper into six sections (by folding “hot-dog”/length in half, and folding “hamburger” into thirds).

- On the top of each third, have students write preparedness, mitigation, and resilience. Their paper should look like this:

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<table>
<thead>
<tr>
<th>Preparedness</th>
<th>Mitigation</th>
<th>Resilience</th>
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- In the top box have students write down words they associate with each term, and ideas for what each term might mean.

- In the bottom boxes, ask students to draw a one-panel cartoon, showing an action to illustrate how the concept could be applied to the alien invasion. For example, an action for preparedness would be to buy large amounts of candy to appease the aliens.

- After students have completed their cartoon, ask them to “window shop” by leaving their papers on their desk, standing up, and looking at other students’ ideas.
• When students have finished, develop a class definition for each term and write them on the board. Note: Students will soon see definitions of each term on the Venn diagram. Use this exercise as an opportunity to solidify students’ initial ideas.

Part 2 (Explore)
Vocabulary Card Game (15 minutes)

Hand out the Venn Diagram and a set of action cards (wildfire, flood, or drought), or have students open the Venn Diagram jamboard. Review the given definition of each term on the Venn diagram for preparedness, mitigation, and resilience. Compare the given definition to the class definition just created.

● Ask students to place action cards into the appropriate space in the Venn diagram for the concept(s) they think it illustrates best.

● After students have completed matching the action cards, discuss each action as a class and decide which concept it illustrates best.

Part 3 (Explain)
Review Vocabulary (5 minutes)

As a class, discuss whether the class definitions created in Part 1 are still appropriate. Update the definitions of each term on the board as necessary and create a poster with definitions of each term to place in the classroom for the remainder of the unit.

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Part 4 (Elaborate & Evaluate)

Brainstorm (10 minutes)

What can communities do to plan for hazards?

Narrow in on the hazard your class is focusing on (flood, wildfire, or drought). Explain that students will be developing ideas for increasing community resilience for the given hazard in the next unit. Ask students to individually brainstorm three actions in each category (preparedness, mitigation, and resilience) that their town could implement. Collect the list as an exit ticket to evaluate whether students are able to distinguish between terms.