Geological Hazards Community Action Plan

Taking steps to make our communities safer

When people play a proactive role, communities can achieve greater community resilience to earthquake hazards. This activity empowers learners to use their knowledge of geoscience and preparedness planning to engage community stakeholders in ways to prevent, mitigate, respond to, and recover from the hazards and risks posed by earthquakes. Participants will prepare an informative presentation where they will "ask" an agency or entity to respond to an issue or concern with a specific action affecting earthquake community preparedness.

If preceded by the *Geologic Hazards and the Built Environment* activity, learners would have already identified a community preparedness vulnerability, its challenges and constraints and possible solutions.

Essential Questions:

- What preparations can we do as individuals, and communities to be ready for an earthquake?
- What impacts the ability of communities to prepare for earthquakes?
- How do different sectors prepare for earthquakes differently?
    - People/perspectives: emergency managers, city planners, schools, families, health care workers
    - Basic needs: food, water, shelter, supply chains, health care
    - Infrastructure: buildings, transportation, communication

Goals

Learners will:

- Understand basic hazards and risks due to earthquakes
- Demonstrate and communicate relevant geoscience understanding of the factors affecting their community preparedness capabilities
- Identify a specific preparedness vulnerability in their community and interpret the challenges and constraints related to the issue
- Identify and communicate possible solutions for taking action to resolve the challenges and constraints
- Construct an argument about how challenges and constraints impact decision-making and implementation of best practices in seismic safety preparedness

Materials

- ***Slideshow*** and editable Word versions of handout and rubric can be accessed at https://serc.carleton.edu/ANGLE/educational_materials/activities/245162.html
- ***Topic/Factor Summary Notes Sheet*** (below)
- ***Community Action Team Planning Sheet*** (below)
- ***Rubric*** (below)
- ***Related IRIS Animation*** - Buildings in Earthquakes: How does construction affect the intensity of shaking that you feel? https://www.youtube.com/watch?v=UVZyYbs76HM

NGSS Science Standards

- **HS-ESS3-1** Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity
- **ESS3.B Natural Hazards**. Natural hazards and other geologic events have shaped the course of human history; they have significantly altered the sizes of human populations and have driven human migrations

Teacher Background & Instructions

Implementation Suggestions:

Engagement options: If this activity is preceded by the research project *Geologic Hazards and the Built Environment,* learners will already have identified a community preparedness vulnerability, its challenges and constraints and possible solutions. The Factor/Topic Summary Notes Sheet completed at the end of the *Built Environment* activity is a good launch to this Action Plan activity.

If students have not yet had the opportunity to research and identify community vulnerabilities, launch this activity using the slideshow and video to introduce the factors that impact seismic hazards experienced by the built environment. The Factor/Topic Summary Notes Sheet can be used in this context, for students to take notes on during the slideshow and video.

Pacing Suggestions: This capstone activity requires 2+ class periods. Provide a minimum of one class period for the creation of the presentations, and one class period for the delivery of presentations. If this activity is not preceded by *Geologic Hazards and the Built Environment*, an additional class period is needed for a more thorough review of the slideshow, and time for teams to identify their community vulnerability.

Connecting Your Classroom: Presentations can be shared using the Community Connection protocol, where learners in one community compare what they have discovered in their region with another group of learners living in earthquake country. The protocol is outlined at https://serc.carleton.edu/ANGLE/educational_materials/activities/246809.html

Instructional Sequence:

Step 1: Use the slideshow to present or review some of the factors related to seismic vulnerabilities within the built environment (see engagement options outlined in the Implementation Suggestions above). Engage learners on the importance of individuals taking an active role to improve community resilience to earthquake hazards. In this activity, learners will identify a vulnerability in their community, target a solution, and inspire others to take action.

Step 2: Frame the activity using the National Preparedness System questions provided by the Federal Emergency Management Agency (FEMA), which help students better understand the needs and challenges for helping their communities become more resilient:

- What do we need to prepare for?
- What level of capability do we need to be prepared?
- What are our current capabilities?
- What gaps exist between the capabilities we need and the capabilities we currently have?
- How can we address the gap?

Step 3: Distribute the Community Action Team Planning Sheet and review the project requirements and your timeline.

Step 4: With the FEMA framing questions in mind, student groups work to identify their issue and possible solution, articulate the "ask," and identify the agency or entity to which they will pitch the ask. This step requires more time if learners have not already completed the activity: *Geologic Hazards and the Built Environment.*

Step 5: Teams work to prepare their presentations. Circulate and ensure that teams are addressing all the requirements for the presentations that are outlined in the Community Action Team Planning Sheet and Rubric.

Step 6: Facilitate presentations. Ensure that teams clearly identify the role the audience will play (the agency or entity being asked to take action). Evaluate the content and delivery of the presentations using the provided rubric.

Step 7: Debrief the activity by having students share what they found to be the most impactful information they learned, and/or what actions they have been motivated to take to help prepare their family, school, or greater community for earthquakes.

Extensions:

Have students refine their presentation using feedback from the class, and then present the "ask" to the actual agency or group that is the intended audience.

Select one or more of the presentations to present to another class using the Community Connections protocol described on the Implementation Suggestions above.

Geologic Hazards Community Action Plan
Student Team Planning Sheet

Formal Group Presentation to an Agency or Entity

In this activity, your team will create and present a formal presentation to an appropriate agency or entity that is involved with or responsible for your topic. In your presentation you will "ask" the agency or entity to respond to your issue or concern with a specific action. The rest of your class will play the role of the agency or entity.

1. Identify and outline a need or concern you have about your topic, and the possible solution that you wish to take action upon.

2. Identify an appropriate agency or entity that would be responsible for hearing your presentation and request (for example, a city council, planning commission, or community board). Record this on row A of the planning guide.

3. Articulate the "ask" in a succinct written statement, and record on row E of the planning guide.

4. Before you present, write the name of the person who will do each part of the presentation in the column after each letter in the planning guide.

5. Design the presentation you will use to inspire the agency or entity to take the action your team has targeted. Prepare a visual for your presentation such as a poster, skit, or slideshow. Ensure your presentation demonstrates the following criteria:

    - Shows contributions from all team members
    - Thank the audience for listening to your presentation.
    - Describes the issue you are concerned about.
    - Explains why it is important to you, your group, your community.
    - Asks the board/council for a particular action based on your concern/need.
    - Presents the context and basis for your concern including:
        - At least 3 facts based on the factors you researched.
        - Cite evidence you discovered and your source.
    - Outlines the challenges and constraints you discovered for your topic.
    - Provides suggestions for next steps including:
        - What you are willing to do.
        - What you want the agency or entity to do.
        - What are possible next steps to begin
    - Provides a timeline for what you would like to see happen and discusses possible follow up steps
    - Asks for and addresses questions the audience may have
    - Thank the audience for their time and interest in listening to your presentation.

Group members: _____

_____

Presentation tips:

- Face the audience when you speak
- Project your voice more than you think you need to

step	Group member	Presentation content and notes
A		Identify the agency/entity that you are presenting to:
B		Thank your audience for their time in seeing you
C		Introduce the members of your team
D		Explain the need or concern you are discussing:
E		Explain why it is important to you, your group, your community:
F		Describe what you would like the board or council to do related to your concern/need (The Ask):

step	Group member	Presentation content and notes
G		Present the context and basis for your concern including at least 3 facts for each of the factors you researched (cite your sources):
H		Explain the challenges and constraints you identified:
I		Provide suggestions for next steps including • What you are willing to do • What you want the agency or entity to do
J		Provide a timeline for what you would like to see happen:
K		Ask if there are any questions and direct the question to the person on your team who can best answer.
L		Thank the group for their time in seeing you

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Student Project Scoring Rubric

Refer to the Community Action Team Planning Guide for Project Requirements.

Criteria	Points Possible

Content of the Presentation
● Preparedness issue or problem related to topic is identified
● "The Ask:" Describe what you would like the board or council to do related to your concern/need, and why it is important
● contextualize the problem by thoroughly describing ~3 factors that are most critical and relevant
● Challenges and constraints related to the factors are thoroughly described
● Possible solutions for taking action to resolve the challenges and constraints are thoroughly described
● Prepare an argument about how the challenges and constraints impact decision-making and implementation of solutions
● Provide suggestions for next steps including
  o What you are willing to do
  o What you want the agency of entity to do
● Provide a timeline for what you would like to see happen
● Notes, oral and visual presentation information is accurate & relevant
● Information has been analyzed and synthesized from several sources, and sources are cited
● Sources are relevant and credible
● A good understanding of the topic is evident
● Team members all participated
	7 – all criteria met well
	6 – all criteria met adequately, and/or one not met
	5 - most criteria met adequately, and/or one not met
	4 –some criteria quality is insufficient
	3 –some criteria not met, and/or quality is insufficient
	2 – many criteria not met
	1 – most criteria not met

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Student Project Scoring Rubric

Criteria	Points Possible
Oral Delivery Elements ● Presenters make eye contact, stand facing audience and not blocking visual presentation ● Presenters speak clearly and loudly enough to be heard ● Presenters show energy and enthusiasm for the topic ● Presenters explain content at an appropriate scientific level for the audience ● Presenters check for understanding and answer questions thoroughly by direct the question to the person on your team who can best answer ● Presenters graciously thank the audience, introduce all members of the team ● All team members participated	7 – all criteria met well 6 – all criteria met adequately, and/or one not met 5 - most criteria met adequately, and/or one not met 4 –some criteria quality is insufficient 3 –some criteria not met, and/or quality is insufficient 2 – many criteria not met 1 – most criteria not met
Visual Presentation Elements ● Title clearly identifies topic ● Visual presentation is neat and well laid out ● Enough visuals were provided to communicate the essential content ● Pictures and graphics are relevant to the topic and clarify information ● Content is easy to interpret ● Written portions of the visual presentation are easy to read by an audience ● Provide group member's names and period ● All team members contributed	7 – all criteria met well 6 – all criteria met adequately, and/or one not met 5 - most criteria met adequately, and/or one not met 4 –some criteria quality is insufficient 3 –some criteria not met, and/or quality is insufficient 2 – many criteria not met 1 – most criteria not met
Group Audience Participation ● Shows interest in other presentations ● Listens attentively to presenters ● Asks thoughtful questions	4 – all criteria met 3 – some criteria not met 2 – missed one presentation 1 – many criteria not met 0 – missed all presentations
Total	**out of 25**