

Start Here: Instructor Guide

Disaster Decision Makers: A Geoscience RPG

A Volcanic Hazards Role-Playing Activity

Overview

This is a team-based, role-playing simulation in which students act as geoscientists to assess volcanic hazards and make decisions to reduce risk to nearby communities. Students work in groups, interpret different datasets, and respond to an evolving eruption scenario.

Time Required

- ~90–120 minutes (flexible)
- Can be shortened to one round or extended with discussion

Instructor Prep

- Prepare all Round 1 role-specific datasets and materials
- Pre-sort and organize Round 2 scenario materials before class begins

Important: Round 2 includes multiple possible eruption scenarios. Each scenario has role-specific datasets for all five scientist roles. This means preparing 3 scenarios $\times$ 5 roles = 15 datasets per team for round 2. Because preparing these materials during the activity can be time-consuming, it is strongly recommended to:

- Pre-group datasets by scenario and role
- Clearly label or organize materials for quick distribution
- Have all Round 2 materials ready to hand out immediately when the scenario begins

Optional enhancement:

- Playing low-volume fantasy or adventure-style instrumental music can help set the tone and increase student engagement, especially during role-playing and decision-making phases

Learning Goals

- Understand different volcanic hazards and their impacts
- Practice decision-making using scientific data
- Work collaboratively and communicate ideas

Class Setup

- Divide students into teams of 5
- Assign one role per student:
 - Seismologist
 - Volcanologist
 - Geophysicist

- Remote Sensing Specialist
 - Hazards Specialist
- Each team receives:
 - Character identity sheets
 - Role-specific data (Round 1)
 - A team map with regions and populations
 - A recommended action sheet

How It Works (Simplified Flow)

Round 1: Data and Decisions

- Students create their scientist character
- Review individual datasets
- Share and plot information on the team map
- Decide on protective actions for each region
- Roll a d20 for each region for public response
- Roll a d12 for eruption scenario for round 2 (DO NOT SHARE OUTCOME WITH STUDENTS)

Note: Data in this round is intentionally limited and somewhat ambiguous. This is designed to make decision-making challenging and encourage students to weigh uncertainty rather than defaulting to extreme actions (e.g., evacuating all regions) before additional data is available.

Round 2: New Data and Eruption

- Introduce updated scenario data
- Teams reassess conditions
- Make revised decisions based on new information

Public Response: Dice System

- After each round, teams roll dice to simulate public response
- Outcomes are influenced by:
 - Chance
 - Team communication and data sharing
 - (+1 modifier for each dataset plotted and discussed on the map)
- Public response from Round 1 carries into Round 2, meaning early decisions and communication influence later outcomes

Facilitator Role

- Guide pacing and keep teams on track
- Introduce Round 2 scenario and new information
- Support interpretation of results
- Lead discussion and transitions between rounds

Strongly recommended: Use “Mountain Master” and “Governor” roles to structure the activity and enhance engagement

Debrief

- Have each team share outcomes (e.g., injuries, fatalities)
- Compare results across groups

Discussion prompts:

- What decisions led to better outcomes?
- How did communication impact results?
- What would you change and why?

Tips for Success

- Encourage all students to share their role-specific information
- Remind teams there is no “perfect” answer
- Circulate early to help students understand their roles
- Keep the pace moving between rounds

Optional Enhancement

- Frame the activity as a “multiverse,” where each team represents a different version of the same community
- Compare outcomes across timelines during the debrief

Teaching Materials

Role materials:

- Character sheets describing each scientific role (one per student)
- Round 1 data packets for each scientist role

Scenario and data materials:

- Round 2 scenario data packets (role-specific information)
- Large volcano map with regional population data*
- Recommended action sheets for each round (for students to complete)*

Facilitator materials:

- Mountain Master and Governor guides/scripts
- Expert cards to support interpretation of hazard data
- Public response roll tables (facilitator reference)
- Scenario outcome guides (describing eruption results and impacts)
- Dice (D20, D12, D10, D6; one set per group)⁺

Tracking and assessment materials:

- Chronicle keeper record sheets (to track injuries and fatalities)*
- Scenario-specific impact roll charts (death and injury calculations)

Optional materials:

- Role identifiers (e.g., name tags, costumes, props) to support engagement

* Recommended for lamination and reuse

⁺ Not included in submission; must be provided separately