

Extreme Event Webquest: Teacher's Guide



Thank you for your interest in our Extreme Event Webquest! Here's some general information about the webquest, tips on how to tailor it for your class, and specific notes on each of the modules.

About the Webquest

Disasters are a fact of life. By building more resilient individuals and communities, we can reduce the toll of these events and bounce back more quickly. This webquest stimulates critical thinking about how to prepare for disasters and increase resilience in ourselves and our communities.

What is this webquest for?

This webquest is designed to engage and challenge students from middle school through college. The activities are intended to not only teach students about disasters, but also to give them critical-thinking tools and a sense of personal responsibility to help their community become more resilient.

Because disasters affect many facets of life, the content fits well with many subject areas, from science to social studies.

What types of activities are involved?

In this 3-module webquest, students use a variety of online resources including videos, games, and reference materials to gather information as they complete a series of activities. The webquest involves a combination of guided research, individual tasks, and group collaboration.

Students are challenged to think creatively as they take on the role of a character, work with a team to learn about their assigned city, prepare and plan for disaster, and then imagine a disaster storyline to draw insights about the immediate and long-term effects of different disaster scenarios. At the end of each module, students enhance their knowledge by presenting their team's problem-solving approach to their peers.

Optionally, you can also use the Extreme Event Webquest in conjunction with the [Extreme Event Game](#) for a more in-depth learning experience.

How long does it take?

Preparation Time: You'll need about 1 hour to review this guide and the student modules in detail. You can use the webquest as-is or customize it. Customizing it naturally adds to your preparation time, but allows you to optimize the content and timeline for your needs.

There are a few physical materials you'll need. We've provided several options for each of these, so depending on your preferences and available materials, you can opt for a simple approach (paper-and-pencil and basic printouts), or more complex (posterboard and sticky notes, dice, laminated cards).

Activity Time: The webquest can take anywhere from one class period to a week. As a general rule of thumb, each module can be expected to take about 90 minutes total, but it's up to you to determine how many modules to use and how much of the work is done in-class. Many of the steps can be assigned as individual homework or as group work to be done after school.

In addition, you can customize the modules to make them longer or shorter. For example, where multiple web resources are provided, you can opt to assign students to review just one of them instead of the whole list. Or, you can make the activity longer and more involved by requiring students to review additional materials labeled as "optional."

Students will still get a lot out of the activity even if you do not use all three modules. However, the modules build on each other and must be completed in order. So, if you only choose to use one module, it should be "Module 1: Know Your Risks." If you only use two, first do "Module 1: Know Your Risks," then "Module 2: Let's Get Ready."

One exception is the Bonus Activity. It can be completed on its own or after any of the other modules.

How can I tailor it for my class?

As mentioned above, you can choose to use one, two, or all three modules (plus the Bonus Activity), depending on the amount of time you have available. In addition, there is a lot of room for customization within each module.

The modules are offered as Word documents, so you can change the instructions or add/delete links or activities to fit your needs. You can also change which portions are assigned as individual tasks vs. group tasks, in-class work vs. homework, etc. See below for specific suggestions on tailoring each module.

Students can use the webquest in whatever format works for you. One approach is to share the modules electronically via email, Google Drive, DropBox, or another file-sharing system, allowing students to explore the online resources and input their answers all in one place (though there are still a few activities that require paper). Or, you can print the modules and have students complete them by hand. If you opt for a printout-based approach, keep in mind that students will need to go to our website or use an electronic version of the module to access the links and videos.

How was the content vetted?

The webquest was developed by the Koshland Science Museum of the National Academy of Sciences. Its key messages are based on expert reports of the National Research Council, including [Disaster Resilience: A National Imperative](#). The online resources used in the webquest have been reviewed by staff of the Koshland Science Museum and subject-matter experts at the National Research Council; many of these online resources draw upon work of the U.S. federal government.

How to Use the Modules

Here is a quick overview of what to expect from each module, as well as specific suggestions for tailoring the activities to suit your class.

Module 1: Know Your Risks

This [module](#) provides an introduction to the concept of resilience and begins to set the scene for some of the webquest's narrative aspects. Students take on the role of a character and form teams representing different cities. They work together to learn about the different types of natural disaster and consider how various factors influence disaster risk in a specific location.

Tips

Before You Start: Sort students into groups of 3-6 people. Students will stay in the same team throughout all activities, though they will have opportunities to interact with other teams.

Before Step 1: Determine how you will assign character roles. You don't need to fill every role, and it's fine if two or more people have the same role. It's nice if each group has representation from multiple sectors (Households, Community Groups, Businesses, etc.), but this isn't strictly required.

You can assign character roles by adding students' names to the [Character List Word document](#) and sharing it electronically, or you can print out the [Printable Character Name Tags](#) and give one to each student.

Before Step 2: Determine whether you would like to assign this portion as homework/independent research, or have students continue to work in their groups.

Before Step 3: Determine how you will assign cities. Each team should represent a different city so they can see how different places face different disaster risks depending on factors such as weather patterns, geography, demographics, etc.

Choose from the list below or come up with your own options. It's also fine to let the students select which city they'd like to represent.

San Francisco, CA

Dallas, TX

Dubuque, IA

Norfolk, VA

Miami, FL

New York, NY

Before Step 4: Determine what materials you would like to use to create the risk matrices. Here are some suggestions; use whatever approach works with the materials you have on hand. Each team needs to make a matrix.

- Draw or print a blank matrix on a sheet of paper. Have students write the disaster types on this sheet using pencil (so these can be erased in Step 5, if needed).

- Draw a blank matrix on posterboard. Write the disaster types on sticky notes and have students position them on the poster.
- Draw a blank matrix on a white board or blackboard. Have students write in the disaster types, or use sticky notes. Note: you'll need the matrices again in "Module 3: Dealing with Disaster," so take a photo if you need to erase them before you get to Module 3.
- Have students create and complete the matrices electronically.

Before Step 6: Determine how you would like to have students present to their peers. Here are some suggestions:

- Have each team present in front of the entire class.
- Pair teams up and have each team share its map and matrix with its partner team.
- Hang matrices, city maps, and character sketches around the classroom. Have students circulate to review and discuss each others' work.

Module 2: Let's Get Ready

In this [module](#), students learn about resources that can help make individuals and communities more disaster resilient. They consider the costs and trade-offs involved in acquiring these resources and then work in teams to weigh their options and help their assigned city prepare for disaster.

Tips

Before Step 1: Print out a deck of [Resource Cards](#) for each team. Print the full collection, or, if you want to make this activity shorter, you can select a subset of resources so students will have fewer to choose from. Printing on cardstock will make the cards more durable, but it's not required.

If you plan to use this webquest multiple times, laminate the resource cards and have students write on them with dry-erase markers. That way, you can simply erase them after the activity and have your resource card decks ready for the next time you use the activity.

Before Step 2: Decide how you would like to assign the web research to students. For example, you can require students to review all of the web resources, assign a specific subset of these resources, or invite students to choose which ones to review. This step can be done in class or assigned as homework.

Before Step 5: Consider how easy or difficult you would like to make this part of the activity. The overall goal here is to highlight how communities must make trade-offs when preparing for disaster—we don't always have the time, money, or resources to be fully prepared for any situation. If you have more time or want to increase the complexity for this step, consider imposing specific restrictions, such as:

- Require that every sector provide at least one resource.
- Impose a maximum of three \$\$\$ cards.
- Impose a minimum of three "Adapt" cards.

Before Step 6: Determine how you would like to have students present to their peers. Here are some suggestions:

- Have each team present in front of the entire class.
- Pair teams up and have each team share its experience with its partner team.

Module 3: Dealing with Disaster

This [module](#) challenges students to put themselves in the mindset of someone dealing with disaster and think critically about what that experience is like. Students work in teams and individually to imagine a disaster storyline, envision unexpected challenges, and see how disaster preparation can help solve problems during a crisis.

Tips

Before Step 1: Decide how you would like to assign the web research to students. For example, you can require students to review all of the web resources, assign a specific subset of these resources, or invite students to choose which ones to review. This step can be done in class or assigned as homework.

Before Step 2: Decide how you will help students randomly determine which disaster befalls their city. Rolling a die is suggested in the instructions, but if you don't have dice handy, you can use any other method for randomly generating a number between 1 and 6. You can even roll a die virtually by typing "roll a die" into the Google search engine.

Before Step 3: Decide how you would like students to complete this step. It can be done in class or assigned as homework.

Before Step 6: Determine how you would like to have students present to their peers. Here are some suggestions:

- Have each team present their story—or even act it out!—in front of the class.
- Pair teams up and have each team share its story with its partner team.
- Hang disaster stories and city maps around the classroom. Have students circulate to review and discuss each others' work.

Thank you for your interest in this activity. We hope you enjoy it!

Please explore our other [Teacher Resources](#) and [Disaster Resilience](#) materials to find additional engaging activities for your classroom. www.koshland-science-museum.org.

