Natural hazards exist all over Japan and South Korea. Use this map to find out which kinds of hazards to prepare for where you live.

Wherever you live, you should be prepared for these common emergencies:

**Home Fires**
Home fires happen every day. Be prepared with working smoke alarms and a home escape plan.

**Flooding**
Flooding can happen when a tropical storm causes a storm surge along the coast, or when too much rain or melting snow causes rivers and streams to overflow.
Storm Watch

Can you tell the difference between a hurricane and a tornado? Both are storms that spin around in a circle—what weather forecasters call cyclones. And both can destroy whole communities with their strong winds. So what makes them different?

Get together with a small group of classmates to answer that question. Your teacher will have your group gather information about hurricanes or tornadoes. Use the research guide below to organize what you discover. Then present your findings in a class discussion. By working together, you'll learn the difference between hurricanes and tornadoes, and how to stay safe when these two different kinds of storms happen.

Our Research Topic: Hurricanes or Tornadoes

Where the storm happens

Use the Hazards Map in the Science of Safety section to find out where your type of storm is most likely to happen in the United States. You can also use the online map at maps.redcross.org/website/maps/ARC_Map_Links.htm. Look at the locations on this map.

How the storm happens


How to stay safe

What should you do if a hurricane or tornado is headed your way? Are there different safety precautions for these two kinds of storms? Visit http://video.nationalgeographic.com/video/101-videos/ on the American Red Cross website to find out. Go to the “Hurricanes” section and click on Hurricanes. Use the space or a separate sheet of paper to write down the safety facts you plan to share with your classmates.

Plan how your group will present what you have learned to the class. You might want to use pictures or videos that you have found on the Internet, or create your own diagrams and charts to explain your kind of cyclone and how to stay safe when one happens.

Activity 1 The Science of Safety • Reproducible Master

Designed for Safety

We build resilience through wise decisions in how we use land as well as how we engineer structures. Hurricanes, tornadoes, earthquakes, and volcanoes are all natural hazards. We can't stop them from happening. However, we can, stop some natural hazards from causing so much damage. If we can improve existing ideas or find new and innovative ways to build homes and cities, we'll learn a lot more about these three natural hazards. Use what you know to come up with your own ideas for protecting people from the damage that one of these hazards can cause. Try to think of a new way to build a home and store that will protect them from that hazard. If you want, you can use ideas from the chat below. Draw or describe your ideas for a hazard-safe building, or use the back of this sheet if you need more room. You can also work with your teacher to help research your design. Here are some websites to get you started:

- The Pillowcase Project, www.redcross.org/pillowcase
- The Hazards Map poster included in your teaching kit
- The American Red Cross, redcross.org/prepare/disaster
- The science of plate tectonics and explains how the movement of tectonic plates creates the conditions for earthquakes and volcanoes. Students then conceptualize a very basic model that shows how an earthquake or a volcano happens. Compare ideas and decide on the best way to make your model. Then work together as a team to create a model that you can share with the whole class.

Earthquake and Volcano Safety

Visit the American Red Cross website to find out how to stay safe during an earthquake or when a volcano is ready to erupt. Go to redcross.org/prepare/disaster.

Objective

- Develop an understanding of the causes of natural disasters
- Learn the difference between hurricanes and tornadoes, and how to stay safe when these hazards happen
- Use school supplies to create a working model of a volcano
- Create a working model of an earthquake

Materials

- Construction paper
- Crayons or markers
- Anchor paper or butcher paper
- Construction tubes
- Tape or glue

Procedure

1. Read “Earthquakes for Kids” and “Volcano Hazards for Kids” online at redcross.org/pillowcase/earthquake_canada and redcross.org/pillowcase/volcano_canada. Then have students read “Earthquakes for Kids” from the textbook, pages 13-15. While they are reading, have students answer the questions below and then add their responses to their interactive notebook. The questions are:
   - What is an earthquake?
   - What makes an earthquake?
   - What causes an earthquake?
   - What can you do to be prepared for an earthquake?
   - What should you do when an earthquake happens?

2. Point out the hazards common to your region and talk about hazards that occur in other places. Explain that students will learn about natural hazards—hurricanes, tornadoes, earthquakes, and volcanoes—and how to stay safe when these hazards cause emergencies.

Activity 1: Storm Watch

This small group activity guides students through a collaborative research project using a variety of online resources (e.g., websites, maps, animation, and videos). Assign some groups to research hurricanes and others to research tornadoes. When they have completed their research, have each group report its findings in a class discussion. Use a chalkboard, whiteboard, or butcher paper to create a chart comparing the location, cause, and safety facts for these two different kinds of storms. You can also download a larger map for the location of hurricanes and tornadoes at small_scale/printable/images/pdf/outline/state.pdf

Activity 2: On the Edge

This activity introduces students to the science of plate tectonics and explains how the movement of tectonic plates creates the conditions for earthquakes and volcanoes. Students use school supplies to create a working model that shows how an earthquake or a volcano happens. Compare ideas and decide on the best way to make your model. Then work together as a team to create a model that you can share with the whole class.

Target Audience

This teaching kit is designed for use with students in grades 3-5 as a supplement to the science curriculum.

Standards Alignment

- Common Core State Standards: Math—3.MD.C.7
- National Science Education Standards: Grades K-12
- Next Generation Science Standards: Grades 3-5. For details, visit pnscore.com/science-safety.

Program Objectives

- Introduce key terms and science concepts related to hazards, natural disasters, and geological hazards
- Help students understand what events to expect and how to stay safe during extreme weather and other emergency situations
- Familiarize students and their families with the emergency preparedness information available from the American Red Cross at redcross.org
- Promote science learning through collaborative research, conceptual modeling, and engineering design

Program Components

- This one-page teacher’s guide
- Three reproducible student activity sheets
- The Hazards Map poster included in your teaching kit
- A survey form accessible online at redcross.org/pillowcase

Using the Program Components

Make copies of the activity sheets for all of your students. Provide master copies of the program to other teachers in your school.

Activity 2: On the Edge

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Activity 3: Designed for Safety

This activity challenges students to come up with engineering ideas that could reduce the damage to homes and cities caused by hurricanes, tornadoes, and earthquakes. The activity sheet briefly reviews some design concepts that engineers have explored already. For added inspiration, take students to http://www.societyforscience.org/sites/default/files/2011/04/22/diaster-proof-architecturre-13-super-strong-structures.pdf

Emergency Preparedness

Conclude the program by reviewing the emergency preparedness information provided on each activity sheet and on the Science of Safety teaching kit. Have students complete a worksheet for their personal emergency preparedness plan/disaster preparedness. For hazards that happen in your state, practice the protective actions recommended by the Red Cross, and encourage your students to share what they learned about being prepared for emergencies with everyone in their home.

Resources

- CD&D, iCds/learning
- FEMa, ready.gov/kids
- FEMA, fema.gov
- NFArr, earthquake.usgs.gov
- NOaa, www.noaa.gov/education
- American Red Cross, redcross.org/prepare
- Monser Guest: Prepared for Emergencies, redcross.org/Emergencetool