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Disaster and Emergency Preparedness: Activity Guide for K to 6th Grade Teachers

IFC International Finance Corporation
World Bank Group

Disaster and Emergency Preparedness: Activity Guide for K to 6th Grade Teachers

Contents

Foreword

This activity guide and its companion handbook—the *Disaster and Emergency Preparedness: Guidance for Schools*—were prepared as a resource for school administrators and teachers to serve as a basis for policy development. They also provide an important resource for classroom activities and awareness-raising among children and communities.

Planning for natural disasters and emergencies is something every educational institution must consider, regardless of its size or location.

Worldwide, more than 400 national disasters take place every year, affecting over 230 million people and causing an average of almost 75,000 deaths (CRED, 2008). About 450 cities with populations of over one million are located near fault lines and face potential earthquakes. Each year, recurring floods prevent millions of children from attending a full year of school.

It is not possible to plan for every eventuality that might occur; however, preparation is key to saving lives if a disaster strikes.

IFC takes health, safety, and environmental issues very seriously—in relation to its own workplaces and those of its clients and partners.

These guides draw on a range of resources and experience including that of the World Bank Group's Environmental, Health, and Safety Guidelines and the work of the Risk Reduction Education for Disasters group (Risk RED).

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Introduction

Communities around the world are faced with natural hazards—extreme environmental events such as floods, cyclones, earthquakes, fires, and tsunamis. For some communities, these natural hazards turn into disasters. Students, school staff, and families can experience injury, disability, loss of home, loss of income, and even loss of loved ones. This does not need to happen. By taking preventative measures *before* hazard impact, and learning preparedness and response, a culture of safety can be fostered. Communities can reduce and even eliminate these losses.

Students and teachers are at the heart of developing a culture of safety. There is much to learn about natural hazards, disaster prevention, environmental protection, personal safety, emergency preparedness, and response procedures and skills. Students can be empowered to protect themselves and promote safer communities through classroom and community learning. As they become older they can learn how to build disaster-resilient buildings, and implement a wide range of preventative measures. They can become enthusiastic and creative champions of disaster prevention, and in the process, transform themselves and their community.

Booklet Organization

This booklet offers suggestions for a range of classroom and community activities to teach elementary school students (Kindergarten through 6th grade) about natural and man-made hazards, how to protect oneself and respond to them, and how to help reduce their impact and prevent them from becoming community disasters. This booklet is intended as a companion to the *Disaster and Emergency Preparedness: Guidance for Schools* (IFC, 2010) and to complement school and community safety planning for all disasters and emergencies. Both the handbook and this booklet aim to develop a culture of safety both at school and throughout the wider community by actively engaging school administrators, teachers, students, parents and neighbors in assessing risks, taking risk reduction measures, and learning response skills.

The booklet is divided into five sections on classroom and community activities. The first section, "Hazards and Disasters in our Community," helps students explore their environment by imagining or researching likely or historical disasters in their area. The second section, "Measuring Our Environment," can stimulate student interest about how natural hazards are monitored and measured, by having them build simple models of seismographs, rain gauges, barometers and other devices. These activities can be used to reinforce the concept that events like earthquakes, floods, and cyclones are natural events that can be predicted and understood. The third section, "Disaster Prevention," has activities to explore how communities can prevent disasters by properly building their homes, finding and fixing dangerous items inside buildings, and protecting their environment. The fourth section, "Emergency Response," includes activities designed to reinforce how children should protect themselves and others in emergencies through drills and games. The final section, "Promoting Disaster Prevention in Your Community," suggests activities that will encourage students to be leaders by teaching disaster prevention to their families, their school mates and their wider community. Activities in all five sections are briefly described so that they can be adapted for the appropriate age, environment, and resources. The end of this booklet contains a section listing online resources for teachers. The final two pages of the booklet provide a Family Disaster Plan, which can be used as a classroom handout or a take-home extension activity.

Section 1. Hazards and Disasters in our Community

A disaster can impact many different areas of our lives (e.g., food, shelter, belongings, and disruption of routine). Learning about disaster impacts in one's local area can be an introduction to the study of disasters. If students are already aware of hazards and disasters, through personal experience or broad community awareness, it may be appropriate to skip activities in this section. Because the activities listed below raise student awareness about hazards and disasters in their community, they should be followed by disaster prevention activities and drills to reinforce the concept that students and communities can plan for hazards and reduce their impacts.

Learning objectives:

1. Identify potential or past disaster impacts in student's community;
2. Identify community hazards and resources;
3. Practice communication skills (drawing, writing, reporting);
4. Introduce or enhance student's ability to research a topic of interest, take notes, and summarize;
5. Understand that people can reduce impacts of disasters through planning and preparation.

Applicable instructional units: social studies, writing
Activity: Drawing disaster impacts (30–60 minutes)

Show a picture of a natural hazard or write a hazard on the classroom board. Ask students to draw or write how a natural hazard could affect their lives. For older students, facilitate this exercise by assigning different types of impacts to different students. Facilitate a classroom discussion to bring out underlying reasons for why natural hazards might impact some communities more than others (e.g., houses fall down because they were not built well, buildings flooded because they were next to the river, landslides happen on the slopes where trees have been cut down). As a homework activity, ask students to discuss local hazards and the reason for their destructiveness with family members and friends.

Activity: Mapping community hazards and disaster resources (1–2 hour tour, 1 hour map drawing and discussion)

Organize a walking tour around the school or immediate neighborhood or provide a city map for students to examine. Prior to the walking tour or map exploration, *create a worksheet with a list of likely hazards and resources* that students can check off on the tour or while examining a city ma Some examples of hazards students might find on a walking tour or locate on a city map may be floodable rivers, steep slopes where landslides might occur, factories or storage facilities with hazardous materials, pipelines or LPG storage areas where explosions or fires could occur, known seismic fault lines, and other hazards. Some examples of the resources students may identify include fire stations, police stations, clinics, grocery stores, water sources, community leaders, and people with special skills. When visiting locations on a walking tour, students can ask representatives questions such as, "What could you do to help the school/neighborhood in a disaster?" and "What can the school do to reduce its own risks and help the community?" Invite parents to assist in organizing walking tours and visits to local resource sites.

For younger students, the walking tour may be limited to school grounds. Students can identify hazards such as overhanging power lines, kitchen stoves, busy streets, and heavy equipment, trees, parapets or chimneys that could topple in an earthquake or high wind storm. Resources might include fire extinguishers, janitors, school nurses, school administration, school emergency supplies, generators, and so on.

After collecting their information on their checklist, students can *create one large map of the hazards and resources* they have found. Ask students to identify any areas on the map that are particularly exposed to danger or lacking in resources. Have students present their map to parents and local community members and discuss ways both students and adults can reduce dangers or increase resources. See Section 5 for further activities on community disaster prevention.

Activity: Community interviews and historical research (1–3 hours)

Students can interview members of their family and neighbors to find out what disasters have occurred in their area, the impact they had, and how the community responded, recovered, and reduced their vulnerability to future events. Students can ask questions that have been created by the teacher or come up with questions as a group or on their own. They can be directed to pay close attention to what areas were affected in the past so that they can compile a map of past events as a class.

Older students can expand their research skills by working with a librarian or using the Internet to identify newspaper articles and books about past natural hazards in their area. They can make a list of natural hazards affecting their region and what the impacts have been.

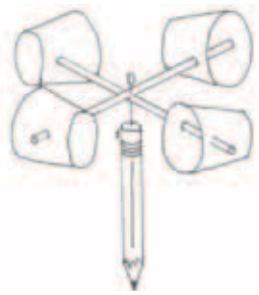
Section 2. Measuring Our Environment

Natural hazards like floods, cyclones, earthquakes, tsunamis, and fires are measured usint various scientific instruments and scales. Students can learn about how some of these events are measured by creating a model of a scientific instrument most applicable to hazards in their area. They can measure wind, ground, and water movement with their instruments.

Learning objectives:

1. Understand how hazards are measured;
2. Build a model of a scientific instrument for measuring hazards;
3. Read and record measurements;
4. Analyze and display measurements using charts and graphs;
5. Understand how instruments can provide early warning to reduce impacts of disasters.

Applicable instructional units: science, math, social studies
Activity: Measuring wind speed (2 x 30 minutes, 5 minutes daily)



An anemometer, an instrument that rotates at the same speed as the wind, is used to measure wind speed. Students can create their own anemometer using *4 paper cups, straws, a pin and a pencil*. Note: Wind speed can be recorded by counting the revolutions of the anemometer for one minute. When using this anemometer, 6 turns per minute measures about 1 km/hr.

Have the students keep a log of weather data, including wind speed. Use charts or tables to represent the data and have students use computational skills to interpret the data, draw conclusions, and make weather predictions. Learn how the local community can get reliable weather forecasts for wind, temperature, rainfall.

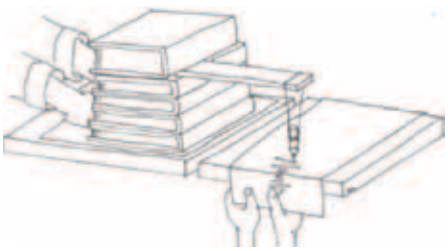
*Extension*d wind speed can also be estimated using the Beaufort Wind Scale, a 0–12 scale based on visual clues. For a visual representation of the Beaufort Wind Scale, see *http://www.stormfax.com/beaufort.htm*. Invite local meteorologists to the classroom to demonstrate an anemometer and other weather monitoring equipment. Ask the invited meteorologist to discuss local strategies for monitoring weather-related hazards and activating watches and early warnings. Discuss the appropriate responses to these early warnings.

Activity: Measuring flood depth (2 x 1 hour)

Students can learn how scientists record and monitor floods by observing how rain affects the depth and breadth of local streams. During a dry period, students can visit a local stream and record landmarks that indicate the edge of the stream, using words and pictures with *paper, pencil, and a clipboard*. If safe, help students measure the depth of water using a *meter stick*. Deeper streams can be measured by dropping a *string attached to a weight* over the side of a footbridge. Following a heavy rain storm, students can return to the same location to record how heavy rains have changed the depth and breadth of the stream. Mark an existing wall (e.g., on a bridge over a river) using paint at every 10 cm, or prepare a 2 meter stick and insert this into the ground where it can be seen regularly. After rains, see where the high water mark is and write the date in red to make it visible to everyone for the future.

Activity: Measuring earthquake waves (1–2 hours)

Seismographs record the time, place, magnitude, depth and force of an earthquake. Students can create their own seismograph using materials found in many classrooms. They will need *two desks, a pencil or marker, a coin, a stack of heavy books, a ruler, a piece of cardboard, three rubber bands, and paper*.



Place the desks side by side. Stack the books on top of the piece of cardboard on one desk. Insert the ruler between two books near the top of the stack. The ruler should stick out over the adjacent desk. Hang the pencil or marker from the end of the ruler using the three rubber bands and the coin if needed for extra weight. The marker should touch a piece of paper placed under it on the adjacent desk when the cardboard is moved.

The first desk represents the place where the earthquake is occurring. One student can make the earthquake occur by shaking the cardboard back and forth towards the second desk. The pen will move as this earthquake occurs. The second desk represents the recording station. Another student can record the earthquake by slowly pulling the paper underneath

the marker while the cardboard is being shaken. This record that the seismograph creates is called a seismogram.

Break students into teams. Have each team make a seismogram for a small and a large earthquake. Have teams exchange seismograms and guess which one represents the small and large earthquake. Have students measure how much larger (height of the tallest wave), and how much longer (length of the waves) the smaller earthquake was from the larger earthquake. In regions with seismic monitoring, contact a local seismologist and invite them to explain regional seismic monitoring programs.

Activity: Measuring rainfall (2 x 30 minutes, 5 minutes daily)

Students can monitor the rainfall in their community by constructing a rain gauge. Leave *a large, thin, straight-sided, empty glass jar or plastic container* outside, in an open area where it will not be tampered with, before it begins raining. This is your rain gauge. As it rains, the rain gauge will fill with water and students can measure how much rainfall is occurring using a ruler. After each rainfall they should empty the jar.

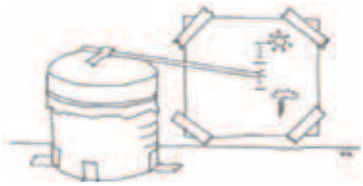
In Sri Lanka, an area prone to flooding and landslides, students in the Nuwara Eliya district are part of the community early warning system. During the rainy season, students monitor the rainfall and report it to local authorities when it rises above a specific number of centimeters over a specific time period. If it exceeds a particular level, an evacuation to higher ground is announced.

To create a calibrated measurement container fill the large rain gauge with water until the water is exactly one centimeter dee Pour this water into *a smaller diameter glass jar*. Using *tape and a pen* on the outside of the small glass jar, mark one centimeter where the water reaches (students can also mark off fractions of a centimeter). Repeat the process for two, three, and more centimeters of water in the rain gauge.

After a rainstorm, pour the contents of your rain gauge into your calibrated glass measurement container and record rain depth. To make a permanent measuring post, that can also withstand winds, make a stable base to hold the jar, above the ground. Students can record their findings using a *log or chart*. The amount of rainfall and the speed at which it is occurring can help predict whether flooding and landslides will occur. More information about constructing a rain gauge can be found at *http://www.weatherwizkids.com/experiments-rain-gauge.htm*. Contact your local meteorological monitoring organization to invite a guest speaker, and to discuss how to become part of an early warning system.

Activity: Measuring barometric pressure (2 x 30 minutes, 2 minutes daily)

A barometer measures atmospheric pressure, which can help predict short-term changes in the weather. If atmospheric pressure is low, clouds may form. If atmospheric pressure is high, the sky is likely to remain clear. Barometric pressure, along with wind pres-



sure and storm surge, is used to measure cyclones. Very low and rapidly falling barometric pressure can indicate a large storm or cyclone approaching.

Students can make a barometer by stretching the rubber from a broken *balloon* or a piece of plastic wrap over the top of a *glass jar or metal can*. Tightly secure the balloon rubber with a *rubber band*. Tape *a straw* to the middle of the balloon so that at least half of the straw hangs out over the edge of the jar. Place the jar against a wall with the straw parallel to the wall and tape a piece of paper to the wall. Make a mark on the card to show the current air pressure. As the barometric pressure rises or falls, the balloon will expand and contract. Higher pressure will make the balloon sink down, causing the straw to go up; lower pressure will make the balloon expand and cause the end of the straw to go down. Observe the movement of the barometer over several weather changes to determine the high, low, and midpoint of the barometer's movement. Students can then monitor and record their barometer several times a day along with changes in weather to try and predict changes in weather. This activity works best if done during seasons with a lot of weather variability. Use the table below to predict future weather, based upon how the barometer changes. A local meteorologist can be invited to class to further discuss weather prediction.

		Barometer Stick Movement		
		Rising or steady	Slowly falling	Rapidly falling
Initial position of barometer stick	↗	Fair weather	Fair weather	Cloudy, warmer
	→	Continuation of present weather	Continuation of present weather	Precipitation likely
	↘	Clearing, and cooler	Precipitation	Storm coming

Section 3. Disaster Prevention

Students can be important leaders in community disaster prevention by learning about disaster resistant construction and planning, by engaging in service-learning projects that reduce community vulnerability, and by identifying and remedying risks in their school environment. These activities will empower students to be part of disaster prevention and enhance problem solving skills.

Learning objectives:

1. Use observation and deductive reasoning to identify ways a community can decrease vulnerability to natural hazards;
2. Use observation and deductive reasoning to identify hazards in their surroundings;
3. Practice teamwork and problem solving through local service learning projects;
4. Advance problem solving skills though individual or group experimentation.

Applicable instructional units: science, social studies
Activity: Earthquake and cyclone resistant paper houses (1.5–2 hours)

In an earthquake or cyclone, a building is shaken back and forth by ground motion or strong winds. Strong walls and X braces can help buildings resist these forces without collapse. A shake table is a fun way of allowing students to learn about strong and weak buildings through experimentation.

A paper house can be built from *3-cm wide strips of paper, scissors,* and *tape*, as shown in the figure. Students can insert their hands into the base of the building and slide the building back and forth to see how it sways and even collapses. Using *extra sheets or paper*, students can then experiment with methods of strengthening their building by cutting out and taping paper

walls, paper X shaped braces, or interior columns to their building. Older students can try building houses of two or three stories to determine how height effects a building in an earthquake or cyclone.

Extensions: many videos of large experimental shake tables can be found on the internet to supplement student learning. Local engineers or knowledgeable parents can also be invited to "judge" the paper house designs of students and talk to students about earthquake and cyclone resistant buildings.

Activity: Mangrove and wetland flood prevention (45 minutes)

Mangroves, trees that grow at the edge of warm ocean coasts, and wetland marshes surrounding rivers, help protect us from cyclone storm surges and floods. The heavy, spongy mangrove roots and wetland vegetation soaks up water. Mangroves and wetlands can also spread out water over large sections of land, and slow the dangerous flow of water. This protects nearby communities from storm surge and floods.

Students can experiment with how mangroves and wetlands protect communities. In *a small tray*, place *a strip of blue paper* to represent a river or ocean. Place *little stones, wood cubes, or toy houses* alongside the blue paper to represent a community. Pour a small amount of water along the blue paper and have the students explain how a "flood" or "storm surge" affects the community. Remove the water and place small *strips of kitchen sponge* or other absorbent material along the sides of the blue paper to represent a mangrove or wetland. Pour a small amount of water along the blue strip and discuss how mangrove trees and wetland grasses and vegetation act like sponges and reduce a community's vulnerability to flooding and storm surge. Allow students to try different placement of their houses and mangroves or wetlands. Have students record the outcome of each experiment using words or drawings, and draw conclusions.

Extensions: visit a local wetland or mangrove with a local ecologist. Using maps, interviews with elders, and field trips, have students locate the streams and rivers in their community. Investigate whether these bodies of water have wetlands and/or mangroves next to them to help reduce impacts of flood and storm surge on nearby communities.

Activity: Tree planting for hillside erosion prevention (30 minutes introduction, 2 hour service project)

Erosion and landslides often occur in areas where the natural vegetation has died or been removed. Have students observe how plants can prevent erosion by pouring a *bucket of water* on *a slope of bare dirt and a slope with grasses*. Discuss together how soil washes way on the bare slope, but grass roots hold soil in place and keep it from washing away. Students can help protect a hillside near their school by planting and tending *tree seedlings or native grass seed*. Older children can research trees, shrubs or grasses that are native to their area

and help decide which species should be included in the project. Parents can assist in organizing and supervising student tree and native grass planting.

In Turkey, a country faced with many large earthquakes, 50 high school youth led efforts to reduce their community's vulnerability to earthquakes. The youth participated in a training program to learn about earthquake safety and how to make household and school building contents less dangerous to inhabitants. Following the training, the youth carried out service-learning projects to attach heavy furniture to walls, clear exit ways, and attach latches to cabinet doors in health clinics, schools, and homes for elderly and disabled residents.

Activity: Earthquake school hazard hunt (30 minutes to 1.5 hours)

During an earthquake, heavy furniture can tip over, glass can break, and electronics slide off of tables. These things can injure or even kill, and can be damaged or destroyed. Students can be hazard sleuths and go on a hazard hunt around their classroom or school. Using a *clipboard, paper, and pencil*, they can write down or draw items that might tip over, break, or block exits during an earthquake. Some common classroom hazards are bookshelves that are not secured to the wall, heavy or breakable items placed on high shelves, cupboards that can open, spilling chemicals or breakable items, unfastened light fixtures, unsecured pictures, electronics that can break, and anything that might tip or slide and block an exit route. Have students work with your School Safety Committee and maintenance personnel to make the school environment safer. [Note: For a worksheet to aid in the hazard hunt and more information about nonstructural mitigation in schools and at home see the Family Disaster Plan at the end of this booklet.]

Extensions: students and parents can also engage in earthquake hazard hunts to find unsafe items in their homes. After students have made a list of potential hazards at school or home, ask them to work with their families to find ways to make their environment safer.

Activity: Flammables and electrical investigation for fire and flood safety (1 hour)

Almost all fires start small, and are preventable. Teach students the three things needed for a fire—heat, fuel, and oxygen. Explain and discuss how eliminating any one of these will stop a fire. Hunt together for any fire hazards, such as overloaded electrical outlets, and flammable or explosive materials close to a heat source. Check to see when fire extinguishers are due to be serviced. In case of heavy rains or flood warning, it is important to unplug all electric appliances and move things that may be damaged out of the reach of the water. Touching a plugged in appliance while wet or standing in floodwaters can cause dangerous shocks. Discuss with students which things use electricity in school and at home. Have the students do a classroom, school, or home scavenger hunt to find all the electric appliances that should be unplugged if there is a possibility of a flood. After making a list of potential hazards, have

the students create a plan with their classmates, school janitors, or families to unplug and move electrical equipment to high locations in the case of a flood evacuation.

Activity: School gardens for community food security (varies, ongoing)

Local food sources are often important during a disaster. Students can help ensure a local food source by growing a school garden. School gardens can be created in very little space using containers or a small patch of soil on school grounds. Students will learn important principles of earth science while providing nutrients for their communities. Parents and community members with garden and farming experience can be invited to assist students in designing and managing the school garden. More information on school gardens can be found through the North American Association for Environmental Education at *http://eelink.net/pages/EE+Activities+-+School+Gardens.*

Section 4. Emergency Response

Children need to know how to respond during hazard impact. Teaching children emergency response skills can save their lives and also the lives of children and adults around them.

Learning objectives:

1. Learn safe responses to fire, earthquake, and flood;
2. Develop good judgment and practice personal safety skills;
3. Become familiar with evacuation routes and safe havens in case of an emergency;
4. Assemble emergency supplies to keep students comfortable at school;
5. Stimulate students and families to create emergency supply kits at home;
6. Learn how to safely assist injured or disabled students;
7. Learn life-saving first aid measures.

Applicable instructional unit: social studies
Activity: Fire safety (30 minutes)

It is important that students know what to do if their homes, their schools, or even their clothes catch on fire. Teach students the normal as well as alternate exit routes in case of a fire. Show students how to exit a smoky building and what to do with a blanket crawl if their clothing catches on fire. Have two students hold a blanket and wiggle it to imitate smoke. Have students practice getting on the floor to stay below the smoke, covering their nose and mouth to prevent inhaling smoke, crawling to the nearest exit. When they reach an exit, teach students to feel the exit door with the back of their hand to make sure it is cool before opening the door.

Extensions: practice what to do if clothing catches on fire through a game of Fire Tag. When students are tagged by a student designated as "fire," they should "STOP"—do not move to reduce oxygen to the flame, "DROP"—lay down, and "ROLL"—suppress the fire by rolling on it. With the help of their parents, have students draw maps of their homes and identify exit paths for each room. Have students and parents practice a fire drill at home and

report their experience to the class. Teach older students how to suppress a small fire by covering it with a blanket or by using an all-purpose fire extinguisher to sweep at the base of the flame, creating a barrier between the fire and the fuel.

Activity: Earthquake safety—drop, cover, and hold on (15 minutes)

After discussing how long students believe an earthquake will last, demonstrate dropping to the ground, covering your heads and holding on to the leg of a sturdy table or desk. Have the person closest to the door, open it immediately. Have students find an appropriate location and practice holding the position for one minute, using *a clock* to time students. For further practice, students can "Drop, Cover and Hold On" when someone says "Earthquake" or "Aftershock." Discuss with students how they can best protect themselves in all the other locations they might be in during an earthquake. In science labs, extinguish any flames. In open classrooms and outside, drop to the ground and cover head, try to move away from buildings, glass, and tall objects that could topple. Students in wheelchairs should lock them and adopt the "brace" position. For students with disabilities, discuss any assistance they may need. Use this activity in conjunction with the Earthquake Hazard Hunt. More information on Drop, Cover and Hold On can be found at *http://www.dropcoverholdon.org* and *http://www.earthquakecountry.info/dropcoverholdon/*.

Extension: have students practice telling time or estimating time without looking at a clock by having students take turns timing the "earthquake" or shorter "aftershocks." Have students draw a picture of themselves in a "Drop, Cover and Hold On" position and display it prominently. Have students practice "Drop, Cover and Hold On" drills at home with their families.

Activity: Flood safety (20 minutes—2 hours)

Flood waters are powerful. Two feet of flood water is enough to push away a car; six inches is enough to knock a person down. Because of this, people should not walk in flood water over ankle dee Have students experiment with the power of water by making a model of a river and its bank out of sand. Have students build model homes and trees to put on the bank and then pour water down the river slowly. After they have observed water staying within the river path, they can add a rainstorm by increasing the volume and flow of the water. Once students have observed what happened to their model homes and trees with the increase of water, discuss where they think the flood plains are in their own community and ways that their community can stay safe in a flood. More information about creating a model of a river can be found at *http://www.pbs.org/americanfieldguide/teachers/floods/instructions.pdf.*

Teach students to "Reach" "Throw" or "Row" as safe ways to assist someone caught in flood waters. Have students identify objects that will float, attach them to a rope and throw them to fellow students. They can also learn to use a reach assist from dry land. A reach as-

sist can be done using a long pole, life ring, or by extending their arm or leg out while lying on dry land. Set up a role play activity where students in pairs take turns rescuing each other with a reach assist using their arms and legs or other objects. Discuss the importance of avoiding falling into the water while rescuing someone. More information regarding water safety can be found from the Royal Life Saving Association of Australia *http://www.royallife-saving.com.au/www/html/532-water-safety-tips.as*

Extension: if floods are a recurring threat in your community be sure that students learn to swim, and learn water safety. Show students how to make makeshift personal flotation devices (PFDs) from clothing, and from plastic water bottles and rope. Or involve parents in sewing flotation devices that help keep a person's head above the surface. With the help of parents, students can practice using PFDs in a community swimming pool.

Activity: Personal safety role playing (30 minutes)

Students may be exposed to threats to their personal safety from other students, adults, and daily activities. Discuss with students the importance of talking with trusted adults when they see or experience violence, and whenever activities make them feel unsafe. Students can increase their personal safety by becoming more aware of threats, practicing appropriate responses, and being encouraged to talk with trusted adults. Brainstorm with students about both common accidents as well as occasional threats to their safety, along with appropriate responses. Threats and responses will vary depending upon location and the age of the children, but may include:

- Crossing a street. Stop, look both ways and listen; cross with an adult;
- Car safety. Wear seatbelts to avoid being thrown from the vehicle during an accident;
- Fire prevention. Never play with matches or lighters; never leave fires unattended; have adults assist lighting fires;
- Bullying. Firmly tell bullies to stop, get away from the situation, actively intervene if you see bullying, and tell a trusted adult;
- Gun safety. Never play with guns or use without adult supervision, tell a trusted adult about anyone with guns or unlocked fire arms;
- Shootings. If the shooter is outside or in another room, lock or barricade the door, turn off lights, drop to the ground and take cover, stay away from windows and doors, and do not trust commands from unfamiliar voices (it may be the shooter trying to lure victims); if the shooter is in the same room, drop to the ground and take cover behind a solid object;
- Abductions. Do not go with adults unless specifically given permission by parents, if followed by a car, run in the opposite direction than the car is traveling

and call for help loudly; if an adult attempts to abduct you, scream for help, kick, and bite;

- Hidden explosives. If you see unusual activity, tell an adult. Tell an adult and move away from unattended and suspicious packages.

Have students demonstrate appropriate responses using role play. Work with students and staff to develop a trusting environment, in which students feel safe and will tell trusted adults about violence and unsafe situations that they see or experience. Invite local law enforcement officers and, if available, school counselors to visit the classroom and speak to students about personal safety.

> On January 26, 2004, ten year-old Tilly Smith of Great Britain was on holiday in Thailand with her family. Tilly had recently learned about tsunamis in her geography class and recognized the early signs of a dangerous approaching tsunami wave. She urged her family and others to evacuate the beach and head for higher ground. The Asian tsunami killed hundreds of thousands of people, but because Tilly knew how to respond, she saved her family and many others on the beach that day.

Extensions: work with students to create a definition for safe and appropriate behavior, including a consistent and fair method of adult intervention and consequences for unsafe and hurtful behavior. Have students create personal safety posters to hang around their school. Encourage them to write creative slogans and draw eye catching illustrations.

Activity: Building evacuation and emergency assembly (20 minutes)

It is important to regularly practice how to safely evacuate a building in case of fire, earthquake or other situations in which staying in the building is not safe. Students, staff and visitors should be able to evacuate safely and quickly in a true emergency. Practice first as individual classrooms, then as a corridor of classrooms, and finally as a whole school.

1. Identify any students or staff that may need special assistance during evacuation. Learn from these individuals how best to help them. Teach students how to provide assistance ahead of time. In schools with large numbers of disabled students needing assistance, volunteers should be recruited from the immediate vicinity and trained. Be prepared to help visitors as well.
2. Remind students to follow instructions for building evacuation: "Don't Talk. Don't Push. Don't Run. Don't Turn Back." Have students exit with buddies in twos. Check that students or staff needing special assistance have it. Remind students *NOT* to use cell phones, to keep lines free for emergency communications! Have students assist in carrying:
    - Classroom *Go-Bag or Go-Bucket* (Including: first aid kit, flashlight, radio with batteries, whistle, blankets, plastic rain cover, tissues, clear white sheet, pens, plastic bags, notepads and optional student activity supplies);

- *Emergency Clipboard or Notebook* with class lists and *Class Status Report* forms; and
- Duffle bag packed with *Student Comfort Kits* (see "Comfort Kits" activity, below).

3. Use the Buddy System. Take a few seconds to check briefly with the teacher in the classroom to the left, to the right, and across the hall to see if they are in need. Unless instructed otherwise evacuate using normal building evacuation routes posted. If you encounter obstructions, such as jammed door, be prepared to take an alternate route. One teacher should be in the front to check that the evacuation route is clear. One responsible student monitor should be immediately behind the teacher, keeping students quiet and orderly. One teacher and responsible student monitor should be at the rear of the group, seeing that everyone is together. *Move directly away from the building* when exiting.
4. Gather and sit down in the emergency assembly area (normally, organized by first period or homeroom class). Keep classes separate and take roll. Practice checking again for injuries. If any students are designated as injured, send them with two buddies to the First Aid station, with instructions to return together immediately. Older students can be given a variety of other responsibilities in a simulation drill. Parents of students can be asked to participate by coming to pick up students during the drill, allowing school staff to practice reunification procedures.

Activity: Evacuation to safe haven (30minutes–1 hour)

In case of cyclone, landslide, flood, tsunami, large building fires in congested area, civil unrest, and other emergencies, schools may need to evacuate to a pre-determined "safe haven." It is important that everyone know evacuation routes to shelters and safe havens off of school property, including parents and emergency contacts of students. If these threats exist, practice evacuating to a designated safe haven location following a building evacuation drill. Ask parents to assist in the evacuation drill. Parent involvement will help ensure student safety during the drill and promote parent involvement in school safety planning.

Have student practice map reading skills by asking students to draw maps of different evacuation routes out of their building, home, or to designated shelters and safe places in your community. Show students a *topological map of the area* or draw a map on the board. Have students read this map to discuss where they think the best evacuation site for a flood or tsunami is located. Discuss with the students why it is important to evacuate to the highest ground during a flood or tsunami warning. Introduce students to the warning system/signs in your community.

Extensions: create a relief map of the area using modeling clay or a flour and water dough mixture. The location of the school and the evacuation route can be added to the model, and water poured over the model to show that higher ground is safer during floods or storm surges.

Activity: Disaster supplies, comfort kits, and emergency contact lists (2 x 30 minutes)

Emergency supplies are important in an emergency when teachers and students need to shelter in place or evacuate to a predetermined location, and when students may have to stay at school much longer than usual to be cared for until parents or emergency contacts can come to pick them u It is the schools responsibility to care for students and to reunite them safely with their families.

At the beginning of each school year, ask students to bring in an **Emergency Contact List**, a list of people approved by their parents, who can pick them up from school in case of emergency or disaster. Explain that children may only leave with one of these people, and no one else. Ask students to work with their parents to make a **Student Comfort Kit**, a small cloth or plastic bag that will be kept in a duffle bag in the classroom. Have families fill the bag with *a long-lasting non-salty high energy food* (like dried fruit and nuts), and *small comfort item*, a list of *emergency contacts*, a *change of clothing*. Families can also provide a small *bottle of water*. At the end of the school year the bags can be sent home with students. In the meantime, keep them in a duffle bag, so that they can be taken on field trips, or emergency evacuation, and also used in emergencies where students must remain in the classroom for extended periods of time.

After a discussion of the hazards that students face in their community, discuss the importance of having disaster supplies in an easy to carry bag at school or home in case of an emergency. Have students draw what they think should be included in their Disaster Supply Kit. Reinforce items that are important to have in a disaster supplies kit like long-lasting non-salty high energy food (like dried fruit and nuts), bottled water, a flashlight and batteries, first aid supplies, a radio and batteries, large plastic bags for shelter, a list of emergency contacts, a small amount of cash, pen and paper.

Reinforce the idea of a Disaster Supply Kit using a relay race. Ask parents to help gather *two sets of disaster supplies or draw pictures of these items*. Also gather or draw a few humorous *items that do NOT belong in a kit* such as fresh food, electronic games, lighters, breakable dishes, and heavy or bulky toys. Have two teams line up at a start line. One person from each team can race to an empty bag and a pile of the items that might belong in a disaster supply kit. The student places ONE item in the bag and runs back to tag the next student in the team. The teams continue to send a student to fill the kit until they believe the kit is complete. Finish the relay race by pulling each item out of the bag and talking about why it should or should not be included in a kit.

Extension: have students work with their families to design and create a disaster supplies kit in an easy to carry bag for themselves at home.

Activity: Chair and two-person assist carry drills (30 minutes)

If a disaster occurs, it could be several days before medical treatment for minor injuries may be available. It is important that students practice how to assist injured or disabled peers in evacuations. Teach children two ways to assist an injured or disabled person during an evacuation. One simple way to help move them to safety is by having the injured student sit in *a chair*. Have two students pick up and carry the chair, by tipping the chair back slightly and having one student hold the front legs of the chair and the other student hold the back of the chair. Another simple way to carry a peer is through the two-person assist carry. Have one student hold the knees of the injured person on either side of their body. Have a second student stand behind the injured student and wrap their arms under the injured person's arms and across their chest. Have the students practice assisting each other first in the classroom, then with a relay race game, and finally during an evacuation drill.

Activity: First aid kit awareness (30 minutes)

One way to help familiarize children with basic first aid is to have them draw or write a list of what they think will be found in a first aid kit. This promotes communication and prediction skills while allowing them an opportunity to become familiar with basic first aid. Bring in a *basic first aid kit* to the classroom to discuss the contents with students. Have students compare and contrast what they predicted with the actual kit. Ask students to interview parents using a *first aid check list* to find out what supplies are available at home. Typical items on a first aid kit check list are: absorbent compresses, adhesive bandages, adhesive tape, antibiotic ointment and antiseptic wipes, aspirin, latex gloves, hydrocortisone ointment, scissors, roller bandages, sterile gauze, thermometers, triangular bandages, and tweezers. Other items may be blankets, cold compresses and breathing barriers and a first aid instruction booklet. Content suggestions for first aid kits can also be found from National Red Cross or Red Crescent Societies.

Activity: First aid lifesaving (30 minutes)

With a few skills, students can assist in lifesaving during emergencies. Teach students of all ages to follow three simple steps when assisting others—check, call, and care. Students should check for safety first to ensure that they do not become injured or a victim them-

selves. Students should then call for an adult or emergency services to hel Students should then care for the victim to the best of their abilities by consoling the victim, or engaging in first aid. Remind students to never try to move a person who might have an injury to their neck or back as moving the victim could result in crippling, life-long injuries.

Teach older students further lifesaving techniques. When a victim is unconscious, students should open the victim's airway by tilting the head back. Teach students to place injured, but conscious, victims in shock position by helping them lie down, keeping their body at normal temperature, elevating their legs 15 degrees, and not giving them any food or liquid. Teach students to put unconscious, but breathing, victims on their sides in recovery position, as shown at right. Teach students to stop bleeding on themselves or others by firmly pressing a clean cloth against the wound, and if possible, elevating the injured part of the body above the heart. For more information on first aid lifesaving, see module four of the International Federation of Red Cross and Red Crescent Societies' Volunteer Manual at *http://www.ifrc.org/Docs/pubs/health/firstaid/CBFA-volunteer-manual-en.pdf*.

Use this discussion as an opportunity for students to learn basic principles of first aid such as germ theory, the care of burns, and the compression of wounds. If available, a professional can be invited to talk to the class about first aid. Some Red Cross and Red Crescent Societies and other non-profit organizations also have first aid books designed for children.

Activity: Emergency response review using a beach ball toss (20 minutes)

After teaching and practicing emergency response for a number of natural hazards and personal safety threats, students may need to reinforce their learning. Consolidate student learning through engaging games such as a beach ball toss, matching exercises, or a call and act out response game. For Beach Ball Toss, mark each color of a multicolored beach ball with a different hazard students might experience. Toss the ball around the class. Have the student who catches the ball call out the hazard facing them. Ask the class what students should do if they experience that disaster or what signs they would feel, see, or hear. Alternately, have students act out their response.

Some concepts to review include:

- Tsunami. May feel like an earthquake tremor, see ocean froth or recede. Move inland and to higher ground.
- Flood. When heavy rains occur or flood warnings are issued, move to higher ground and never walk in moving water over ankle dee

- Earthquake. When you feel shaking, drop, cover and hold on. After the shaking ends, evacuate building.
- Fire. When you smell smoke or hear a fire alarm, duck down below smoke, and walk or crawl to an exit. Feel doors with back of hand and if cool, open. If hot, try another exit route.
- Winter storm. Cold, windy temperatures. Stay inside and stay warm.
- Cyclone. When strong winds or a cyclone warning occurs, cover windows with shutters or wood. Secure outside possessions. Stay inside and away from windows.
- Shooter Outside. Barricade door, turn off lights, duck down away from windows and doors, and do not be lured outside by unfamiliar voices.
- Violence prevention. If you see something, say something.

Section 5. Promoting Disaster Prevention in Your Community

Students and teachers can be creative and enthusiastic proponents of disaster prevention in their communities through a range of student-led community awareness activities. They can also identify individuals or groups of people in the community that may be particularly vulnerable in a disaster, and seek to reduce this vulnerability.

Learning objectives:

1. Consolidate student learning about disaster prevention through teaching others;
2. Improve writing, oratory, and artistic skills;
3. Practice leadership, teamwork, and student creativity;
4. Encourage family disaster planning through student leadership;
5. Include families and communities in disaster risk reduction activities.

Applicable instructional unit: social studies, writing, art

Activity: Community education and competition (varies, multi-week project)

There are a variety of outreach competition activities that can be done in the classroom or in conjunction with community organizations to promote disaster awareness and prevention.

- Organize a class-wide or school-wide competition to see who can create the most memorable and imaginative posters to share what they have learned about natural hazards and disaster risk reduction. The winners can have their posters prominently displayed in the school or public space. Have students

In Jamaica, the Ministry of Education and the disaster preparedness agency have teamed up to create opportunities for students to learn about disaster preparedness, teach their communities, and engage in competitions. Students take part in poster, singing, skit, and dance competitions. There is also a culinary competition where students create recipes and means using only food available during disasters—ingredients that do not easily spoil and are unrefrigerated.

develop slogans to teach disaster prevention and preparedness. For older students try an essay competition.

- Organize a quiz tournament to see who can remember the most information regarding natural hazards. Parents can be invited to watch and contribute prizes or ribbons to the winning teams. To build quiz questions, see fact sheets at http://www.stopdisastersgame.org/en/information.html.
- Have students write and perform a skit or puppet show to share what they have learned about disaster preparedness with their families and the rest of the community.
- Arrange student performances for senior citizen, and other groups in their community.

Activity: Protecting vulnerable community members (varies; multi-week project)

Arrange for older students to visit local senior centers, day care facilities, clinics, or classrooms of younger students to help with disaster prevention. Students may assist in hazard hunts, securing furniture that may cause injuries in earthquakes, build wetlands to reduce low level flooding or planting trees to reduce erosion and landslide risk. Prior to cyclones, students may assist with securing outdoor spaces and boarding up windows. Students may also assist in evacuating vulnerable, disabled, or elderly community members during emergencies, and practice this role during emergency drills.

Activity: Community activism (varies; multi-week project)

Arrange a visit with students to talk with local municipality officials. Prepare questions in advance. Have students write a letter to authorities about any safety concerns that they have, and their suggestions for preventing disasters in their community.

Homework: Family disaster plan (varies; multi-week project)

Lead a discussion about the importance of a family disaster plan (i.e., making our environments safer, family members in different places needing to communicate, and the need for food, shelter, and first aid). Role play family meetings to discuss the plan in class. Send *copies of the family disaster plan worksheet* at the end of this handbook home to have students work on it as homework and share their experiences their families.

Section 6. Online Resources for Teachers

Disaster reduction terminology
The United Nations International Strategy for Disaster Reduction has glossary of disaster reduction terminology. This glossary can be found in English, French, Spanish, Arabic, Russian, Chinese, Japanese and Korean at *http://www.unisdr.org/eng/terminology/terminology-2009-eng.html.*

ProVention YouTube channel
The ProVention Consortium has a YouTube channel that has over 40 videos on community-based disaster risk reduction, climate change adaptation, and education at *http://www.proventionconsortium.org/*.

FEMA kids
The United States Federal Emergency Management Agency has a children's page that includes activities for children and resources for parents and teachers. A child-friendly booklet, available in English and Spanish, about how to respond in disasters can be found at *http://www.fema.gov/kids/* along with many other re**sources.**

IRIS – Incorporated Research Institution for Seismology
The IRIS website has a seismic monitor to see where earthquakes are currently occurring and an extensive set of resources for educators and students at *http://www.iris.washington.edu/hq/*.

Stop Disasters!
Stop Disasters! is an online video game that teaches principles of disaster prevention and community preparedness for earthquakes, floods, cyclones, and wildfires a*t www.stopdisastersgame.org.*

Education for disaster risk reduction—teachers' network

Teachers can share their own ideas for and adaptations of classroom activities related to natural hazard identification, emergency response, and disaster prevention with co-workers and national education ministries. They can also share ideas and start discussions with other teachers at the http://edu4drr.ning.com site.

Coalition for Global School Safety (COGSS)

To find disaster prevention and school safety advocates around the world, join the COGSS and DPE network at *http://cogssdpe.ning.com/*.

Family Disaster Plan

Check as completed.

	ASSESSMENT AND PLANNING
☐	We hold a family disaster planning meeting every 6 months (household, extended family, or family of one). We identify our risks and use this checklist for our planning.
☐	We identified exits and alternative exits from our house and building.
☐	We searched for and identified hazards in our home (e.g., furniture or equipment that can fall or slide during earthquake or flood) and our environment (e.g., hazardous materials sites).
☐	We know our out-of-area contact person(s) and phone number(s): (ideally cell phone for text messaging) It's:_____
☐	We know that we will only use the telephone in case of physical emergency after a disaster. We will use radio and television for information.
☐	We know where we would reunite Inside the house:_____ Outside the house:_____ Outside the neighborhood:_____ and we have a private message drop location outside our house.
☐	We made our copies of important documents, and key addresses and phone numbers. We have one set with our out-of-area contact and/or we keep one in our evacuation go-bag.
☐	We are spreading the word to everyone we know.
☐	We participate in emergency planning with our community.
☐	We make our expectations known to local, regional and national policy-makers.
	PHYSICAL PROTECTION
☐	For earthquake: We have fastened tall and heavy furniture, appliances, large electronics, lighting fixtures and other items that could kill us or our children, to wall stud or stable surface. For storm: We have shutters or similar window protection.
☐	We know never to light a match, lighter, or any other flame after an earthquake until we are sure there is no danger of escaping gas anywhere around.
☐	Our building has been designed and built according to seismic, wind or flood codes, or it has been inspected by a qualified engineer, and required repair or retrofit has been completed.

☐	We maintain our building, protecting it from damp, and repairing damage when it occurs.
☐	For earthquake: We have put latches on kitchen cabinets, secured televisions, computers and other electronic items, and hung pictures securely on closed hooks to protect ourselves from things that could injure us, or would be expensive to replace.
☐	We have a fire extinguisher and maintain it once a year.
☐	We have secured family heirlooms and items of cultural value that could be lost to future generations.
☐	We have limited, isolated, and secured any hazardous materials to prevent spill or release.
☐	We keep shoes and flashlights with fresh batteries, by our beds. For flood: We keep flotation device or life-jacket on the highest floor in the building. For fire: We have cleared away fire hazards from around our home. For water and debris flow: we have created channels and are prepared to make sandbags.
☐	We have protected ourselves from glass breaking with heavy curtains, window film or shutters.
☐	We consciously reduce, reuse and recycle.
	RESPONSE CAPACITY: SKILLS AND SUPPLIES
☐	We know how to use a fire extinguisher.
☐	We know how to turn off our electricity, water and gas.
☐	For advanced warning: We understand early warning systems and know how to respond. For earthquake: We have practiced «drop, cover and hold» and identified safest places next to strong low furniture, under strong table, away from windows. If our home is adobe with a heavy roof, we have practiced running out to a clear space.
☐	We have gathered survival supplies in our home and made up evacuation bags for our home and car. (including 1 gallon of water per person per day and food for 3 days, prescription medications, water, high energy food, flashlight, battery, first aid kit, cash, change of clothing, toiletries and special provisions we need for ourselves, including elderly, disabled, small children, and animals.).
☐	We know principles of incident command systems or similar standard emergency management system for organizing post-disaster self-help in our community.
☐	We have learned first aid, light search and rescue, fire suppression, wireless communication, swimming, or community disaster volunteer skills.

Contact Information

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