Earthquake Safety Activities

For Children and Teachers

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This publication provides ready-to-use, hands-on activities for students and teachers explaining what happens during an earthquake, how to prepare for earthquake shaking, and how to stay safe during and after an earthquake. The Federal Emergency Management Agency (FEMA) and the National Science Teachers Association have also prepared *Earthquake: A Teacher's Package for K-6*, which includes hands-on classroom activities to support all elementary subject areas: creative writing, art, mathematics, social studies, and science. Known as Tremor Troop, this publication contains matrices that link the classroom activities to the National Science Education Standards. The Drop, Cover, and Hold drawing shown on Master C of this *Earthquake Safety Activities* publication is available from FEMA as a classroom poster, as noted below.

For middle and high school teachers, FEMA and the American Geophysical Union have prepared *Earthquake: A Teacher's Package for Grades 7-12*. Classroom activities are described, and activity sheets for students and background material for teachers are provided in each of the volume's six units. Known as Seismic Sleuths, this publication also contains matrices that link the classroom activities to the National Science Education Standards.

Tremor Troop and Seismic Sleuths are available both in print and on CD-ROM. The classroom poster is available as a print publication. For information about where to obtain copies of these publications, as well as other resources, refer to the References section, on page 31 of this document.

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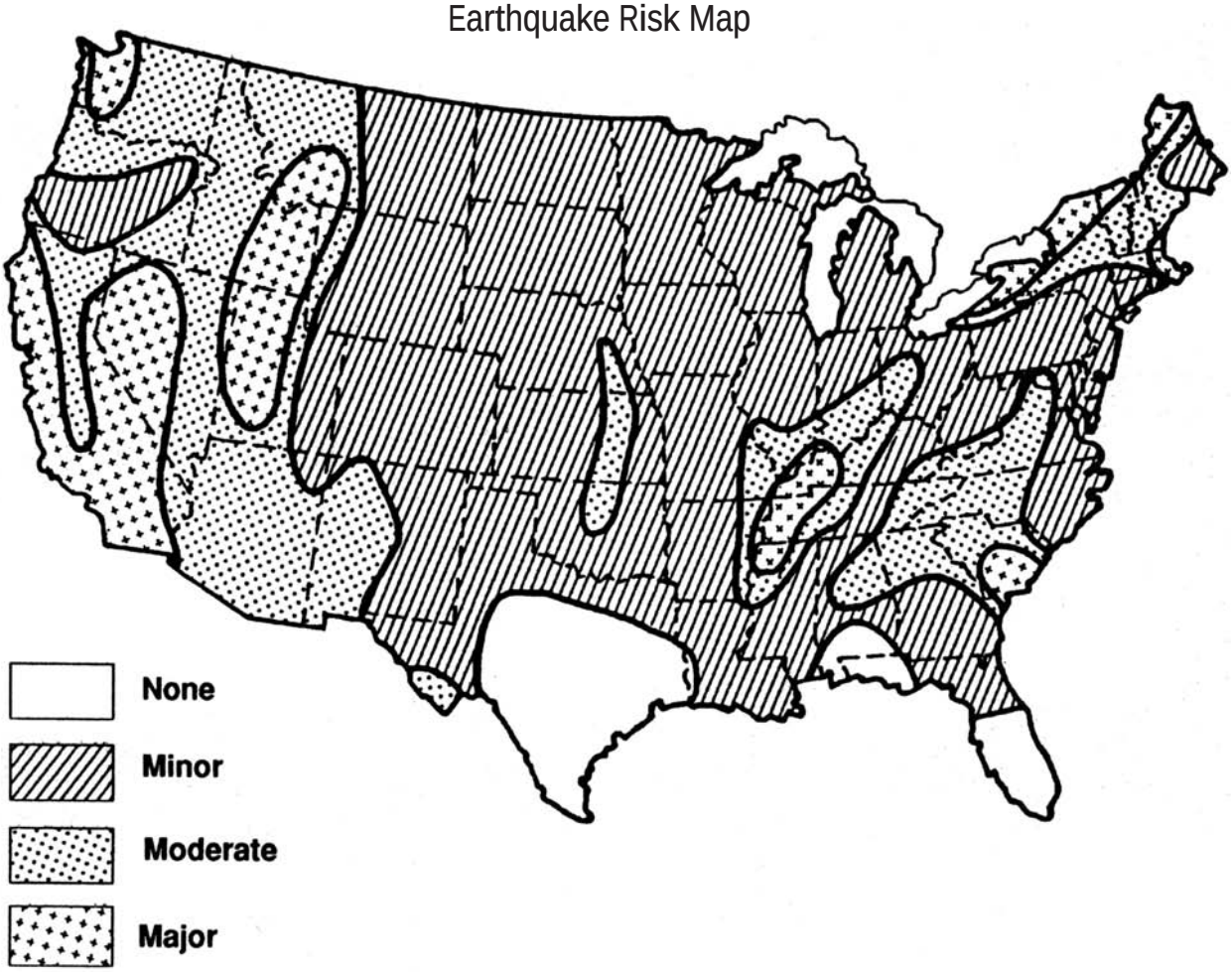
Introduction and Background

Forty-five States and U.S. Territories are vulnerable to the hazards of earthquakes and are at very high to moderate risk of damage from earthquakes. Earthquakes have caused, and can cause in the future enormous loss of life, injury, destruction of property, and economic and social disruption.

Since earthquake shaking is possible almost everywhere in the United States, earthquake safety should be practiced by everyone. There is a great deal that you and your students can do to take care of yourselves during and after an earthquake. The lessons in this booklet cover planning, preparation, practice, and more practice. The classroom activities are designed for students in kindergarten through sixth grade. We provided teaching notes; "Learning Links" summarizing interdisciplinary connections; and a set of masters ready to reproduce for transparencies, handouts, and worksheets.

Students find the topic of earthquakes fascinating. Their fascination may contain an element of fear, like the fear that arises in teaching fire safety. That fear can be reduced by reminding them that they are learning how to take care of themselves if an earthquake happens. Parents' fears may also need to be addressed. Let your students know that fear is a normal reaction to any danger. Make your message clear: We can't do anything to prevent earthquakes, but we can prepare ourselves to cope with them. We can help ourselves and others to do many things that will make our homes and schools safer. For earthquake safety information developed specifically for children and families, visit the websites of FEMA (http://fema.gov/kids/) and the U.S. Geological Survey (http://earthquake.usgs.gov/4kids/).

Earthquake Risk Map



Part 1: What Happens During an Earthquake?

Most people caught in earthquakes have a feeling of helplessness. Especially if they have never experienced a quake before, they have no idea how long it is going to last or what will happen next. In Part 1 you will take your students through several steps that will help them know what to expect and what to do if an earthquake occurs.

Teaching students to recognize an earthquake and take immediate positive action can help them and those around them come through the disaster safely. The knowledge, attitudes, and skills that you promote will not only help your students academically, but also may one day save their lives.

What to Expect

The first indication of a damaging earthquake may be a gentle shaking. You may notice the swaying of hanging plants and light fixtures or hear objects wobbling on shelves. Or you

may be jarred first by a violent jolt (similar to a sonic boom). Or you may hear a low (and perhaps very loud) rumbling noise. A second or two later, you'll really feel the shaking, and by this time, you'll find it very difficult to move from one place to another. A survivor of the 1906 San Francisco earthquake compared the physical sensation to riding down a long flight of stairs on a bicycle.

It's important to take "quake-safe" action at the first indication of ground shaking. Don't wait until you're certain an earthquake is actually occurring. As the ground shaking grows stronger, danger increases. For example:

- Free-standing cabinets and bookshelves are likely to topple. Wall-mounted objects (such as clocks, maps, and art work) may shake loose and fly across the room.
- Suspended ceiling components may pop out, bringing light fixtures, sprinkler heads, and other components down with them.
- Door frames may be bent by moving walls and may jam the doors shut. Moving walls may bend window frames, causing glass to shatter and send dangerous shards into the room.

The noise that accompanies an earthquake may cause considerable emotional stress – especially if students are not prepared to expect the noisy clamor of moving and falling objects, shattering glass, wailing fire alarms, banging doors, and creaking walls. The noise will be frightening, but a little less so if it's anticipated.

Part 2: Hunt for Hazards

Contrary to popular imagination, an earthquake does not cause the Earth to open up and swallow people. Most injuries and fatalities occur because the ground shaking dislodges loose objects in and on buildings.

Anything that can move, fall, or break when the ground starts to shake is an earthquake hazard if it can cause physical or emotional harm.

Classrooms, homes, and all the other places where children spend time indoors contain objects that could cause injury or damage during a quake. In Part 1, students learned what to expect and how to react appropriately during an earthquake. In Part 2, they'll make class lists of hazards in different settings and then work with teachers, parents, and other adults to eliminate as many hazards as they can. Students can remove objects that could fall and cause injury during earthquake shaking. Objects that cannot be removed should be securely fastened. In the classroom these may include fish tanks and animal cages, wall maps, models, and wheeled items such as pianos and rolling carts for audiovisual equipment. At home, bookcases, china cabinets, and other tall furniture should be secured to wall studs. Hanging lamps, heavy mirrors, framed pictures, and similar ornaments should be removed or securely fastened.

There will be some hazards in the classroom and home that students will not be able to eliminate. Be sure students know how to avoid those hazards they cannot remedy.

Part 3: Prepare and Share

After a quake you and your students may spend several hours (and maybe days) together, cut off from many of the normal sources of community support. In Part 3, the class will devise emergency kits for several settings and make one for the classroom. Students will also make posters as a way of sharing their knowledge of earthquake preparedness.

Part 4: Earthquake Simulation and Evacuation Drill

During an earthquake, the most important thing for any child or adult to remember is the Drop, Cover, and Hold drill:

At the first indication of ground shaking, crouch under a desk or table, tuck your head, and keep your hands on the side of your neck unless you need to hold onto the legs of your "shelter" and move with it.

After the quake it is important to get out of the building and into a clear space, taking the emergency kit along with your roll book. In Part 4, students will point out various hazards that might occur in the course of leaving the building and they'll discuss ways of dealing with various obstacles.

Aftershocks are likely to occur without warning, minutes or even months after the major earthquake. Practice Drop, Cover, and Hold on the way out of the building, and in as many other settings as possible, until the drill becomes second nature to you and your students.

Give your students several opportunities to ask questions and discuss their fears and concerns. They'll have plenty of "what if" questions. Don't feel that you must provide all the answers. Let your students hold problem-solving sessions. Class and group discussions provide opportunities for students not only to express their negative feelings, but also to develop pride in the positive competency they have gained.

PART 1

What Happens During an Earthquake?

Content Concepts

1. Earthquake shaking is possible almost everywhere in the United States.
2. Students can learn how to protect their heads and bodies during a simulated earthquake.

Vocabulary

minor risk

moderate risk

major risk

evacuate

Objectives

Students will

- Identify which parts of the United States are most at risk from earthquake damage.
- Demonstrate how long an average earthquake lasts.
- Demonstrate safe behavior during an earthquake simulation.

Learning Links

Language Arts: Following directions, class discussion

Social Studies: Locating states

Math: Timing a minute

Art: Coloring an earthquake risk map

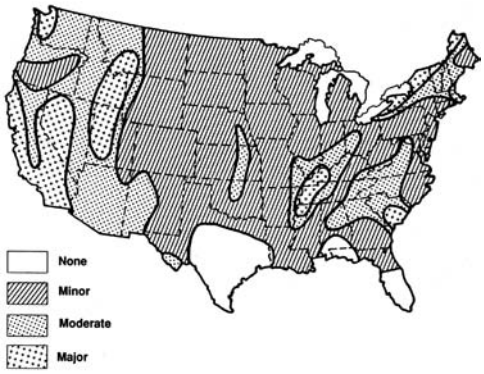
Activity One: Size Up Your Risk

Materials for the teacher

- Transparency made from Master A, Earthquake Risk Map, colored according to directions in step 4 below.
- Overhead projector

Materials for each student

- Copy of Master A
- Crayons or colored pencils



Teacher Take Note:

This map is based on earthquakes that have happened in the past. Major Risk on the map does not necessarily indicate that a particular area will experience a damaging earthquake in the near future, and "None" does not mean that earthquakes are impossible in that area. Not shown are Alaska, Hawaii, and the U.S. Territories, all of which are in Major Risk zones.

Procedure

1. Introduce the topic with a class discussion based on the following questions:

- Has anyone here ever felt an earthquake? (Allow students time to express their observations and feelings.)
- What does the word "quake" mean?
- What do we mean when we say people are "quaking in their boots"? (Invite students to imitate a person trembling.)
- Have you ever been on a bridge when it shook from heavy traffic, or near the railroad tracks when a train passed over? (Invite students to demonstrate shaking and vibrating.)

2. Tell students that thousands of earthquakes occur in the United States each year. Most are too small to be felt by people. Only a few are strong enough to cause damage. Discuss with students the following question: Are all regions of the U.S. equally likely to receive earthquake damage?

3. Tell students that they are going to work with a map that divides the United States into zones by different degrees of potential earthquake shaking. All 50 states and all U.S. territories are at some risk from earthquakes. At least 39 states are at moderate to high risk.

4. Distribute the maps, ask students to take out their crayons or colored pencils, and give these instructions:

   a. Use yellow to color in the sections of the United States that have no shading in them. In the legend, use yellow to color in the box in front of the word "None."

   b. Skip the Minor box for now. Use blue to color in the sections that have dots and color in the box in front of the word "Moderate."

c. Use red to color in the sections marked with X. In the legend, color the box in front of the word "Major" red.

d. Color the rest of the United States green, and also the box in front of the word "Minor."

5. After the maps have been colored, project the overhead and conduct a class discussion around the following questions:

- What is the risk for damage from earthquakes in the area where we live? (Answers will vary.)
- Is the risk factor the same for our entire state? (Again, answers will vary.)
- How many states in the U.S. are believed to be totally free from earthquake risk? (none of them)

Activity Two: Shake a Minute

Materials for the teacher

- Large clock with a second hand
- Blackboard and chalk

Materials for each student

- Pencils
- Paper

mi•nor risk

A minor risk is a relatively small possibility of harm.

mod•e•rate risk

A moderate risk is a possibility of harm that is neither small nor great, but in between.

ma•jor risk

A major risk is a serious and significant possibility of harm.

e•vac•u•ate

To evacuate a building is to empty it of people.

Procedure

1. Ask students to estimate on a piece of paper how long they think an earthquake lasts. (How long will the ground shake?)

2. Collect the estimates and list them on the board.

3. Explain to students that in most earthquakes shaking rarely lasts for as long as a minute in any one area. Strong shaking from a major quake usually lasts from 30 to 60 seconds. The 1906 San Francisco earthquake lasted about 40 seconds. In the 1964 Alaskan earthquake, the shaking lasted 3 to 4 minutes - an extremely long time. This does not happen very often.

(Steps 4 to 8 are optional. If classroom time is limited, skip to Step 9.)

4. Tell students that they are going to estimate how long a one-minute earthquake is without looking at the clock. Have them break up into pairs. One of each pair will be the timekeeper and recorder, while the other is the "earthquake."

5. When you give the signal, the earthquakes are to begin shaking, and the timers are to begin timing. Ask the quakes (whose backs are to the chalkboard) to continue shaking until they think that a minute has passed.

6. Once the timing and shaking start, write the time elapsed on the board every five seconds. The timers, who can see the board, should record the last time listed when their partners stop shaking. Instruct the timers not to share the time with the earthquake students yet.

7. Ask the timers to report the actual times that each "quake" lasted. Write all of the times on the board. Have the class compare the times:

- How long was the shortest "earthquake'?
- How long was the longest?
- What was the average time for this group?

8. Have partners switch roles and repeat steps 5 and 6, then step 7. Ask the class:

- Did the second group come closer to one minute than the first?"
- If the answer is yes, why? (perhaps because the second pair of students had the advantage of observing the first pair)

9. Now have everyone in the class shake for one minute at the same time. Tell them when to start and stop, but ask them not to watch the clock. Then ask:

- Did the time you shook seem like more or less than a minute? (Explain that even though an earthquake is over in a short time, it usually seems much longer to those people experiencing it.)
- What might happen to objects in this classroom if the ground shook strongly for a minute? (Answers will vary.) Explain that we will learn more about this in our next activity.

Teacher Take Note:

Instruct students to shake with care, so they don't hurt themselves or anyone around them.

Activity Three: Practice What to Do

Materials for the teacher

- Master B, Earthquake Simulation Script
- Transparency made from Master C, Drop, Cover, and Hold
- Overhead projector

Materials for each student

- Pencils, books, and other objects to drop
- Chairs to rattle and slide
- Desk or table to get under
- Pencils and cardboard or other hard objects to provide the scratching noise of trees

Teacher Take Note:

Although doorways have traditionally been regarded as safe locations during an earthquake, it's important to anticipate some problems. Doors may slam shut. Door jambs may be bent. Automated safety doors will probably close. You will need to use your own best judgment in choosing where to position yourself for the simulation. Local safety officials can answer your specific questions.

Procedure

1. Ask students to describe what they would see, hear, feel, and smell if an earthquake occurred nearby. Allow time for them to respond.

2. Explain that you are going to talk through an imaginary earthquake to help students understand what might happen during a real one. Display the transparency of Master C, call out "Drop, Cover, and Hold," and direct students to practice the following actions:

   a. Get under the table or desk.

   b. Turn away from the windows.

   c. Put both hands on the back of your neck.

   d. If your desk or table moves, hold onto the legs and move with it.

3. Before you begin reading, ask several students to demonstrate what they should do when they hear "Drop, Cover, and Hold." As a group, discuss which of the demonstrations were most effective for protection, and what might be done to improve some of the others.

4. Appoint student helpers for the simulation. Ask one student to flick the lights on and off several times, and then turn them off. Appoint another to act as timer for this activity. Designate students to help create earthquake sound effects, such as:

rattling glass	trees scraping the building
scraping desks	people shouting
scraping tables	babies crying
opening drawers	bricks falling (drop several pencils)
barking dogs	doors banging shut
meowing cats	hanging plant falling (drop a dish or pan)
books falling	

5. Read the simulation on Master B, Earthquake Simulation Script. Direct the students at their desks to follow Drop, Cover, and Hold instructions during the simulation, while helpers provide effects as indicated.

   Repeat the simulation a second time, selecting different students to provide the effects, so that each student has an opportunity to practice the Drop, Cover, and Hold procedure.

6. Take time after the simulation to let students respond to the experience. Encourage them to ask questions and discuss their fears and concerns, including the unpleasant, worried, and frightened feelings that they might experience.

Activity Four: Sing it Out!

Materials

- Transparency made from Master D, Shimmy-Shimmy-Shake!

Optional:

- Rhythm band instruments

Teacher Take Note:

Students in grades 4-6 may be too sophisticated for this activity.

Teacher Take Note:

Do not excuse children with special needs from participating in earthquake drills. Children who are blind, deaf, or have impaired mobility especially need experiences which build confidence in their ability to avoid and cope with dangers. Plan with other teachers and the school nurse to determine quake-safe actions for these children. It may not be possible for children with impaired mobility to get under a desk or table. They can, however, learn to react quickly and turn away from windows; move away from light fixtures and unsecured bookcases; and use their arms or whatever is handy to protect their heads.

Procedure

1. Sing the song with the students to the tune of "Old MacDonald's Farm." Invite them to suggest sound effects and movements to accompany the singing.

2. Repeat the song several times, until all the students are familiar with the words. This activity will do a great deal to dispel the tension produced by the earthquake drill, as well as to reinforce the concepts of the lesson.

Procedure

1. Tell students to demonstrate what they should do when they hear "Drop, Cover, and Hold." (Refer to Activity Three, Step 2 for Drop, Cover, and Hold procedure.)

2. Ask students to return to their seats. Refer to Background, under 'What to Expect," and tell students that sometimes an earthquake begins with a gentle shaking that causes hanging plants to sway and objects to wobble on shelves; sometimes it starts with a great jolt like the sound and vibration of a sonic boom; and sometimes the beginning of an earthquake might sound like a low rumbling noise.

3. Tell students to demonstrate what they should do as soon as they think an earthquake is happening. (Students should demonstrate Drop, Cover, and Hold procedure.)

4. Tell students that if they think an earthquake is happening, they shouldn't wait for an adult to call out "Drop, Cover, and Hold" and discuss why. (There may not be an adult present. They may be with an adult who doesn't know the proper action to take.)

5. Tell students that when the shaking stops, it will be necessary to leave the building. Ask them to estimate how long it takes to evacuate the building when there is a fire drill.

6. Go through an actual fire drill procedure with your students and record the time it takes to complete this evacuation. Tell students that fire drill exits are often the best way to evacuate a building after an earthquake. Then ask:

- How long did it take us to get out of the building? (probably five minutes)

Activity Five: Earthquake - Don't Hesitate!

Materials for the teacher

- Watch (preferably a stop watch)
- Master E, Coalinga Schools Report (teacher background only)

Materials for the students

- Pencils and paper
- Copies of Master D, Shimmy-Shimmy-Shake! (for grades K-4)

- How did this evacuation time compare with your estimates? (Answers will vary.)
- How long does a moderately severe earthquake last? (generally, less than one minute)
- Would it be possible to evacuate the building during a quake of that length?" (Students will probably answer no.) Why or why not? (There isn't time.)
- What would be some of the hazards along the way if we tried to leave the building during a quake? (objects falling, windows breaking)

7. For grades 3-6, you may want to read and discuss the Master E, Coalinga Schools Report, with your students.

8. Explain to students that they will have a chance to practice earthquake evacuation in a later lesson. Answer any further questions they have about the experience of an earthquake. For grades K-4, you may want to finish by singing "Shimmy-Shimmy-Shake." (See Activity Four)

PART 2

Hunt for Hazards

Content Concepts

1. Every environment contains potential earthquake hazards.

2. Students can identify hazards and eliminate them or reduce their impact.

Objectives

Students will

- Identify potential hazards in their classroom that may cause damage, injury, or death during an earthquake.
- List, and if possible, make changes in their classroom to reduce potential hazards.
- Identify potential earthquake hazards in their homes.
- List, and if possible, make changes in their homes to reduce potential hazards.

Vocabulary

hazard

secure

Learning Links

Music: Create movements to accompany a chant

Language Arts: Discussing hazards and making lists, using and applying action verbs, sharing information with parents and families

Social Studies: Identifying hazards throughout the community on several levels - school, home, and beyond

Art: Drawing home hazards that are not on the Home Hazard Hunt Worksheets, Masters Ia, b, and c

Activity One: Classroom Hazard Hunt

Materials for the teacher

- Transparency made from Master G, Fourth Grade Classroom
- Overhead projector
- Transparency marker

Materials for each student

- Handout made from Master G
- Crayons or colored pencils
- Handout made from Master H, Classroom Hazard Hunt
- Drawing paper (optional)

haz•ard

A hazard is any object or situation which contains the potential for damage, injury, or death.

se•cure

We *secure* (V.) objects when we fasten them so that they cannot move. Then we can feel *secure* (Adj.), or safe from harm.

Teacher Take Note:

This activity will take about 60 to 90 minutes, or longer if students modify their classroom to make it safer during an earthquake. You may want to divide the procedure between two separate sessions.

Procedure

1. Ask students what they think is the direct cause of most earthquake deaths and injuries. Listen to their ideas. After some discussion, tell students that the movement of the ground during an earthquake seldom causes death or injury. Most deaths and injuries are caused by falling debris from damaged buildings.

2. List the some of the types of damage that can result from ground shaking.

   a. Building damage can include:

      - toppling chimneys
      - falling brick from walls and roof decorations, such as parapets and cornices (Show pictures or draw pictures of these decorations; or if they're attached to your school building, point them out to the students.)
      - collapsing exterior walls
      - falling glass from broken windows

   b. Damage inside the building can include:

      - falling ceiling plaster and light fixtures
      - overturned bookcases and other furniture and appliances
      - falling objects from shelves and walls

   c. Damage to the building and damage inside the building can also cause:

      - fires from broken chimneys, gas lines, and electrical wires
      - flooding from broken water pipes
      - toxic fumes from spilled chemicals

d. In the community, earthquake ground shaking can cause:

- downed power lines
- damage to bridges, highways, and railroad tracks
- flooding from dam failures, damage to reservoirs and water towers
- fires from spilled gasoline and other chemicals
- liquefaction and landslides
- water sloshing in ponds, pools, etc.
- tsunami (in coastal areas)

3. Sum up: There are many things in our environment (home, school, and community) that could cause us harm during an earthquake. We refer to these things as "hazards." Potential hazards include objects that might fall, break, or catch fire during an earthquake. There will be many hazards that we cannot correct. But identifying these hazards will help us to anticipate them and avoid danger and injury.

4. Tell students they are going to conduct a hazard hunt in their classroom to identify things that might hurt them during an earthquake. Refer to Master H, Classroom Hazard Hunt, to help students identify hazards.

5. Distribute Master G, Fourth Grade Classroom. Have students circle or color those hazards which are found in their classroom. Ask them to make a list of any other hazards that are in their classroom but are not included in the picture, or to draw their own classroom and point out additional hazards.

6. Conduct a class discussion about the hazards you have identified and how they might cause

harm. Use the overhead of Master G in your discussion.

7. Ask students to decide what they can do as a group to make the room safer. Actions might include tying down objects, removing hanging objects, placing heavy objects on lower shelves, and so on. You may want to write the following action verbs on the blackboard:

move	*replace*	*tie down*
relocate	*remove*	*eliminate*
attach	*fasten*	*change*
anchor	*secure*	

8. If appropriate, have students spend time changing the things they can change to make their room safer.

9. Have students make a list of things that could be changed, but not without adult help. These might include putting latches on cabinets, blocking wheels on the piano, and attaching cabinets to walls.

10. If appropriate, have students help to make these changes. They might want to meet with the principal or work with the custodians to help make their room safer.

11. When changes can't be made, be sure students are aware of the remaining hazards, and know they must avoid or move away from them if an earthquake occurs.

Procedure

1. Explain to students that there may be many possible earthquake hazards in their homes - objects that can fall, break, spill, or cause damage and injury in other ways.

2. Conduct a brainstorming session with your students and see how many home hazards they can think of. List these on the board.

3. Tell students that they are going to conduct a hazard hunt at home to identify things that might hurt them or their families during an earthquake.

   Distribute the student worksheets made from Master I. Discuss each of the pictures with the students and ask why the item pictured could be a hazard.

   Remind students that this sheet does not include all the possible home earthquake hazards — just some of them.

4. Instruct students to take the worksheets home and have other children and their parents or guardians join them in looking through the house for hazards. Some hazards may exist in more than one place. Give these instructions:

   a. Put a check in the box beneath every hazard you find in your home. (If the hazard occurs more than once, students may write a total number in the box instead of a check.)

   b. If you can, write the name of the room(s) in which the hazard is located.

   c. On a separate piece of paper or on the back of the worksheets, list or draw any potential earthquake hazards that are found in your home but are not on the list.

Activity Two: Home Hazard Hunt

Materials for the teacher

- Transparencies made from Masters I a, b, and c, Home Hazard Hunt Worksheets
- Overhead projector

Materials for each student

- Handouts made from Masters I a, b, and c
- Handout made from Master J, Quake-Safe Home Checklist
- Pencil or pen

Teacher Take Note:

How you use the Quake-Safe Home Checklist will depend on the grade level of your students. K-2 teachers may want to adapt this sheet.

Extensions

1. *Since homes without young children also need to be prepared for earthquakes, you and the class might explore ways of disseminating the Quake-Safe Home Checklist to other members of your community. What about grocery stores, community centers, libraries, and churches? Students may have other ideas.*

2. *Make a transparency and student copies from Master K, Neighborhood Hazard Hunt.*

   Show the picture and ask students to use red pencils to circle everything they see that could come loose and cause damage during an earthquake. Share answers. This could be either a class activity or homework.

3. *Distribute copies of Master L, Safety Rules for Shoppers. Discuss the rules in class, then ask students to take the page home and share it with their families.*

   d. Bring your completed worksheets back to class.

5. Conduct a classroom discussion about the hazards that students found in their homes. Especially discuss hazards they identified that were not on the list. You may want to use transparencies of the home hazard worksheets during your discussions.

6. Explain to students that now they have identified earthquake hazards in their homes, they can take action to reduce their danger. Emphasize that there are some actions they can take which cost little or no money, while other actions will cost quite a bit and will have to be done by adults.

7. Distribute copies of the Quake-Safe Home Checklist (Master J) to students. Discuss the items on the list. Determine which changes can be made easily and which will be more difficult. Again, emphasize that this list does not include everything that can be done to make a home safer.

8. Have students take the list home to discuss with their families. Families may decide which changes could be made immediately in their homes and which ones will have to wait. Encourage students to help their parents in any way possible to make the changes that can be made. As you did in Activity One, remind students that they will have to be responsible for avoiding the hazards they cannot remove.

9. You may want the children to bring back the completed checklists so they can have a follow-up discussion in class.

PART 3

Prepare and Share

Content Concepts

1. Students can increase their chances for safety and survival in an earthquake by having essential supplies assembled before they need them.
2. Students can help to assemble emergency kits of supplies for their classroom, home, and family vehicle.
3. Students can help to inform others about earthquake safety and survival.

Objectives

Students will

- Demonstrate an awareness of responsibility for their own well-being and the well-being of others during an emergency.
- List items to include in classroom, home, and vehicle emergency kits.
- List uses for the kits in emergencies other than an earthquake.
- Prepare an emergency kit for their classroom.
- Take home lists of suggestions for home and vehicle kits.
- Make posters illustrating what they have learned, and distribute them around the school and community.

Vocabulary

essential

responsibility

Learning Links

Language Arts: Reaching consensus in a group, copying lists of kit materials, writing preparedness slogans

Social Studies: Sharing kit lists with families, discussing ways to inform the community about quake-safe actions, distributing posters

Art: Planning and decorating the classroom kit, making safety posters

Activity One: Brainstorming

Materials for the teacher

- Blackboard and chalk

es•sen•tial

Essential items are those we need to stay alive and healthy.

re•spon•si•bil•i•ty

A responsibility is a task or a set of tasks someone is able to do and expected to do.

Teacher Take Note:

Taking an active role in preparedness will help students to deal with their natural and reasonable fear of earthquakes. Nevertheless, fears and anxieties are inevitable, even among older children who have learned to hide their emotions. Express your own concerns openly, and let students know that it's normal to be afraid.

Procedure

1. Review the earthquake hazard hunts in Part 2 to be sure students have a clear idea of the most common earthquake hazards.

2. Remind the students that they may have to evacuate their school, home, or other location after an earthquake. If this happens, they will want to have some essential items in a convenient place, ready to pick up and take.

3. Invite students to name some things they could **not** take with them if they had to leave their houses in a hurry. Take suggestions for only about five minutes, keeping the mood light. This exercise should help young children, in particular, to see the difference between essential and nonessential items.

4. Now invite students to name some things they really need to have in order to live.

   Write suggestions on the blackboard or overhead. After food and water have been named, there will be differences of opinion on the remaining items. Remind them to choose things that can be easily carried and have more than one use.

5. Ask the class:

- Which of these things should we have ready in the classroom? (Make a classroom list.)
- Which of them should we have at home? (Make a home list.)
- Which of them should we have in the family car, van, or other vehicle? (Make a vehicle list.)

6. When the class has reached agreement on a number of items, invite them to brainstorm one more list: a list of emergencies other than an earthquake for which their list of supplies would be appropriate. Accept all answers and discuss them briefly.

Procedure

1. Tell students that they are going to assemble an easy-to-carry kit which can be kept in the classroom for emergencies. Show them an inexpensive backpack obtained for this purpose.

2. Divide the class into teams and assign responsibilities to each team. Roles might include:

   a. Decorators: design and produce a logo or other distinctive decoration and fasten it to the kit.

   b. List makers: copy the classroom list from the board or overhead (see Part 3, Activity One, Step 5) neatly and with correct spelling, and fasten it to the inside or outside of the container as a checklist. Also provide a copy to the suppliers.

   c. Suppliers: decide which items on the list are already in the classroom, which will have to be purchased, and which can be brought from home. With the teacher's help, arrange for supplies to be bought or brought.

   Essential items for the kit will include:

   - class roster with students' names and addresses
   - first-aid checklist and supplies
   - bottled water and cups (use plastic containers to cut weight, avoid breakage)
   - flashlight and spare batteries

   Other items might include:

   - pocket transistor radio and spare batteries
   - paper and pens
   - permanent marker

Activity Two: Create a Kit

Materials for the teacher

- Inexpensive backpack or other ample container with shoulder straps
- Art supplies
- Writing paper and pencils
- Items for the kit (will vary)

Teacher Take Note:

The kit is intended to be carried by a teacher when the class evacuates the building after an earthquake (or other emergency) or following a classroom earthquake drill. The kit must have shoulder straps because the teacher will need free hands to assist students.

- colored flag to summon aid
- playing cards and pocket games
- hard candy and other compact, durable foods
- trash bags (for raincoats, ground cloths, etc.)

3. Invite the school nurse or someone from the Red Cross or the Fire Department to visit the classroom and discuss first-aid procedures. After this visit the students may want to assemble a small medical kit and add it to their emergency supplies.

4. When the kit is completed, decide where to keep it. Explain that the teacher will carry the kit during evacuation drills or actual evacuations.

Teacher Take Note:

Discuss the questions in Part 4, Activity One, with the Red Cross or Fire Department instructor.

Procedure

1. Read the chant to your class. Repeat the chant with the whole class several times, then ask students to create hand motions to accompany it. Suggest combinations of clapping, finger snapping, and patting on legs. As individual students work out their own rhythmic combinations, encourage them to demonstrate to the class so all can learn the same motions.

2. Tell students that now they have learned a great deal about earthquakes and earthquake preparedness, they have a responsibility to share their knowledge. One way of doing this is to make a set of posters and put them in places where they will be seen. Each poster would feature the word "Earthquake" and a reminder of some quake-safe action. Ask them to suggest appropriate slogans. These might include:
   - Where's your Emergency Kit?
   - Drop, Cover, and Hold
   - Keep Calm - Self Control is Contagious
   - After the Quake, Evacuate
   - Move Away from Windows, Shelves, and Lights

3. Divide students into small groups, and have each group agree on the slogan they want to illustrate.

4. Distribute materials. Suggest that each group work out a rough version of their poster first, allowing everyone to have input into the design. If necessary, suggest ways for group members to share the execution of the poster; perhaps one student lettering, one sketching the design in pencil, and another painting.

5. When the posters are finished, discuss places to display them other than the classroom.

Activity Three: Poster Party

Materials for each small group

- Poster board
- Art supplies
- Pencils and scrap paper for rough drafts

Safety Chant

If inside, drop, cover, and hold.

That's where you'll be safe.

If outside, stay outside.

Find an open space.

Extensions

1. *Explore with students some ways to make the emergency kit lists available to people who do not have children in school. Perhaps the city government would pay for having copies made, and students could take charge of distribution.*

2. *Students might write to local businesses or visit them to request donations of the pack itself and the materials for the kit. This would be another way to involve the community beyond the school in earthquake preparedness.*

Placing them in the hallways or the cafeteria would spread the message to other grades. Help students make arrangements to display some of the posters in stores, libraries, and other public places.

PART 4

Earthquake Simulation and Evacuation Drill

Content Concepts

1. Students can cope with hazards during evacuation.
2. Students are first responsible for their own safety, but also can help if others are injured.
3. After an earthquake, students can cope with the disturbed environment and their own emotional reactions.

Objectives

Students will

- Identify hazards they might find during evacuation.
- Describe ways of helping others who are injured during earthquakes.
- Describe feelings they might have and dangers they might face after an earthquake.

Vocabulary

evacuation

foreshock

aftershock

Learning Links

Language Arts: Writing and reading hazard descriptions, discussing hazards and coping strategies, discussing and writing (older children) about what happens after an earthquake

Social Studies: Practicing Drop, Cover, and Hold and evacuation procedures, discussing responsibility for one's own safety in an emergency, and what can be done for others

Activity One: Get Ready, Get Set

Materials for teacher and students

- Materials and procedure for earthquake drill. Refer to (Part 1, Activity Three, Practice What to Do, Step 2.)
- Overhead projector
- Index cards

Reminders for the Teacher

- Take cover.
- Talk calmly to students.
- Give instructions for evacuation or other emergency.

When No Shelter Is Available

Move to an inside wall. Kneel next to the wall, facing away from windows. Bend head close to knees, cover sides of head with elbows, and clasp hands behind neck. If a coat is available, hold it over your head for protection from flying glass, and ceiling debris.

Earthquake Safety Reminders for Students

If you're inside:

- Stay inside.
- Take cover immediately under a table, desk, or counter.
- Keep quiet and listen for instructions.
- Remain in safe position for at least 60 seconds, or until the shaking has stopped and your teacher tells you to leave your shelter.

If you're outside:

- Stay outside.
- Go to an open area away from hazards.
- Keep quiet and listen for instructions.

Procedure

1. Review classroom earthquake drill procedures with students and have them practice the Drop, Cover, and Hold routine on Master C. Do the drill with or without using the simulation script.

2. Take the class to the cafeteria and school library and discuss quake-safe actions to take in each of these settings. Have the children demonstrate those actions.

3. Tell students that during an earthquake it's important to stay where they are and take immediate quake-safe action. After the ground stops shaking, it is time to evacuate the building. Explain some of the hazards that may exist even after the major quake has passed, including aftershocks, fires, live electrical wires, and fumes.

4. Walk the class through your regular fire drill route to an open area outdoors that you have chosen in advance. Ask students to make mental notes as they go along of things that might become hazards during an earthquake, and share their ideas when you reach your designated site. Write each appropriate suggestion on an index card. The list of possible hazards may include:

   - power failure (Is there emergency lighting available?)
   - halls or stairways cluttered with debris (Are there lockers or trophy cabinets along hallways that could fall and block your path?)
   - smoke in the hallway
   - an exit door that jams and will not open
   - an aftershock (Students should stop walking immediately and begin Drop, Cover, and Hold.)
   - bricks, glass, and debris outside the doorway
   - electrical wires fallen on the ground

5. Return to the classroom. Hand one of the students an index card with a description of a hazard. Discuss this hazard and its impact on evacuation. Continue handing out the cards, one at a time, until all the hazards have been discussed. Give students an opportunity to express ideas about how they can cope with the hazards and evacuate safely.

e•vac•u•a•tion

Evacuation is the act of emptying completely. When we evacuate a building, we want to leave it quickly, quietly, and safely.

fore•shock

A foreshock is an earthquake which comes before the main quake and is less severe.

af•ter•shock

An aftershock is an earthquake which follows a major quake and is less severe.

Reminder

If you are in a school bus or a car when the quake starts shaking:

- The driver should stop as soon as possible away from buildings, power lines, bridges, and highway overpasses and underpasses.
- Passengers should stay in the vehicle and hold on (cars and buses have "shock" absorbers).

6. Explain to the class that if there is a strong earthquake, each student's first responsibility is his or her own safety. However, every student can learn what to do to help if someone else is injured. Present some "What if" questions for discussion. What would you do if:

   - A student or teacher were injured? (If someone is injured and can't walk, don't move the person unless there is immediate danger of fire or flooding. Instead, place a sturdy table carefully above the person to prevent further injury from falling objects. Then go for help.)
   - Someone was cut by shattered glass and is bleeding? (Even the youngest child can learn to apply pressure to the wound.)
   - Someone is hit by a falling lamp or a brick? (If the person is conscious and able to walk, take him or her to an individual in charge of first aid. Even if the person appears to be unhurt, have someone stay nearby to report signs of dizziness or nausea.)

Procedure

1. Tell students that you are going to conduct an evacuation drill. Have them help you devise a way to simulate hazards (fallen lockers/cabinets) along the hallway before the drill.

2. Back in the classroom, library, or cafeteria, call out 'Earthquake!' Students (and you) should take quake-safe positions immediately, without any further directions. Remind students that a teacher or other adult may not be with them when an actual earthquake occurs.

3. After 45 seconds, while students remain in quake-safe position, briefly review the evacuation procedure. If it's cold, and students' coats are in the room, instruct them to quietly and quickly pick up their coats before leaving the room. Ask students not to put the coats on until they are outside, in an open space area. If an aftershock occurs along the way, they should place them over their heads for protection from falling debris.

4. Give the instruction "Evacuate!" and proceed through the building evacuation route. Take along your classroom emergency kit (see Part 3, Activity Two).

5. When the class is assembled outside, take roll. Use the Drill and Evacuation Checklist on Master M to evaluate the procedure. If errors were made, plan with students to correct them, and repeat the drill if necessary. Remember to emphasize the students' successes, not their shortcomings.

6. If weather permits, continue this activity outdoors; if not, return to the classroom, but ask students to pretend they're still outside. Set the stage:

   - We have just experienced a strong earthquake. Every one of you knew

Activity Two: Put It All Together

Materials for teacher and students

- Chairs and other objects as needed to simulate earthquake obstacles
- Classroom emergency kit
- Paper and pencils
- Master M, Drill and Evacuation Checklist

Teacher Take Note:

Physical reactions to an actual earthquake may well include nausea and vomiting, or bladder and bowel incontinence. Even the simulation may trigger physical reactions in a few children. You may want to make discreet preparations to deal with this possibility.

Teacher Take Note:

Since we never know until the shaking has stopped which quakes are foreshocks or aftershocks and which is the main event, it is essential to begin Drop, Cover, and Hold at the first sign of a quake.

what to do to protect yourself. Some of us received a few bruises, but no one was seriously hurt. We managed to evacuate the school building. We moved slowly because it was difficult to walk through the debris in the halls [and stairwells]. Now we're safely outside and wondering what will happen next.

7. Lead a discussion with students which includes the following questions and considerations:

   - Our class is all together in the schoolyard. How do we feel? (It is normal to feel scared, worried, or physically sick, and to feel like crying or laughing. It helps to talk about how we feel.)
   - What could we do for ourselves and each other to help us feel better? (Take a couple of deep breaths to help ourselves stay calm. Hold hands or hug to comfort each other. Talk softly until we're asked to listen to instructions.)
   - Because we experienced a strong earthquake, we know there must be a lot of damage within our community. We can hear sirens from police cars, fire trucks, and ambulances. We can also hear horns honking, and imagine traffic jammed up all over town.
   - It may take a long time for parents to get to school. How would you feed if you had to stay at school for many hours, or even for two or three days? (Children in emergency situations worry about being separated from parents. They're concerned about their parents' safety and that of their friends and pets. Allow students to discuss these concerns.)
   - What are some things we can do to help care for each other and keep busy? (Older students might want to help take care of

younger ones from other classes. Perhaps they can think of appropriate activities.)

- When you get home, what are some jobs you can do to help clean up and get things back to normal? (Discuss some of the dangers and how to work safely. Specific guidelines will be up to parents.)
- How can we prepare for aftershocks? (Stress the Drop, Cover, and Hold procedure once again, and review the hazard checks from Part 2.)

8. Have students write story or draw a picture sequence about "What I Did After the Earthquake."

Teacher Take Note:

There is no guarantee that emergency medical or fire personnel will be available to your school immediately after an earthquake. Local emergency teams will be severely overtaxed. It may be 24 to 48 hours before assistance arrives. Anticipating a delay in being reunited with their families and discussing ways of coping will help students deal with their feelings of separation and isolation.

Extensions

1. Distribute copies of Master N, Home Earthquake Safety Checklist. Encourage students to go over the list with their parents.

2. With older children, you may want to spend extra time discussing specific things they could do to assist in cleanup and repair work after an earthquake. However, be sure you also emphasize the limits to what young people can safely undertake, and the precautions they must observe, such as wearing shoes and sturdy gloves when sweeping up broken glass.

References

Are You Ready? An In-depth Guide to Citizen Preparedness, IS-22, August 2004. Available online in both English and Spanish at http://www.fema.gov/preparedness/prepare_guides_links.shtm.

Drop, Cover, and Hold, FEMA 529, September 2005. Classroom poster showing how to take cover during an earthquake. Color version of drawing shown on Master C in this publication.

Helping Children Cope with Disaster, FEMA 478, August 2004. Available online in both English and Spanish at http://www.fema.gov/preparedness/prepare_guides_links.shtm.

Seismic Sleuths: A Teacher's Package for Grades 7-12, FEMA 253, 2nd Edition. October 1995. Available online at http://www.fema.gov/hazards/earthquakes/nehrp/fema-253.shtm.

Seismic Sleuths: A Teacher's Package for Grades 7-12, FEMA 253-CD, Edition 2. July 2005. CD-ROM version of October 1995 2nd Edition.

The Adventures of Terry the Turtle and Gracie the Wonder Dog, FEMA 531, August 2005.

Tremor Troop – Earthquake: A Teacher's Package for K-6, FEMA 159, Revised Edition, July 2002. Available in print and CD-ROM form. Also available online at http://www.fema.gov/hazards/earthquakes/nehrp/fema-159.shtm.

You can order copies of FEMA publications from the FEMA Distribution Facility at 1-800-480-2520.

For additional hazard information developed specifically for children and families, please visit the websites listed below, or call your state or local emergency management office.

FEMA for Kids – http://www.fema.gov/kids

FEMA U.S. Fire Administration for Kids – http://www.usfa.fema.gov/kids/flash.shtm

FirstGov for Kids – http://www.kids.gov/k_safety.htm

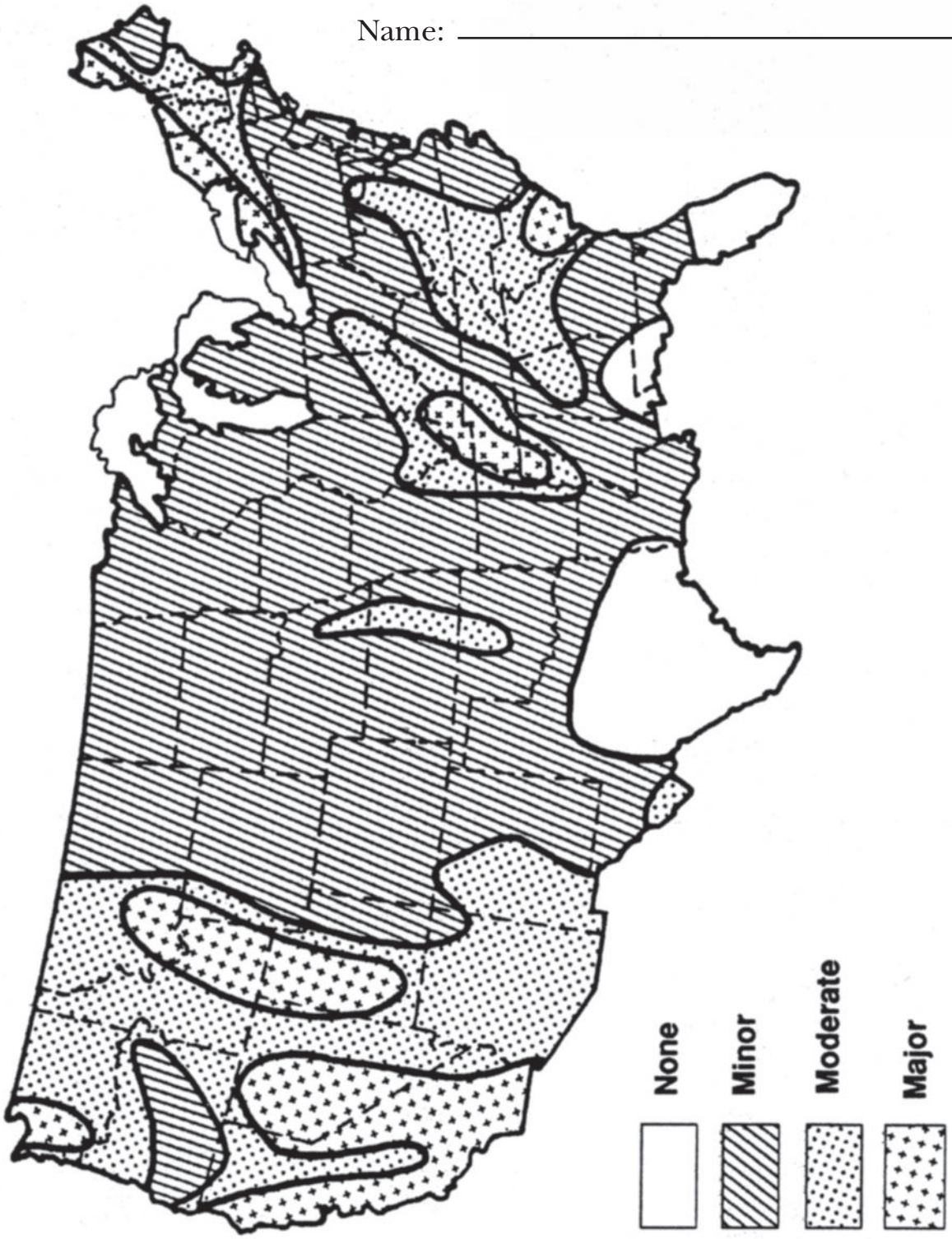
USGS Earthquake Hazards Program for Kids – http://earthquake.usgs.gov/4kids

CodeRedRover.org – http://www.coderedrover.org

Home Safety Council – http://www.homesafetycouncil.org/index.aspx

Earthquake Risk Map

Name: _____



Earthquake Simulation Script

Imagine that you hear a low, rumbling, roaring sound. The noise builds, getting louder and louder, for a few seconds. Then, Wham! There's a terrific jolt. You feel like someone suddenly slammed on the brakes in the car, or like a truck just rammed into the side of the building.

The floor seems to be moving beneath you. It's hard to stand up, or even stay in your seat. If you do stand up, you might feel like you're riding a raft down a fast river. When you walk, it's like trying to walk on a trampoline or a waterbed. You hear someone say, "Earthquake! Drop, Cover, and Hold!"

I want all of you at your desks to take cover as quickly and quietly as you can, right now. Please listen very carefully.

The shaking and commotion may last about 60 seconds or a little longer. We'll have our timer count off the seconds for as long as this earthquake lasts. [The timer may begin counting softly now.]

The building is creaking and rattling. Books are falling from the bookcase. Hanging lamps and plants are swaying. Suddenly a pot falls to the floor and smashes, and the plant spills. A window pane just shattered, and glass is falling to the floor. The table is sliding, too.

Be sure to stay in the drop, cover, and hold position under your desk. If your desk is moving, grab the legs and move with it.

You hear noises outside. Dogs are barking. Cats are meowing. A baby is crying. People are shouting and screaming. The shaking is making church bells ring. You hear crashing sounds, from brick chimneys and other loose parts of the building falling to the ground. Trees outside are swaying and scraping against the walls.

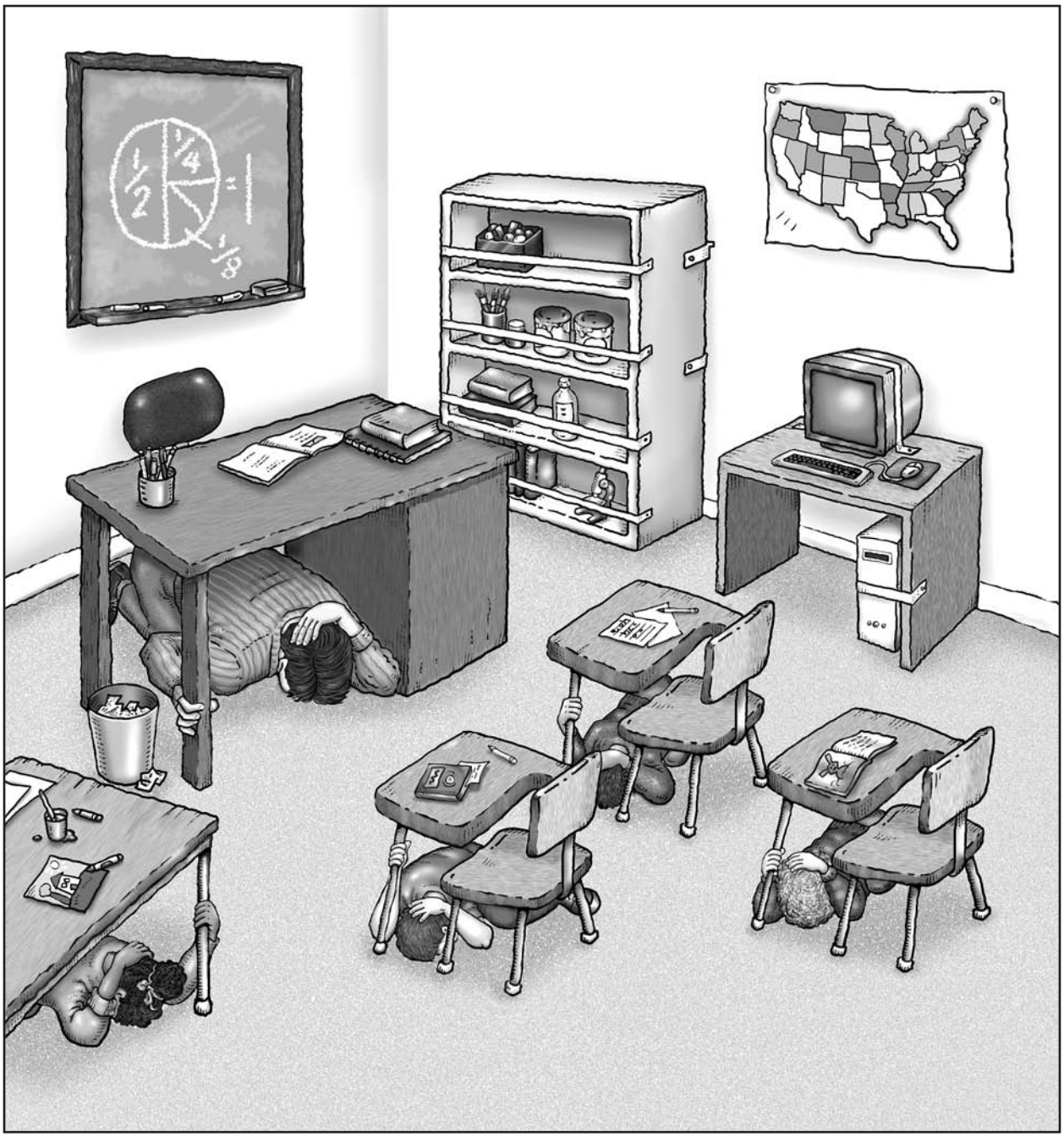
Inside the room, pictures are moving on their nails. Oh! That one just fell off the wall and crashed to the floor. The desk drawers are sliding open. The lights begin to flicker on and off... they just went out! Now the door swings back and forth on its hinges. Bang! It slams shut. There's silence now. Just as suddenly as the noise and shaking began, the room grows quiet. [The timer can stop counting now.]

Please, everyone, get back in your seats. It is important to remain very quiet and wait for instructions. When it is safe to leave the building, I am going to lead you outside to an open space. Stay together, and be ready to take cover again at any moment, because the shaking may start again. Sometimes other quakes, called aftershocks, occur after the damaging earthquake has stopped.

HELP: Hands-on Earthquake Learning Package, California Edition (1983). Environmental Volunteers, Inc.

Drop, Cover, and Hold

Take cover under a sturdy desk or table, hold on to the desk or table leg so that the desk or table stays on top of you, and keep your head down until the shaking stops.



Shimmy - Shimmy - Shake!

(To the tune of Old McDonald's Farm, lyrics adapted from Sylvia Herndon)

Verse 1

Rumble, rockin, shakin' ground
Shimmy - shimmy - shake!
Whoops! it's hard not to fall down
Shimmy - shimmy - shake!

With a rattle rattle here
And a rumble tumble there

Here a rattle - there a rumble ...
Everywhere a rumble tumble.
Rumble, rockin, shakin' ground ...
Shimmy - shimmy - shake!

Verse 2

Someone says It's an earthquake!
Shimmy - shimmy - shake!
Best to hurry, don't you wait .
Shimmy - shimmy - shake!

With a rattle rattle here
And a rumble tumble there

Here a rattle - there a rumble
Everywhere a rumble tumble.
Rumble, rockin!, shakin' ground ...
Shimmy - shimmy - shake!

Verse 3

Get under something near and safe
Shimmy - shimmy - shake!
You must be fast, now don't you wait...
Shimmy - shimmy - shake!

With a rattle rattle here
And a rumble tumble there

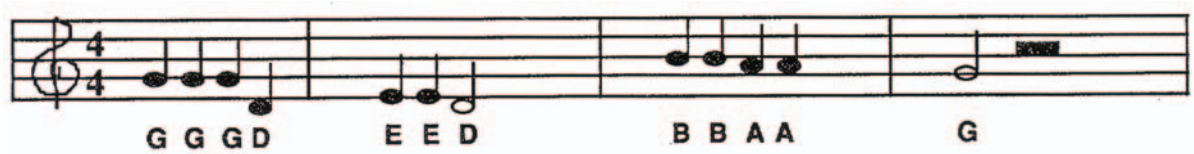
Here a rattle - there a rumble ...
Everywhere a rumble tumble.
Rumble, rockin, shakin' ground ...
Shimmy - shimmy - shake!

Verse 4

Hold on tight and 'fore you know
Shimmy - shimmy - shake!
Rockin's over, you can go ...
No more shimmy - shake!

No rattle rattle here
No rumble tumble there

Here no rattle - there no rumble ...
Gone is all the rumble tumble.
Rumble, rockin', shakin' ground ...
No more shimmy - shake!



Developed by Disaster Mitigation Planning Section, Office of Emergency Services. P. 0. Box 758, Conway, AR 72032-0758.

Coalinga Schools Report

At 4:42 p.m. on Monday, May 2, 1983, an earthquake registering 6.5 on the Richter scale struck the Coalinga area. Seconds later there was an aftershock of 5.0 Richter magnitude.

Coalinga has three elementary schools, one junior high, and one high school, serving approximately 1,900 students. The school buildings were constructed between 1939 and 1955. They contain 75 classrooms, plus gymnasiums, auditoriums, libraries, and multipurpose rooms.

Superintendent Terrell believes that death and serious injury would have occurred if school had been in session. The following is an account of the nonstructural damage to these schools:

Windows – Large windows received and caused the most damage. The 31-year-old junior high library had glass windows approximately 8 ft x 10 ft on the north and south walls. The glass was not tempered. All the windows imploded and littered the room with dagger-shaped pieces of glass. Floor tiles and wooden furniture were gouged by flying splinters.

Lighting Fixtures – Approximately 1,000 fluorescent bulbs fell from their fixtures and broke. All of the fixtures in the elementary schools came down, and many in other buildings. None of the hanging fixtures had safety chains. Glass in the older recessed fixtures was shaken out and broken.

Ceilings – Improperly installed T-bar ceilings came down. Glued ceiling tiles also fell, especially around vent ducting and cutouts for light fixtures.

Basements and Electrical Supply – Water pipes which came into the buildings through concrete walls were severed by the movement of the walls. Basements were flooded to five feet.

Since all the electrical supply and switching mechanisms for these buildings were in the basements, all of them were destroyed by water.

Chemical Spills – In the second-floor high school chemistry lab, bottles of sulfuric acid and other chemicals stored in open cabinets overturned and broke. Acid burned through to the first floor. Cupboard doors sprang open and glass cabinet doors broke, allowing chemicals to spill. Because there was no electric ventilation, toxic fumes permeated the building.

Furnishings and Miscellaneous Items – File cabinets flew across rooms; freestanding bookcases, cupboards, cabinets, and shelves fell over. Machine shop lathes and presses fell over. Typewriters flew through the air. Metal animal cages and supplies stored on top of seven-foot cabinets crashed to the floor. Movie screens and maps became projectiles. Storage cabinets in the high school had been fastened to the wall with molly bolts, but they were not attached to studs. They pulled out of the wall and fell to the floor with their contents.

Based on a report prepared by E. Robert Bulman for Charles S. Terrell. Jr., Superintendent of Schools for San Bernardino County, California.

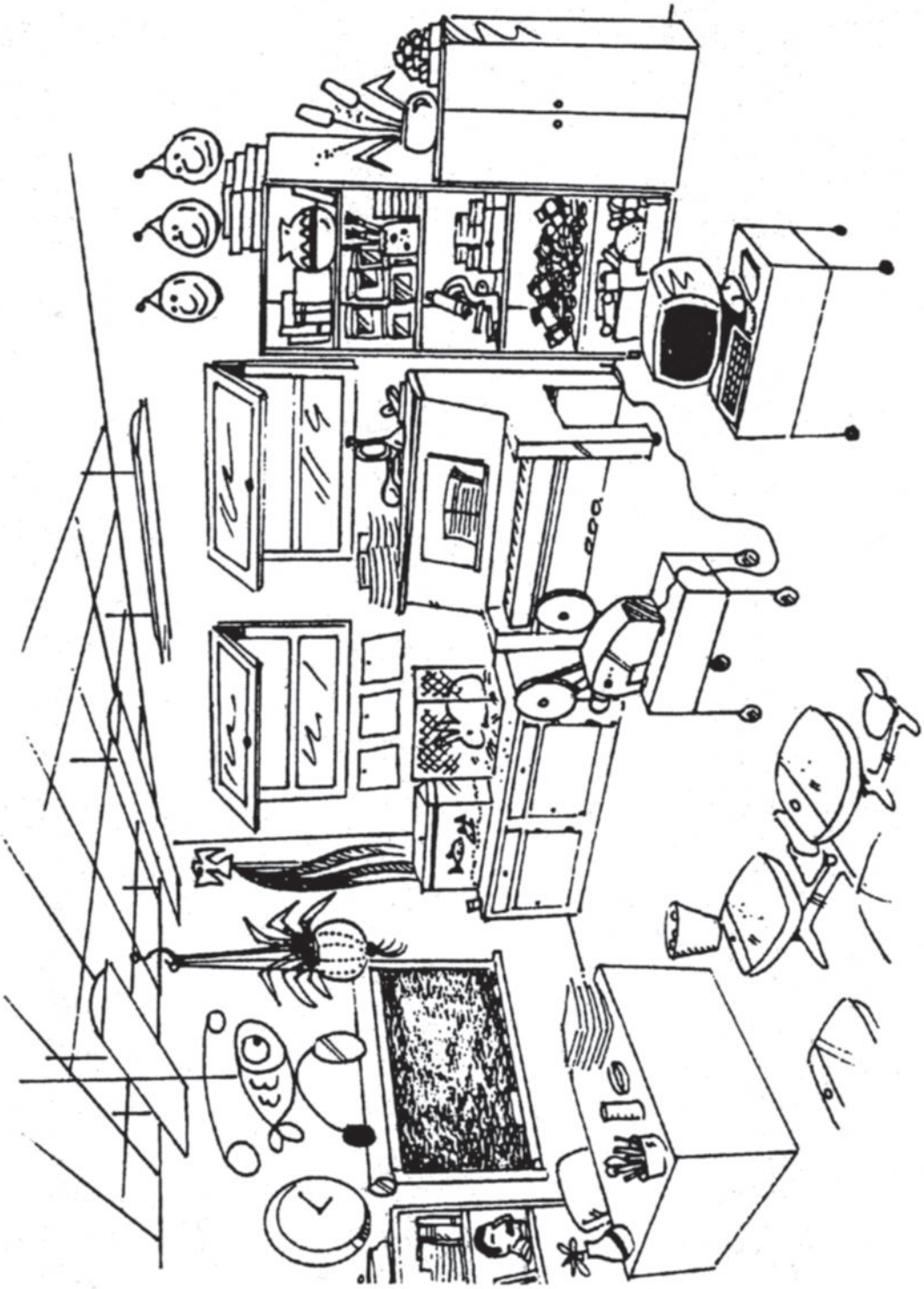
Earthquake Feelings

Name: _____

Some of the letters beow contain stars. Color the letters with the stars to see how some people might feel after an earthquake.

Fourth Grade Classroom

Name: _____



Classroom Hazard Hunt

- ❑ Are free-standing cabinets, bookcases, and wall shelves secured to a structural support?
- ❑ Are heavy objects removed from shelves above the heads of seated students?
- ❑ Are aquariums and other potentially hazardous displays located away from seating areas?
- ❑ Is the TV monitor securely fastened to a stable platform or securely attached to a rolling cart with lockable wheels?
- ❑ Is the classroom piano secured against rolling during an earthquake?
- ❑ Are wall mountings secured to prevent them from swinging free or breaking windows during an earthquake?
- ❑ Are hanging plants all in lightweight, unbreakable pots and fastened to closed hooks?

Home Hazard Hunt Worksheets

Name: _____

☐ 1. china cabinet

☐ 2. tall knick-knack shelves

☐ 3. bookshelves

☐ 4. tall, heavy table lamp

☐ 5. hanging plant

☐ 6. mirror on wall

☐ 7. heavy objects on wall shelves

☐ 8. window air conditioner

Name: _____

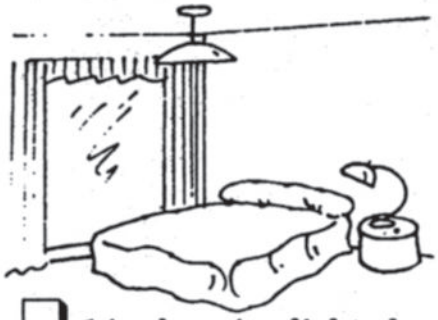
☐ **9.** hanging lamp or chandelier

☐ **10.** unsecured TV or cart with wheels

☐ **11.** bed by big window

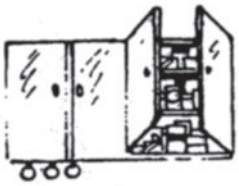
☐ **12.** heavy objects on shelves above bed

☐ **13.** heavy picture above bed



☐ **14.** hanging light above bed

☐ **15.** cabinet doors not fastened



☐ **16.** medicine cabinet doors not fastened

Name: _____

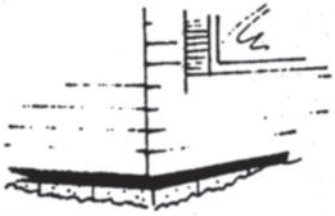
☐ **17.** fireplace bricks

☐ **18.** unattached water heater

☐ **19.** chimney

☐ **20.** gas stove with rigid feed line

☐ **21.** heavy wall clock



☐ **22.** house not bolted to foundation

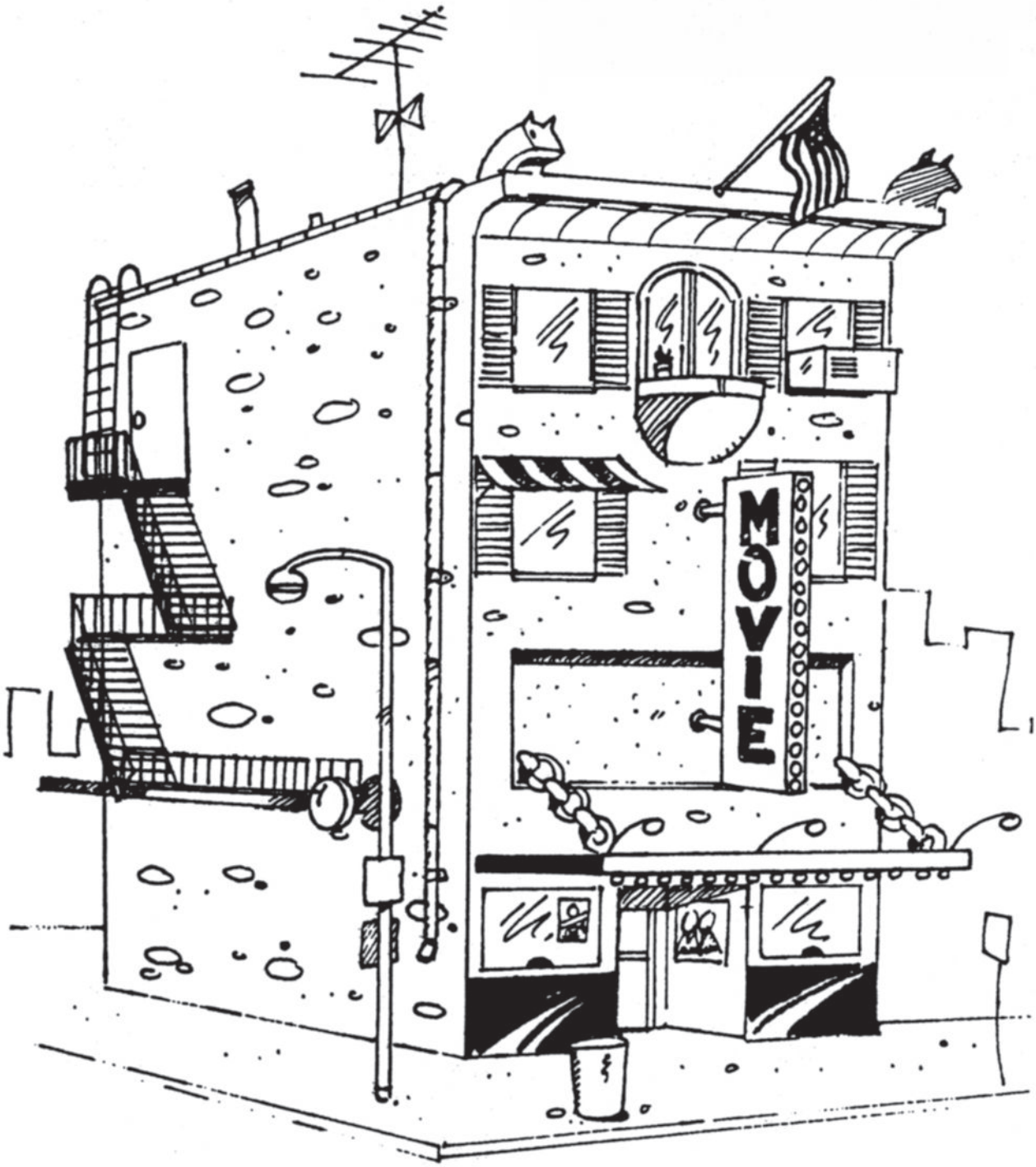
Quake-Safe Home Checklist

Name _____

- ❑ 1. Place beds so that they are not next to large windows .
- ❑ 2. Place beds so that they are not right below hanging lights.
- ❑ 3. Place beds so that they are not right below heavy mirrors.
- ❑ 4. Place beds so that they are not right below framed pictures.
- ❑ 5. Place beds so that they are not right below shelves with lots of things that can fall.
- ❑ 6. Replace heavy lamps on bed tables with light, nonbreakable lamps.
- ❑ 7. Change hanging plants from heavy pots into lighter pots.
- ❑ 8. Use closed hoods on hanging plants, lamps, etc.
- ❑ 9. Make sure hooks (hanging plants, lamps, etc.) are attached to studs.
- ❑ 10. Remove all heavy objects from high shelves.
- ❑ 11. Remove all breakable things from high shelves.
- ❑ 12. Replace latches such as magnetic touch latches on cabinets with latches that will hold during an earthquake.
- ❑ 13. Take glass bottles out of medicine cabinets and put on lower shelves. (PARENTS NOTE: If there are small children around, make sure you use childproof latches when you move things to lower shelves.)
- ❑ 14. Remove glass containers that are around the bathtub.
- ❑ 15. Move materials that can easily catch fire so they are not close to heat sources.
- ❑ 16. Attach water heater to the studs of the nearest wall.
- ❑ 17. Move heavy objects away from exit routes in your house.
- ❑ 18. Block wheeled objects so they can not roll.
- ❑ 19. Attach tall heavy furniture such as bookshelves to studs in walls.
- ❑ 20. Use flexible connectors where gas lines meet appliances such as stoves, water heaters, and dryers.
- ❑ 21. Attach heavy appliances such as refrigerators to studs in walls.
- ❑ 22. Nail plywood to ceiling joists to protect people from chimney bricks that could fall through the ceiling.
- ❑ 23. Make sure heavy mirrors are well fastened to walls.
- ❑ 24. Make sure heavy pictures are well fastened to walls.
- ❑ 25. Make sure air conditioners are well braced.
- ❑ 26. Make sure all roof tiles are secure.
- ❑ 27. Brace outside chimney.
- ❑ 28. Bolt house to the foundation.
- ❑ 29. Remove dead or diseased tree limbs that could fall on the house.

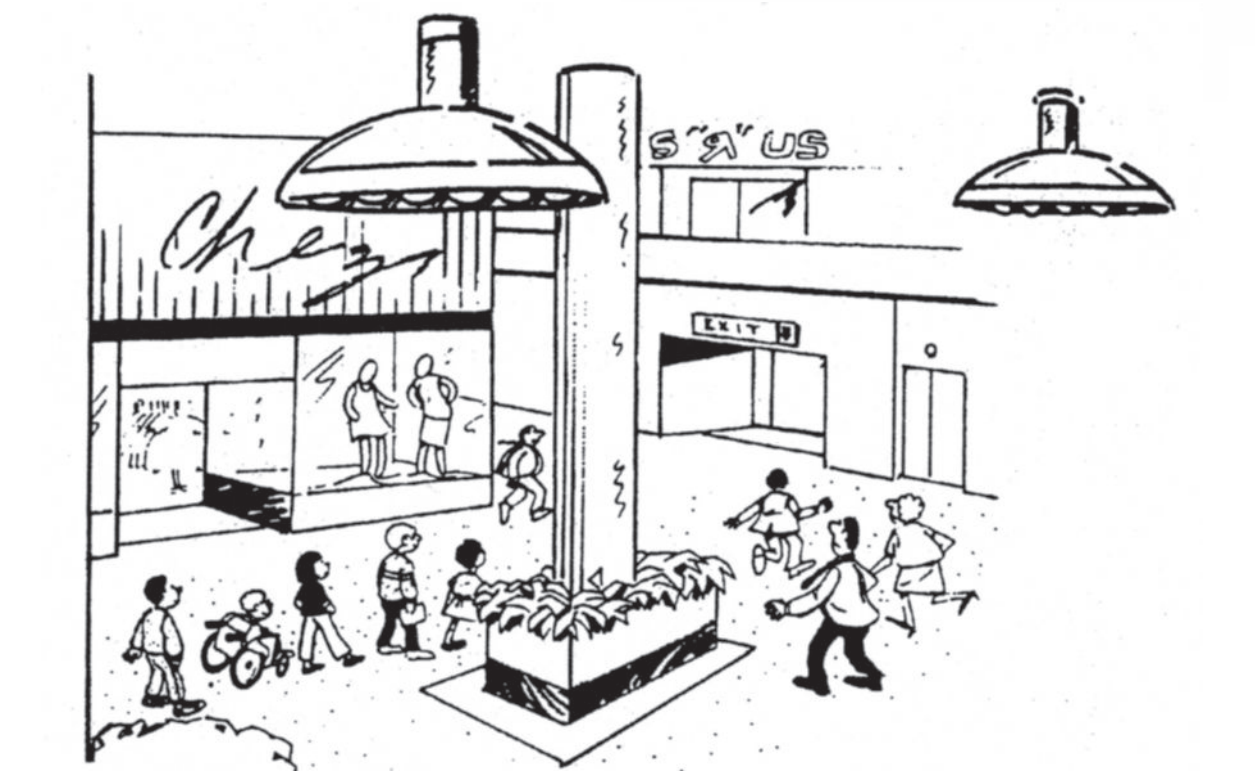
Neighborhood Hazard Hunt

Name: _____



Safety Rules for Shoppers

Name: _____



If an earthquake occurs while you are shopping:

1. Do not rush for exits or doors. Injuries occur when people panic and try to leave all at the same time.
2. Move away from windows.
3. Do not use elevators. The electricity may shut off suddenly.
4. Move away from shelves that may topple or could spill their contents when they fall.
5. Try to move against an inside wall.
6. Drop, Cover, and Hold: Get under a table, counter, or bench. Turn away from the windows. Put both hands on the back of your neck. Tuck your head down. If your shelter moves, hold onto the legs and travel with it.
7. After the shaking has stopped, calmly walk out of the building to a safe area outside, away from buildings.

Drill and Evacuation Checklist

- ❑ 1. Did everyone know what to do when told to Drop, Cover, and Hold.
- ❑ 2. Did everyone follow the procedure correctly?
- ❑ 3. In the classroom, the library, or the cafeteria, was there enough space for all the students under desks, tables, or counters?
- ❑ 4. In the gym or in the hallways, were students able to take shelter away from windows, light fixtures, trophy cases, and other hazards?
- ❑ 5. Do students know how to protect themselves if they are on the playground during an earthquake? If they are in a school bus or a car?
- ❑ 6. Did everyone remain quietly in their safe positions for at least 60 seconds
- ❑ 7. Did students with special needs participate in the drill and evacuation?
- ❑ 8. Did we remember to take our emergency kit and class roster when we evacuated the classroom?
- ❑ 9. Did everyone go to the safe outdoor area in an orderly way?
- ❑ 10. If we had to change our evacuation route to get to the safe area, did we make wise decisions?

Home Earthquake Safety Checklist

1. As a family, determine the safest spots in each room of your home: under heavy pieces of furniture such as sturdy tables or desks, and in inside corners.

2. Determine the danger spots in each room. These include any place near: windows, bookcases, large mirrors, china cabinets, hanging objects, stoves, or fireplaces.
   - If you're cooking, remember to turn off the stove before taking cover.

3. Discuss, then practice what to do if an earthquake happens while you're at home. (Children who have practiced safety procedures are more likely to stay calm during an actual earthquake.) Drop, Cover, and Hold:
   - Crouch in a safe place (see 1. above).
   - Hold on to the table or desk leg so that the table or desk stays on top of you.
   - Tuck your head and close your eyes.
   - Stay covered until the shaking has stopped.

4. Determine an emergency evacuation plan for each room of your home.
   - Keep a flashlight with fresh batteries beside each bed, and shoes to protect feet from glass and other sharp objects.

5. Agree on a safe gathering place outside the house where all family members will meet after an earthquake.

6. Discuss as a family what needs to be done after an earthquake ends.

Reminders:
- Stay calm.
- Be prepared for aftershocks. These may be strong. Take cover if shaking begins again.

Parents Only:
- Check for injuries. Apply first-aid as needed.
- Check for fires.
- Shut off electricity at main power if you suspect damage. Don't turn switches on or off.
- Shut off gas valves if-there is any chance of a gas leak. Detect gas by smell, never by using matches or candles.
- Shut off water inside and out if breakage has occurred.