"Documento original en mal estado"

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Shake 'em up

By Dr. Raymond Sullivan

The author, who lives in California, shows how natural hazards such as earthquakes may be used to teach your students a variety of subjects

Natural hazards, such as earthquakes, are an exciting subject for children of all ages. Children are fascinated by that mystical force from inside the earth that can cause such widespread destruction. Movies and television have used this theme with mixed success. We in teaching can also take advantage of this natural interest in natural hazards to teach traditional subjects in a more lively fashion.

We at S.F. University have worked closely with teachers in developing an interdisciplinary course using earthquakes as a unifying theme. Because earthquakes are part of our everyday life here in California, this is a natural tie-in for us. We have found that in teaching about earthquakes, many other subject areas are touched upon including science, reading, language arts, drama and even mathematics. Our earthquake interdisciplinary program makes a[illegible] academic unit that can be modified to meet the varying achievement and dexterity levels of all children within a classroom.

Granted the subject of earthquakes may not seem too terribly relevant to teachers on the east coast. But while it is true that most earthquakes occur in the western United States, it is also important to realize that other parts of the U.S. are affected by other natural hazards such as tornadoes and hurricanes. These hazards can also serve as the basis for an interesting curriculum.

My space here does not permit a detailed lesson plan of the earthquake program, but the selected topics given will serve to illustrate the interdisciplinary nature of the curriculum.

Science. If the children are exposed to earthquakes at all in the elementary grades, it is probabl

The author is Professor of Geology in the Department of Geosciences at San Francisco State University

as part of a required emergency, tornado or fire drill in the curriculum, earthquakes are usually covered as part of a geology unit which may also include lessons on minerals, rocks, fossils, volcanoes and the earth's interior structure. A similar approach is used in our program as a basic introduction to earthquakes. The lesson includes a simple explanation of the nature of earthquakes, what causes them, where they occur, what may happen, what to do during a major tremor and the ways in which earthquakes may be predicted.

We extend the lesson, wherever possible, into other areas of science. For example, after discussing the energy released by earthquakes, we digress to the study of other forms of energy: heat, sound, electricity and magnetism.

When discussing the ways in which earthquakes can be predicted, we include some exciting examples of strange animal behaviors that occur preceding an earthquake.

Hazard Hunt. It's easy to extend an earthquake program beyond its traditional science component. Organize a hazard hunt in the classroom (it can later be extended to other parts of the school such as the playground and then finally to the home). The teacher makes a list of the possible dangers in the classroom, for example, a desk too close to one facing the windows, or heavy objects stored on shelves. Hazards on the playground include overhead electrical wires and overhanging tree branches.

Discuss and organize with the children ways of safeguarding their school. Take time to talk about planning for the possibility of a major earthquake. You should know that a school is often a good place to be in an earthquake (many schools are designed to be earthquake-proof). At school, families will know where to find their children and help from many sources will be readily available at this site. Children will stay under the supervision of their teachers until released to their families or until assigned to a new place for safekeeping.

Reading, Prediction, Cause and Effect

Children have lots of fun with quake questions and quizzes. Read the following example of a quake quiz and then make up a similar scenario for your students using new or familiar vocabulary. Make lists of the things the teacher or students did that were wrong. List the things that should have been done instead.

> Stan Andreas was busy teaching his first grade class when suddenly an earthquake shook the building. Stan Andreas screamed for everyone to run to the doorway of the classroom. The lights went out in the school and Stan lit one of the candles that he and the children had made in class the previous day. Stan ordered the children to run outside and to meet him by the telephone pole near the cafeteria. As the children ran, little Betty Strain lost one of her shoes and Stan grabbed her hand to help her run down the hallway. Stan saw that most of the children were standing waiting near the cafeteria. He waved to the children and then went to look for the principal to find out what to do next.

Of course, Stan Andreas did many things wrong during the earthquake. First of all, the teacher panicked and screamed at the children. Panic is the worst danger of all in an earthquake. Next, the teacher ordered the class to run and occupy the doorway. Only a few children can stand in the doorway and, moreover, the doorway is not always the safest place to be in an emergency situation—the door can slam suddenly.

The teacher should have told the children to get under their desks and to protect their heads as much as possible. Lighting a candle with a match can result in an explosion and fire in the school or home if gas lines are damaged. Keep a flashlight close at hand for a light source.

The teacher probably made a mistake by making little Betty Strain continue running after she had lost her shoe. Her bare foot could have been badly cut by glass and other debris.

It is important to remember that if an earthquake strikes while you are in bed to put your shoes on before investigating the damage. You'll never be able to function with injured feet. The teacher should not have told the children to leave the building; it is usually safer to remain inside. The teacher should remain with the children at all times and a roll call must be taken to see that everyone is present. Only after instructions are received from the authorities, the children are in the teachers care. Finally, the teacher made a poor choice in selecting the playground, near buildings and electrical wires, as a meeting place.

Counting, Reading, Creative Writing

At the University we have developed a wide variety of earthquake games, word puzzles and other activities for the classroom. The games should be made from inexpensive materials that do not require a great deal of preparation. In fact, many of our ideas originated from games that are already popular with children. An example is our game "Shakes and Hazards" based on "Chutes

and Ladders" and which has a similar layout and rules.

The squares on our board represent the blocks of a town or city and the chutes and ladders become streets cutting across the town. The players in the game are on the way home from school when a major earthquake strikes the town. They move through the town with a roll of the dice having good and bad adventures that are illustrated on the board. The good things move them up the road toward home, for example, they may meet their teacher, a policeman, or discover a civil defense shelter. At other points along the way the children have unfortunate things happen to them and they move back down the board away from home. They may find the road is blocked by debris, flooding or fire, they may lose their way, or an aftershock may hinder their progress. The children can be asked to write experience stories about their earthquake adventure.

Earthquake Bingo is another game that can be played using regular bingo or teacher-made materials. Three sets of cards are needed to play this game: a set of 3x5 yellow casualty cards; a set of 3x5 blue safety cards; and a set of 100 earthquake question cards, numbered one to 100. The questions may be general and one question or several questions may be repeated in making up the 100 cards. Use specific questions as well, and use these only once.

Specific questions might be: "What is the name of the instrument that records earthquakes?" (seismograph); "What is the name of the crack in the earth that moves during a tremor?" (fault); "Why should you not stand in the doorway during a quake?"; "Name the famous fault that caused the San Francisco earthquake in 1906."

Questions such as, "Where is the safest place in the classroom during a tremor", "What dangers are there in the playground in an earthquake," "What help can you give to a teacher during and after a tremor?" may be used repeatedly.

After the numbered bingo cards and markers are passed out, the teacher selects and calls out a bingo number. Each player quickly checks their board to see if they have the number. The first player to raise their hand is asked the corresponding numbered earthquake question. If the player has made a mistake and actually does not have the number called on their board, they receive a yellow casualty card (two yellow cards and a player is out of the game as an "earthquake casualty") Players also get a yellow casualty card if they fail to, or cannot answer the question. A player may not use an answer already given by another player to the same question.

When the question is not answered, another player with the same number is then selected at random and attempts to answer the question. When a correct answer is given, the player receives a blue safety card. A blue safety card may be turned in at any time to cancel out a yellow penalty card. A player must hold at least one safety card in order to be declared the winner.

Following the calling of each number, it is the responsibility of all players in the game to locate and cover with markers the corresponding number square on their card, if it is present; they must do this even if they did not have a chance to answer the question that went with the number called. The first player with a correct and complete board wins the game by raising his/her safety card and crying out "Earthquake!"

You may want to use some of the questions from this game to spark some creative writing in this area. Ask children to make up a rhyme about earthquakes.

Tremor Tales. There are many stories, fact and fiction, associated with earthquakes (such as dragons and sea monsters inside the earth causing tremors). In studying earthquakes you can have your students create their own and wilder stories. Here's one of my favorite earthquake stories about the cow that died during the 1906 San Francisco earthquake.

People in California are still talking about what happened to Farmer Shafter's cow during the Great Earthquake. The cow in question lived on a farm along the San Andreas Fault in Marin County, north of San Francisco. The nameless cow died early in the morning, a victim of the earthquake. No one would have been too concerned about the cow except perhaps the farmer, but it was reported that the earth opened and swallowed up the animal. Farmer Shafter told the story to the reporters from the city who came to see the damage from the earthquake. Some of the neighbors became worried about the rumor because, if it could happen to a large cow, then the same sort of event could also bring about their downfall. Soon after the fateful morning, young Mary Jackson wrote a letter to her friend, Mrs. Benton, and described the disappearance of the cow into the ground. She described how only the end of the cow's tail could be seen to show where it had departed this earth.

Many years later Farmer Shafter is said to have admitted that he played a joke on

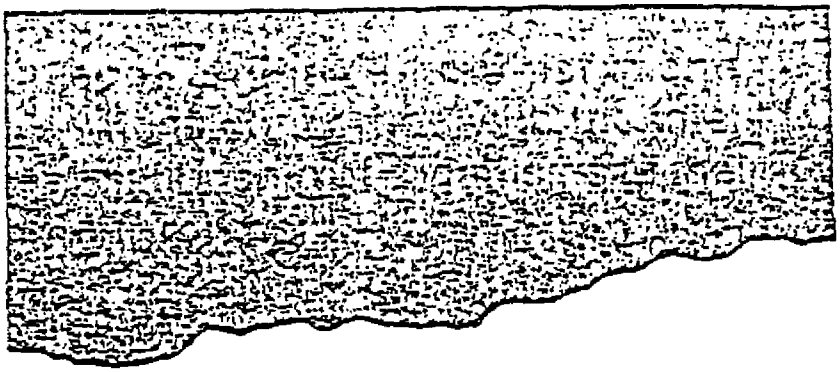
the big city reporters. The cow had died that morning during the earthquake and had then been thrown into the convenient fissure that marked the trace of the earthquake fault. They buried the cow leaving the tail uncovered. The story seemed to make a good earthquake "tale" and it must have cracked up the local farmers.

Dramatics. Playacting and the use of puppets have been commonly used by our participating teachers as a culminating activity in their earthquake awareness programs. Your students can write, produce and perform their plays or puppet shows. The puppets are used in role-playing skits and allow children to ask questions or discuss their fears regarding earthquakes.

Now you are ready to plan your own earthquake unit with your children. It is important to present these earthquake-related topics in such a way as not to excessively alarm the children. The teachers should alter to make the children feel that they all have a role to play in a major tremor. We encourage the teacher to discuss this role with the children and formulate an earthquake plan for their classroom and the children's homes. The children should have a sound base of knowledge and experience of earthquakes to avoid becoming innocent victims of panic and fear.

The children need to learn that our solid, safe earth is capable of periodic shaking that can cause severe damage. The earthquake unit you design should help them overcome some of their fears of earthquakes. They will also better understand what is happening and what to expect in a major tremor.

Shake up your curriculum—earthquakes can do it. ↓



By Lucy Larzelere

Many of you are "into plants"—spider plants, African violets, grape ivy, Boston fern, wax begonias and other varieties. You know that each one requires special care and attention in order to thrive and grow. You've learned that not all plants are alike in the way in which they relate to their environment.

Spider plants need a warm, dry atmosphere with more than average water—but they've been known to grow in only filtered sun or full sun and little water. African violets like temperatures above 70° and do best if watered with lukewarm water from the bottom—the soil should dry between waterings. Grape ivy, on the other hand, is extremely adaptable. It thrives in heat or in coolness and in any location. Boston ferns require perfect drainage, daily soakings, mist spraying one or more times a day, high humidity and annual repotting. Wax begonias love to be watered and have a habit of sprawling and becoming leggy, so they should be pruned to keep full and bushy and the pot should be turned occasionally to maintain symmetrical growth.

All within the same room, you try to provide the best growing environment for each variety—varying the sunlight, water and warmth.

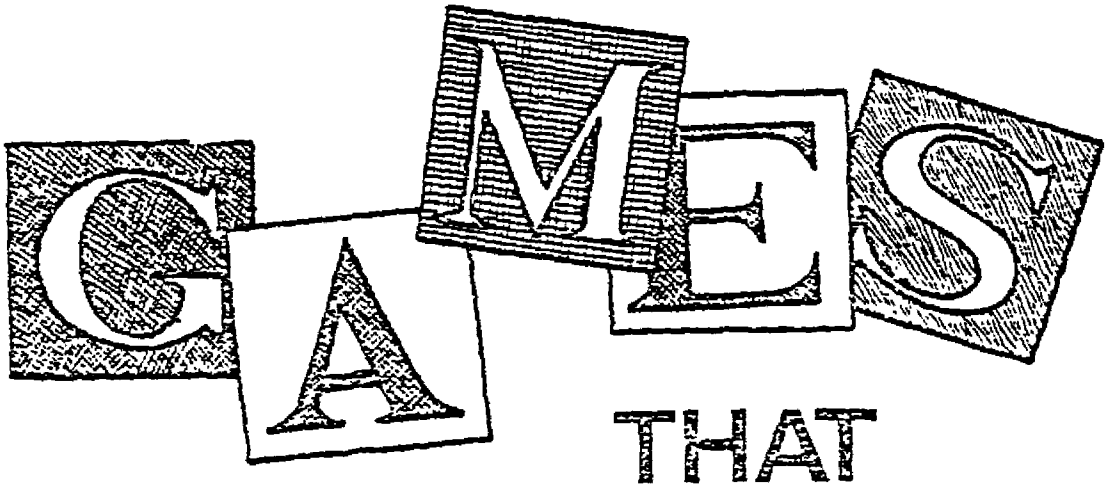
So it must be for children. You will need to modify your single learning environment so as to permit maximum individual growth. This is especially true for handicapped children. Their basic needs are the same as for all children, but they may require more adaptions and remodeling of the existing environment in order to thrive. A learner fails because the ecology of the classroom is disrupted. The teacher as ecologist manipulates the educational environment to insure the self-fulfillment of each child.

The plant grower relocates plants if they aren't doing well, tries watering from the bottom instead of the top, pinches off ends, fertilizes more, re-pots, or mists some plants and not others depending upon the response of the plant. Each variety of plant is viewed as being different in its ecological requirements.

We can be equally responsive to the differences among children. Individualize more, be more flexible, be ready to change, recognize that the learner may be failing, not because of his or her disabilities but because of our inability to create a suitable balanced ecology in which he or she can learn.

Viewing teachers as ecologists in the classroom is challenging and exciting. Think of yourself as an environmental manager and use this power to maintain a warm, positive, nurturing environment wherein each child is viewed as having needs unique unto himself ↓

Ms. Larzelere is with the Special Education Division of the Kalamazoo Valley Intermediate School District, Kalamazoo, Mi.



Classroom Activities on Individual and Community

Disaster Preparedness

for

Elementary and Secondary Schools

MP-59, Oct. 1971

GUIDE SHEET

Name: Evacuation.

Suggested Grades: Grades 5-12.

Learning Objectives: To make value judgments concerning possessions in an emergency situation; to establish priorities.

Time Required: 15 minutes to an hour.

Number of Players: This exercise can be used by groups (competing teams) or as individual exercises.

Materials Required: A mimeographed game sheet.

Methodology: This game can be tailored to local disaster situations. Individual students, or teams of students, are given the exercise sheet and told to write the 15 most important items. There are 24 elements and teachers may choose to add other items or delete from the list as they see fit.

Students should further be instructed to be prepared to defend their rationale for ranking items. No "correct answer" is provided for this exercise; however, guidance on the subject of emergency supplies is provided in a number of Civil Defense publications (see bibliography for list of publications).

EVACUATION

This game may be used as an individual learning experience or as a game with a group of students.

The game leader should define the disaster and describe the family. The type of disaster can be that most common to the particular area. To stimulate thinking, the family should include a baby and a pet dog or cat. To use with a large group:

1. have teams compete
2. each team works together to rank items
3. captain of team records answers
4. share answers at end of session
5. total points received
6. group with greatest number of points wins game.

Scoring:

Review all ranking sheets.

For any item that appears on another team's sheet at same rank—1 point is given. If there are several teams, points are given for every item that appears in same rank on more than one team sheet. A point is given for each time an article appears more than once in same rank. For example, if there are four teams playing the game and "flashlight" appears as number 4 on three of the lists, each team that listed it as fourth receives three points and any other ranking of the word receives no points.

EVACUATION

A Hurricane/Tornado/Blizzard/Flood warning has been announced. Local government has determined that your community/neighborhood must be evacuated. You and your family have just arrived home, and you have 15 minutes to get those things you need and to report to the shelter which has been set up in a local school. Listed below are some things you might think about taking with you to the shelter. Please rank the 15 most important in the order of their importance: 1 for most important, 2 for the second most important, and so on through 15, the least important.

Special medicines
Diet food (low calorie food)
Important family documents & jewelry
Family pets
Diapers for the baby
Transistor radio
Baby food
Change of clothing
Toothbrushes
Coats—protective clothing
Portable TV set
Pet food
Blankets
Soap, wash cloths & towels
Games and books
First Aid kit
Electric razor
Flashlight
Hair curlers
Disinfectant spray
Cosmetics
Tool kit
Cooking utensils
Camp stove

GUIDE SHEET

Name: CD Baseball Bee (CD for Civil Defense)

Suggested Grades: Grades 4-6.

Learning Objectives: To encourage interest in Civil Defense. To reinforce learning of Civil Defense content.

Time Required: Approximately one hour.

Number of Players: Total class.

Materials Required: Paper and pencil. Score board (blackboard and chalk).

Methodology: Complete directions are given with the game explanation. This game is suggested as a follow-up activity to evaluate understanding of subject matter.

CD BASEBALL BEE

Students each write 3 questions on three separate pieces of paper dealing with CD, safety, emergency communications or disasters.

Teacher collects questions and puts them in a box.

Students are divided into two teams.

Classroom is sectioned off as a baseball diamond (this can be done around the desks so that furniture will not have to be moved).

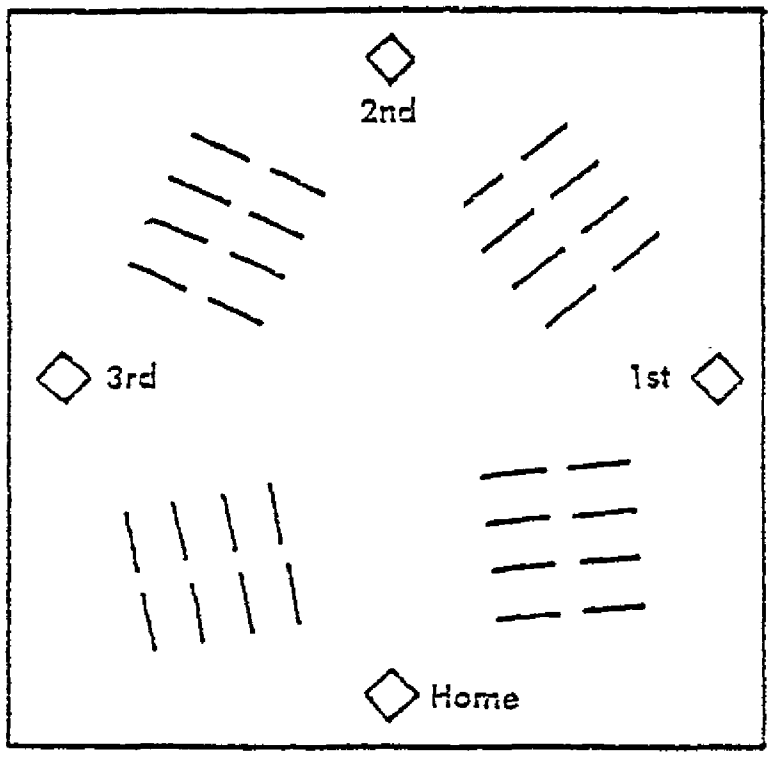
Students on team #1 line up to "bat" their answer to questions.

"Pitcher" chooses a question from box and person guarding "home plate" reads question to student up to "bat".

If student answers correctly he proceeds to first base and player #2 goes to bat. If player #2 answers next question he goes to first base and player #1 goes to second base, etc.

When the team misses three questions the next team is up to bat.

The team with the most "run" wins.



DISASTER PREPAREDNESS

An

Elementary

Curriculum Guide

Division of Program Development
Bureau of Instruction
Kentucky Department of Education
Frankfort, Kentucky 40601
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