Earthquake Education Materials for Grades K-12

by

K.E.K. Ross

Technical Report NCEER-90-0003
April 16, 1990

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EARTHQUAKE EDUCATION MATERIALS
FOR GRADES K-12

by

Kathryn E.K. Ross

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NSF Master Contract Number ECE 86-07591

1 Education Specialist, National Center for Earthquake Engineering Research

NATIONAL CENTER FOR EARTHQUAKE ENGINEERING RESEARCH
State University of New York at Buffalo
Red Jacket Quadrangle, Buffalo, NY 14261
ABSTRACT

Resources for teachers and administrators desiring to start an earthquake education program or teach a more detailed lesson on earthquakes, volcanoes, tsunamis, and plate tectonics are presented in this text. Curricula, software, and supplemental informational material lists are provided with bibliographies of related books and articles for grades K-9 and parents and teachers. Bibliographic citations include reading levels and length of books whenever possible.
ACKNOWLEDGEMENT

I wish to thank Pat Kraemer, Laurie McGinn, and Roseanne Wawrzyniak for all their assistance in the preparation of this publication.
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Section 1
Introduction
On May 26, 1988, the National Center for Earthquake Engineering Research initiated an earthquake education project whose focus was on earthquake awareness and safety education in school programs for grades K-12. Initial goals of this program were to determine what has been done elsewhere in the field, develop a package of materials with an appropriate amount of detail for students at varying intellectual and interest levels, and test those materials in an elementary level program.

For the first six months of this program, the primary emphasis was to survey state education departments, individual school districts, and schools in the United States and the Territories to see who was offering earthquake education. Information about earthquake education programs was collected from other sources as well: Federal Emergency Management Agency; other preparedness organizations; Earthquake Information Centers; college and university faculty that have written articles about earth science and/or earthquake education programs or that have advised other programs; U.S. Geological Survey; Red Cross; and the Krause Guide.

In addition to discerning whether a state or particular school was offering earthquake education, surveyed programs were also asked the following: whether FEMA’s Guidebook for Developing a School Earthquake Safety Program (December, 1985) was being used, what natural hazards curricula was being implemented, and if there was a school or classroom with a model natural hazards program. In the absence of a natural hazards curriculum, educational programs were queried about their disaster plans to see if earthquakes were included.

A secondary focus of the survey was to contact countries outside of the United States to learn about earthquake education programs in their school systems.

Throughout the time of the survey, copies of and information about earthquake education curricula, related software, and supplemental informational materials and books were collected and compiled.

As work progressed, it became clear that there was great interest in this work. Some individuals started sending examples of what they were doing. Others asked for assistance in starting an earthquake education program or if they could work with the National Center for Earthquake Engineering Research. Still others asked to be kept informed as to what responses were received from the survey and what curricular materials were available.

There has been a great response to both our introductory bibliography (Technical Report NCEER-89-0010) and subsequent revisions. This current publication is updated with additions received after previous revisions were printed. It is arranged to provide teachers and administrators with materials and background information in order to teach lessons about earthquakes, volcanoes, tsunamis, or plate tectonics, and to provide help for establishing an earthquake awareness and safety education program in the schools. It is not meant to be an all
inclusive listing, nor is inclusion in this document meant as an endorsement of the materials.

In order to meet the needs of our children in this important area, it is imperative that those who are interested be provided with information about background support materials and curricula so that valuable time and resources are not spent redesigning what is already available. Time can then be devoted to regionalizing existing materials, deciding what concepts are most crucial to teach at each age, and designing materials for those groups of students that are currently not being reached. It is hoped that this document continues to fulfill this purpose.
Section 2
Bibliographies

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2-6


Thomas, Mrs. L., Jr. (1964). Night of terror. National Geographic, 126, 142-156.


2.2 Selected References to Help with Teaching/Writing Curriculum


2.3 Selected Articles for Grades K-3

The Children's Magazine Guide was used as a reference for age levels in the following bibliography.


Ring around the volcano. (1986, May). 3-2-1 Contact, pp. 2-3. For ages 8-14.


2.4 Selected Books for Grades K-3

The following references were used to obtain reading and interest levels in this bibliography: 


*Book available at NCEER.*
2.5 Selected Articles for Grades 4-6

The *Children’s Magazine Guide* was used as a reference for age levels in the following bibliography.


Try this experiment with Dr. Zed: Make a volcano erupt! **Chickadee**, pp. 22-23. For ages 4-8.


2.6 Selected Books for Grades 4-6


Creative (Eds.). (1971). *Forces of nature.* Mankato, MN: Creative Education Society. For grades 1-6. (37pp.)


Heintze, C. (1968). The circle of fire; the great chain of volcanoes and earth faults. New York: Meredith. For grades 6 and up. (161pp.)


* Book available at NCEER.

** Book translated into braille and available from the National Library Service for the Blind and Physically Handicapped, The Library of Congress.

*** Book available on cassette (RC 19586) and available from the National Library Service for the Blind and Physically Handicapped, The Library of Congress.
2.7 Selected Articles for Grades 7-9

*The Children’s Magazine Guide* was used as a reference for age levels in the following bibliography.


Ring around the volcano. (1986, May). 3-2-1 Contact, pp. 2-3. For ages 8-14.


2.8 Selected Books for Grades 7-9


Heintze, C. (1968). *The circle of fire; the great chain of volcanoes and earth faults*. New York: Meredith. For grades 6 and up. (161pp.)


Scariano. Earthquake! (Part of High Adventure series; high interest/easy reading - fiction.) Reading level: 3.0, interest level: grades 7-10.


San Francisco, CA: Chronicle. (304pp.)

* Book available at NCEER.

**Book available in braille (BRB 10970) from the National Library Service for the Blind and Physically Handicapped, The Library of Congress.
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3.1 Elementary Science Curricula

<table>
<thead>
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<th>Authors</th>
<th>Copy Right</th>
<th>Grade Level</th>
<th>Unit or Chapter</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBJ Science</td>
<td>Elizabeth K. Cooper Paul E. Blackwood John A. Boeschen Morsley E. Giddings Arthur A. Carin</td>
<td>1985</td>
<td>5</td>
<td>Unit 6 - The Earth's Rocks</td>
<td>Includes a list of books for students, rated according to difficulty; vocabulary; list of related films, filmstrips and software; ideas for teaching exceptional students; projects to make i.e. mid-ocean ridges. Includes pupil editions, teacher's editions, teacher resource books (reproducible masters), activity books, poster packets, super scientist critter stickers, science kits.</td>
</tr>
<tr>
<td>Harcourt Brace</td>
<td></td>
<td></td>
<td></td>
<td>Unit 7 - The Earth's Oceans</td>
<td>Unit 6 includes: &quot;Rocks that Form in Fire&quot; (volcanoes, Mt. St. Helens eruption) and &quot;How Mountains Form&quot; (folds, faults and mountains making islands).</td>
</tr>
<tr>
<td>Jovanovich, Publishers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unit 7 includes: Lesson 5 - &quot;The Changing Ocean Floor&quot; (plates, earthquakes, movement of continents, seismographs). Has bulletin board suggestions, list of resources, vocabulary activities, workbook activities, copying master worksheets.</td>
</tr>
<tr>
<td>Orlando, Florida</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heath Science</td>
<td>James P. Barufaldi Georga T. Ladd Alice Johnson Moses</td>
<td>1988, 1984, 1981</td>
<td>5</td>
<td>Unit III - Exploring the Earth, Chapter 5, &quot;The Changing Earth&quot;</td>
<td>Includes: &quot;Inside the Earth,&quot; &quot;Earthquakes,&quot; &quot;Volcanoes,&quot; &quot;The Drifting Continents,&quot; &quot;The Ocean Floor Splits Apart,&quot; &quot;A New Theory&quot; (plate tectonics), and a brief biography of Charles Richter. Also has activities to do to demonstrate different aspects of the material, i.e. a way to show how magma can flow under the earth's crust, a make-your-own seismograph, etc.</td>
</tr>
<tr>
<td>D.C. Heath and Company</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Has reference to energy from volcanoes (p.206).</td>
</tr>
<tr>
<td>Lexington, MA</td>
<td></td>
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</table>
### 3.1 Elementary Science Curricula (Continued)

<table>
<thead>
<tr>
<th>Science Series</th>
<th>Authors</th>
<th>Copyright</th>
<th>Grade</th>
<th>Unit or Chapter</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holt Science</td>
<td>Joseph Abruscato</td>
<td>1986</td>
<td>6</td>
<td>Unit 2:</td>
<td>Chapter 4 - &quot;How Rocks Are Formed&quot; (earthquakes, volcanoes, the rock cycle)</td>
</tr>
<tr>
<td>Holt, Rinehart, and Winston,</td>
<td>Joan Wade Fossaceca</td>
<td>1984</td>
<td></td>
<td>The Changing</td>
<td>Chapter 5 - &quot;Studying the Earth's Crust&quot; (earthquakes, faults, folds)</td>
</tr>
<tr>
<td>Publishers</td>
<td>Jack Hassard</td>
<td></td>
<td></td>
<td>Earth</td>
<td>Chapter 6 - &quot;Earth History&quot; (continental drift)</td>
</tr>
<tr>
<td>New York</td>
<td>Donald Peck</td>
<td></td>
<td></td>
<td></td>
<td>Includes: student texts, teacher editions, worksheet masters, enrichment suggestions, exceptional student IEP chapter goals, and lists of related books, films/videos, filmstrips/sound cassettes, and computer software.</td>
</tr>
<tr>
<td>Journeys in Science</td>
<td>James Shymansky</td>
<td>1988</td>
<td>6</td>
<td>Unit 3 - The</td>
<td>Includes: Chapter 6 - &quot;Building Blocks of the Earth,&quot; Chapter 7 - &quot;Formation of Rocks,&quot; and Chapter 8 - &quot;Movement of the Earth's Crust.&quot;</td>
</tr>
<tr>
<td>Laidlaw Educational Publishers</td>
<td>Nancy Romance</td>
<td></td>
<td></td>
<td>Earth's Crust</td>
<td>Chapter 8 includes earthquakes and volcanoes. Grade 6 includes pupil text, teacher edition, workbook, spirit-duplicating masters, posters, overhead transparencies, computer coursework, and science kit.</td>
</tr>
<tr>
<td>River Forest, Illinois</td>
<td>Larry Yore</td>
<td></td>
<td></td>
<td></td>
<td>In Chapter 8, Health and Safety worksheet #21 - &quot;What To Do During an Earthquake&quot; has as an objective: &quot;Apply science to daily life by recognizing the health and safety issues related to earthquakes.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td>Has section on &quot;Earth's Crust Under the Ocean;&quot; no mention of earthquakes.</td>
</tr>
<tr>
<td>Science and Technology On</td>
<td>Textbook: Paul F. Brandwein</td>
<td>1985</td>
<td>4</td>
<td>Unit 1 - The</td>
<td>Chapter 1 includes information about the inside of the earth, waves in the earth, heat in the earth.</td>
</tr>
<tr>
<td>Planet Earth</td>
<td>Burnett Cross</td>
<td></td>
<td></td>
<td>Changing Earth</td>
<td></td>
</tr>
<tr>
<td>Coronado Publishers, Inc.</td>
<td>Sylvia S. Neivert</td>
<td></td>
<td></td>
<td>Chapter 1,</td>
<td></td>
</tr>
<tr>
<td>San Diego, CA</td>
<td>Teacher's Edition: Sigmund</td>
<td></td>
<td></td>
<td>&quot;Below the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abeles</td>
<td></td>
<td></td>
<td>Earth's Surface&quot;</td>
<td></td>
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<tr>
<td></td>
<td>Robert M. Jones</td>
<td></td>
<td></td>
<td>Chapter 3,</td>
<td></td>
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<tr>
<td></td>
<td>Donna M. Kopenski</td>
<td></td>
<td></td>
<td>&quot;Breaking Down</td>
<td></td>
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<tr>
<td></td>
<td>Donald P. LaSalle</td>
<td></td>
<td></td>
<td>the Land&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>John A. Pellino</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Steven A. Weinberg</td>
<td></td>
<td></td>
<td>Chapter 4,</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>&quot;Building Up</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>the Land&quot;</td>
<td></td>
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</table>

Chapter 3 makes a brief reference to earthquakes and volcanoes.

Chapter 4 includes how volcanoes are born, faults, folds, plate tectonics, and earthquakes.

Unit highlights related careers and includes library research topics, a student bibliography and experiments, i.e. "An Investigation into Moving Tectonic Plates" using a softball and play-doh.
Chapter 5 includes: "What is inside the earth?" (core, mantle, crust); "Are the continents moving?" (plates, mid-ocean ridge). Chapter 6 includes: "Modeling Earth's Forces" (using clay), "What Are Faults?", "What Causes Earthquakes?" (damage scale of earthquakes, earthquake prediction), "How do Volcanoes Form?" (Mt. St. Helens), and "How do Mountains Build Up?"


Main Ideas include: minerals people use every day come from different rocks and soil is important to us and gradually forms from rock, organisms, air, and water.


Includes a reference to Mount St. Helens; has before - after photos.

Includes information about crust, mantle, and core; igneous rocks; some information about volcanoes.

Includes a section on, "How can an earthquake in the ocean cause a tsunami?"
3.2 Earthquake Education - Curricula Summary

CALEEP Curricula
Lawrence Hall of
Science
Univ. of California
at Berkeley
Berkeley, CA 94720

Name/Address

For
Grades
4-8

Copyright
1987, Funded by
Legislative Act
of the State of
Calif.; CALEEP
is a cooperative
effort between
Lawrence Hall of
Science and the
Calif. State
Seismic Safety
Commission.
Available in
Science/Engineering Library.

Content
"Mini-Kit" consists of 14 Hands-On earthquake education activities:
- Teacher's Guide - including blackline masters
- Computer Disk - (Apple II+ and/or IIe with disk drive) Quake: A Computer Simulation and Survival: A computer Simulation Game
- Filmstrip
- Audio Cassette Tape - disc jockey, Mr. Pate, experiencing 1964 Alaska Earthquake
- AAA map California

Can purchase Quake BINGO, Quake game and Simulator Kit separately.
The Complete CALEEP Kit contains 22 activities.

Test Piloted
Have been field-tested throughout California in grades 4-8.

Cost
"Mini-Kit" $30.00 plus $5 shipping and handling; Complete Kit $75.00.

More information can be found:
1. Dr. Wm. Ritz
Science & Math. Institute
CSU
Long Beach, CA 90840
2. Dr. Bonnie Brunckhorst
Assoc. Prof. of Science Ed.
CSU
San Bernardino, CA 92407

I Can Make The Difference
Chair
Emergency Preparedness Committee
Utah State PTA
1037 E. South Temple
Salt Lake City, Utah 84102
*Mrs. Patty Sandstrom

Primary Grades, written at 4th grade reading level
1978 - Index for Teachers
1983 - Elementary Curriculum

This contains a series of units on a number of areas involving emergency preparedness: fire, earthquake, flood, nuclear war, and weather problems. Each unit is set up in the same format and includes: a picture of a house in the student's community which becomes a home when each child imagines he lives there; an introductory poem; "What Would I Do" exercises; "Things I Should Know," and games and puzzles. The earthquake section includes a map showing Utah earthquakes, an earthquake word hunt, and safety rules crossword puzzle.

Text was piloted in 8 classrooms, in 4 different schools.
$2.50/copy plus postage.
Crustal Evolution Education Project
available from: Ward's Natural Science Establishment, Inc.
5100 W. Henrietta Rd.
P.O. Box 32912
Rochester, NY 14692-3012
(p.110-116)
1-800-962-2660

Name/Address For Grades Copyright Content Test Piloted Cost
Crustal Evolution Education Project Designed Primarily for grades 7-12 Developed by the National Association of Geology Teachers with support from the National Science Foundation 1979 Consists of 33 individual activity modules designed to provide students with an understanding of the concepts behind plate tectonics and the physical Earth. Each module is individual, self-contained and designed for the Earth Science classroom. Modules include: "Locating Active Plate Boundaries by Earthquake Data," "Earthquakes and Plate Boundaries," "Plate Boundaries and Earthquake Prediction," "Hot Spots in the Earth's Crust," "Volcanoes: Where and Why?" and "Quake Estate," a board game to be played by two to four students at a time and whose goal is, "to achieve success in net income based on accuracy of assessing earthquake risks" (copyright, 1979). The CEEP is not intended to be a complete curriculum but designed to adapt to any teacher's curriculum.
Testing conducted in 3 stages. Third stage evaluation involved being tested nationwide in 15 test centers with students in grades 7-12; Calif., Colo., Fla., Georgia, Indiana, Iowa, Maryland, Mass., Minnesota, NY, Penna., Texas, Virginia, Washington, and Wisconsin.

Earthquake Awareness and Preparedness Curriculum Pre-K-6; CALEEP and EV (1983) materials have been used with students up to 8th grade
Junior League of Oakland-East Bay
3730 Mt. Diablo Blvd.
Suite 310
Lafayette, CA 94549
*Linda Grandt
Patricia Monson
1985; CALEEP and EV (1983) materials have individual copyrights

This is a 1 hour curriculum that anyone can pick up and do that is particularly aimed at elementary students. There is a curriculum guide that provides lessons for each grade level. An Instructor's Guide from Environmental Volunteers, Inc., and role playing situations from CALEEP. There are also supporting videotapes that show each level of the curriculum that were prepared by JLOEB, the Albany Unified School District, and the Audubon Nature Training Society: preschool level, middle school, highschool - adult (not included in the curriculum), and "School Facilitation." These can be borrowed from BAREPP.
The curriculum was developed in 1983, and in 1984 an 8-hour curriculum was tested in model schools. Results of questionnaires given to students aided in the revision of the curriculum to a 1-hour program.
The curriculum includes various activities such as what to do during an earthquake, how to protect your property, and what to do during and after an earthquake. The materials are provided in English and Spanish. The curriculum can be used in schools, libraries, and community centers. It includes a teacher's guide, student activities, and additional resources.

$10.00

Earthquakes: A Teacher's Package for K-6/FEMA 159
Developed for FEMA by the National Science Teachers Association
K-6

This 250 page curriculum includes background material; sets of lessons and classroom activities on earthquake science and safety topics for each of three grade levels (K-2, 3-4, 5-6); scopes and sequence charts depicting multidisciplinary connections; masters for reproduction; references; and resources. This package is designed for teachers who have little or no science background.
Has been field tested in Alaska, Calif., Indiana, Maryland, Missouri, Montana, NY, So. Carolina, Tennessee, and Washington.
Single copies available at no cost from FEMA. NSTA has authorization to re-print at $15/copy. (202)317-5800. Quantity discounts on same item: 10-100, 10% off.
3.2 Earthquake Education - Curricula Summary (Continued)

<table>
<thead>
<tr>
<th>Name/Address</th>
<th>For Grades</th>
<th>Copyright</th>
<th>Content</th>
<th>Test Piloted</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthquakes (module) &quot;Minorities in Engineering&quot; Project Currently used by MESA 352 Low Hall F, H-18 Seattle, Wash. 98195 *Dr. Tom Liau SUNY at Stony Brook</td>
<td>8-10</td>
<td>1978, developed by National Coordinating Center for Curriculum Development, College of Engineering and Applied Sciences, State University of New York at Stony Brook.</td>
<td>This is a module designed to interest students in earthquakes through activities, modeling, engineering applications, and simulation strategies. It has 12 lessons: 1-5 introduce students to earthquakes; 5-9 talk about observed precursors of earthquakes and introduces seismograms; and 10-12 try to make earthquake investigation relevant to students. Includes directions for making related items and doing experiments, e.g. making your own tiltmeter, creepmeter, shoebox model of a fault simulator and trying liquefaction simulation, resonating building demonstration, and earthquake simulation. Includes reproducible charts and maps. Can be used in part or total in an earth science or general science course. Test piloting of the entire project took place between 1976-1980, with 100,000 students; it has not been updated since this time. Permission has been given to NCEEER to copy the module on request.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidebook for Developing a School Earthquake Safety Program / FEMA 88 Federal Emergency Mgmt. Agency P.O. Box 70274 Washington, D.C. 20024 *Marilyn P. MacCabe</td>
<td></td>
<td>1985</td>
<td>A 60-page guide plus appendices that include reprints of FEMA 46, 48, and 113. The Guidebook includes: &quot;The Planning Process&quot; &quot;Hazard Identification&quot; &quot;Earthquake Drills&quot; &quot;Immediate Response and Care Requirements&quot; &quot;Communication&quot; &quot;Post-Earthquake Shelter Planning&quot; Appendices include: &quot;Teacher's Package On Earthquake Drills,&quot; an example of an earthquake safety program plan; sections on &quot;Children and Disasters&quot; and &quot;Non-Structural Earthquake Damage.&quot; This is designed mainly as a guidebook, not a curriculum. It allows the school to be its own planner.</td>
<td>Field tested in Arkansas, Calif., Ill., Maryland, NY, So. Carolina, Tenn., Virginia, Washington. Used with Earthquake Education Center projects in Seattle, Tenn., and So. Carolina, in conjunction with HELP.</td>
<td>Single copies free from FEMA; order by stating FEMA # and title; allow 4-6 weeks for delivery.</td>
</tr>
<tr>
<td>Name/Address</td>
<td>Grades</td>
<td>Copyright</td>
<td>Content</td>
<td>Test Piloted</td>
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a. 17 illustrated, plastic-protected Activity Folders  
b. 16 information/activity inserts (including quake myths, games, puzzles, math activity, "tremor tales").  
c. Illustrated text on basic earthquake geology: The Story of the Earth  
d. Red Cross' Safety and Survival in an Earthquake  
e. "Getting Ready for a Big Quake" - Sunset magazine  
f. Complete guide to school earthquake planning  
g. Neighborhood Preparedness Guide  
| I - Science Mate Program (Integrating Math, Science and Technology)  
Math Science Nucleus  
3710 Yale Way  
Fremont, CA 94538  
1. Lab manuals for grades 2-5  
2. Shaker tables (made of cardboard, marbles, wood, etc.)  
3. Lessons/with experiments and worksheets for grades K-6. Plate Tectonics Cycle includes: Volcanoes, Earthquakes, Plate Tectonics, and Hazards. NCEER has copies of the lessons, experiments, and worksheets from K-6 and some books used in the lessons.  
4. Also available from Math Science Nucleus:  
a. Historical Earthquake Slides  
b. Recent Earthquake Slides  
c. Inflatable globe  
d. Glue Balls - to illustrate faults have memory  
e. Physiographic Relief Globe | Formally test piloted program for 4 years; currently involved with three science centers located in Fremont, East Palo Alto, and Vallejo, CA. | Plate Tectonic Cycle book - $19.95 plus $4 shipping and handling. Slides - $9/set. Inflatable globe - $3.25. Glue Balls - $3.95. Relief Globe - $34.50. Workshops on material offered (3-4 hours, $150 + $8 per teacher manual + travel exp. if over 80 miles from Fremont, CA area.) |
3.2 Earthquake Education - Curricula Summary (Continued)

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<tr>
<th>Name/Address</th>
<th>For Grades</th>
<th>Copyright</th>
<th>Content</th>
<th>Test Piloted</th>
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<tr>
<td>K-12 Earthquake Science Curriculum&lt;br&gt;Los Angeles Unified School District&lt;br&gt;Office of Emergency Services&lt;br&gt;Room G-314&lt;br&gt;450 N. Grand Avenue&lt;br&gt;Los Angeles, CA 90012&lt;br&gt;*Jerry Kurilich</td>
<td>K-12</td>
<td></td>
<td>Teachers receive 8 hour inservice and then are given either an elementary (K-6) or secondary (7-12) guide; also have a resource kit.&lt;br&gt;Currently waiting for Board approval and funding to complete and distribute curriculum.</td>
<td>Not currently available for use. Draft copies of K-6 section available on request.&lt;br&gt;(213) 625-9495</td>
<td></td>
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<tr>
<td>Plan to Live Chair&lt;br&gt;Emergency Preparedness Committee&lt;br&gt;Utah State PTA&lt;br&gt;1037 E. South Temple&lt;br&gt;Salt Lake City, Utah 84102&lt;br&gt;*Mrs. Joy Bossi</td>
<td>Secondary grades, written at 11th grade reading level</td>
<td></td>
<td>This includes a series of lessons on various natural and man-made hazards, including earthquakes. Earthquake related lessons include: &quot;What to Do in Case of an Earthquake,&quot; &quot;How to Prepare for an Earthquake,&quot; and &quot;Information You Should Know About Earthquakes.&quot; Test questions are included at the end of each lesson.</td>
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<tr>
<td>Project Quake&lt;br&gt;*Linda Nason</td>
<td>K-6</td>
<td>Initially undertaken by School Earthquake Safety and Education Project (SESEP).</td>
<td>It &quot;is an interdisciplinary, supplementary, environmental and safety program emphasizing the impact of earthquakes on the human physical, social and emotional environment.&quot; Consists of 2 parts: Curriculum Package and Facilities Package. Curriculum Package has 4 goals: 1. Awareness, 2. Understanding, 3. Preparedness in the schools and 4. Preparedness in the community. Section #4 has not been developed.&lt;br&gt;*Currently it exists as a preliminary curriculum and will be reviewed by the Pacific Science Center along with other earthquake materials to develop a trainer's workshop. In that workshop they will select activities to include in an instructor's guide and develop activities where there are gaps, such as in the area of seismic design.</td>
<td>Two Teacher workshops held in July 1987 to evaluate activities developed; modifications made following the workshops.</td>
<td>$2.50/copy plus postage.</td>
</tr>
<tr>
<td>Name/Address</td>
<td>Grades</td>
<td>Copyright</td>
<td>Content</td>
<td>Test Piloted</td>
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<td>Teaching Earthquake Safety in the Elementary Classroom</td>
<td>K-3</td>
<td>In process</td>
<td>A 1/2 hour session gives children basic earthquake information utilizing simple activities, myths and factual information. Includes Kamchatka Myth poster (originally obtained from CALEEP). Wasatch Fault poster and five follow-up activities (adapted from CALEEP to reflect the Utah scene.) A Fault Blockset available from NASCO science is recommended. Curriculum easily adaptable for general use outside of Utah. Note: Utah Museum of Natural History currently only source for CALEEP's Kamchatka Myth Posters.</td>
<td>Has been tested with 25 classrooms, kindergarten through grade 3. Plan to use teacher workshops to disseminate this curriculum.</td>
<td>$7.50 + postage.</td>
</tr>
<tr>
<td>Utah Museum of Natural History</td>
<td>4-12</td>
<td>1985</td>
<td>Includes a two-part slide presentation and a two foot square model of a section of the Wasatch Front. Part I - mountain levelling processes of rockfall, landslide, mudflow, flood, and lake level rises. Part II - mountain building processes-earthquake. It gives a general explanation of earthquakes, reviews the situation in Utah and what could happen in a major earthquake. This is followed by an earthquake safety session. Follow-up activities on earthquake safety are left with the classroom teacher. These were adapted from CALEEP materials to reflect the Utah scene.</td>
<td>Tested during a 2 year period with 50 schools and 6,000 children in Grades 4-Senior High School.</td>
<td>$25 for 2-1 hr. presentations in 1 classroom. $5 for each additional classroom (up to three) same school, same day - Salt Lake City vicinity. Teachers in the Salt Lake area who have completed an in-service may check out the kit for a one-week period at a cost of $5. 150 slides/text/follow-up activities, $95 + shipping. Model is not available.</td>
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* Indicates principal authors
3.3 Supplemental Informational Material

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<tr>
<td>&quot;Be Brave! Earthquake!&quot;</td>
<td>Ages 3-10</td>
<td>This is a 6 and one-half minute video designed for young children to help prepare them for a natural disaster. Includes a lesson plan by Mary Picard.</td>
<td>$20.00</td>
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<tr>
<td>KYOU-TV Santa Ana Community Television 2900 W. Edinger E-103 Santa Ana, CA 92704 (714) 667-3266</td>
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"Big Bird Get Ready for Earthquakes" K-6 for parents/caregivers to use with children

1. This kit* features a booklet for parents and children that contains information on how to prepare for and recover from an earthquake: a board game, "Quake" for adults and children ages 8-12 that presents scientific facts and safety issues; and an audio cassette with the song "Beating the Quake" and stories about earthquakes told by Sesame Street characters, for preschoolers.

2. "Big Bird Get Ready! For Hurricanes" kit* includes a 15 page family booklet with essential information (also available in Spanish), "The Hurricane Force" board game, and a recording of the song, "Hurricane Blues." The emphasis is on helping parents and teachers talk to children about hurricanes in a way that is not frightening.

3. A videotape presenter's package is available which covers all three "Big Bird Get Ready" kits (hurricanes, earthquakes, floods) and provides information on the best way to work with children.

4. FEMA also has other related publications: FEMA 46, "Earthquake Safety Checklist;" FEMA 48, "Coping with Children's Reactions to Earthquakes and Other Disasters" (also available in Spanish); FEMA 113, "Family Earthquake Safety: Home Hazard Hunt and Drill;" FEMA 88, Guidebook for Developing a School Earthquake Safety Program (see Curricula Summary); FEMA Poster #6, "A Blueprint for Earthquake Survival;" FEMA 75, "Preparedness for People with Disabilities;" FEMA 76, "Preparedness in High-Rise Buildings;" and FEMA L-143, "Preparedness in Apartments and Mobile Homes."

Single copies of kits are available at no charge from FEMA. For more than one copy and bulk orders (cost per copy includes postage and handling) contact CTW. Videotape is available only from CTW for $19.95. To order other publications, state FEMA # and title. Single copies are free.

*Copies available for viewing at NCEER
### Contents

- **A Catalog of Earthquake Related Sounds**
  - by Karl V. Steinbrugge
  - Seismological Society of America
  - 201 Plaza Professional Building
  - El Cerrito, CA 94530
  - Contains 21 different entries, from 1954-1983.
  - An accompanying catalog lists earthquake data, recording information, a commentary, and acknowledgements.
  - Cost: $10.00

- **Customized Disaster Survival Manuals**
  - Disaster Survival Planning
  - (1) 4350 LaJolla Village Drive
    - Suite 300
    - San Diego, CA 92122
    - (619) 546-4304
  - (2) 550 North Brand Blvd.
    - Suite 700
    - Glendale, CA 91203
    - (818) 546-5042
  - (3) 44 Montgomery St.
    - Suite 900
    - San Francisco, CA 94104
    - (415) 955-2778
  - Applicable to all organizations including schools, government agencies, and community organizations.
  - A four step process is used to design customized manuals for each organization:
    1. Representative from the organization attends a one-day workshop and is trained on how to gather necessary information. A 15 step checklist is provided to schedule all of their activity over the next 30 days.
    2. The instructor visits each representative for half a day to discuss their progress gathering information, remove any roadblocks, and to gather more detailed information which will be needed for the final product.
    3. Thirty days after the initial workshop, representative returns for a 1/2 day workshop, bringing back the completed forms. Basic survival information training is given (i.e. how to deal with floods, bomb threats, civil disturbances, anxiety, stress, panic, etc.)
    4. All the information from the representative and instructor is gathered and used to produce a customized disaster survival manual via a computer process.
  - Manuals include location information, communication information, disaster survival information, and training/review information.
  - The cost of the manual/workshops is $600 per representative. Workshops are conducted throughout California each month. Organizations with 10 or more representatives can arrange for On-Site Workshops anywhere in the world, at a discounted price of $550 per representative plus instructor expenses.

- **"Disaster, Helping Your Child Cope"**
  - (1985) by Dr. Karen Doudt
  - Disaster Child Care Response Program
  - P.O. Box 188
  - New Windsor, MD 21776
  - For Parents and Teachers
  - This pamphlet explains how children need their parents after a disaster, lists some behaviors that can occur in children after a disaster, and notes what parents can do to help children cope with their feelings.
  - Available in Spanish and English.
  - They also provide a 2-1/2 day training program for persons interested in becoming disaster child care givers.
  - Cost: $149.50, postage paid.
  - Write for further information.

- **The Drift Globe**
  - The Little Star Montessori School Supply
  - Star Route 38
  - Winthrop, WA 98862
  - Primary Grades through College
  - This globe measures 12" in diameter and has velcro fasteners every 15 degrees of longitude so that the velcro backed continental fragments can be positioned anywhere on it. Various areas are marked as reference points on the globe, i.e. the Tethys Seaway, the drift paths of the major continents, etc. Continents each show present-day coastlines and continental shelves and have positioning holes with orientation marks. Fifteen page brochure included.
  - Cost: $49.50, postage paid.

*Copies available for viewing at NCEER*
### 3.3 Supplemental Informational Material (Continued)

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<th>Name/Address</th>
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<tr>
<td>&quot;Earthquake Hazards Around the Home* - A Coloring Book&quot; &lt;br&gt; CALEEP &lt;br&gt; Lawrence Hall of Science &lt;br&gt; University of California &lt;br&gt; Berkeley, CA 94720</td>
<td>Primary Grades</td>
<td>A coloring book that features the rooms in a house and identifies potential earthquake hazards in each.</td>
<td>Single copies Free</td>
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<tr>
<td>Earthquake I Am Prepared &lt;br&gt; One &amp; Only Publishing &lt;br&gt; 5831 Avenida Encinas Ste. C &lt;br&gt; Carlsbad, CA 92008 &lt;br&gt; (619) 931-7777, outside California, call toll free (1-800-451-6659)</td>
<td>K-6 Coloring Workbook &lt;br&gt; 7-9 Activity Workbook</td>
<td>1. A coloring workbook, designed for children in grades K-6, features Sid the Sealion, Shakey the Squirrel, Quakey the Quail. It includes what to do before, during, and after an earthquake as well as a page on &quot;Plates&quot; and a map of North and South America showing earthquake activity. &lt;br&gt; 2. An earthquake preparedness workbook, developed for students in grades 7-9 includes what to do before, during, and after an earthquake, as well as a page on &quot;Plates&quot; and a map of North and South America showing earthquake activity. Both books are available in Spanish.</td>
<td>Sample books are available on request. Up to 1000 books, $.25 each; 1000-2000 books, $.22 each; 2001-3000 books, $.19 each (plus shipping). Orders under $40 must be prepaid, 2% less discount with prepaid orders.</td>
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<td>&quot;Earthquake Information&quot; &lt;br&gt; Geologic Inquiries Group &lt;br&gt; U.S. Geological Survey &lt;br&gt; 907 National Center &lt;br&gt; Reston, VA 22092</td>
<td>Elementary, Middle and High school Classes</td>
<td>Selected References on Earthquakes (Bibliography). List includes material on specific earthquakes, general earthquakes, prediction and preparedness; lists catalogs and maps of earthquake occurrences.</td>
<td>Free</td>
</tr>
<tr>
<td>&quot;Earthquake Information&quot; &lt;br&gt; Books &amp; Open-File Reports &lt;br&gt; U.S. Geological Survey &lt;br&gt; Box 25425, Federal Center &lt;br&gt; Denver, Colorado 80225</td>
<td>Elementary, Middle and High School Classes</td>
<td>Earthquakes (Booklet) &lt;br&gt; San Andreas Fault (Booklet) &lt;br&gt; Safety and Survival (Leaflet) &lt;br&gt; Severity of an Earthquake (Leaflet)</td>
<td>Single copies available FREE from Books and Open-File Reports</td>
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<tr>
<td>&quot;Earthquake Information&quot; &lt;br&gt; Books &amp; Open-File Reports (see address above)</td>
<td>Middle and High School Classes</td>
<td>Preliminary Determination of Epicenter. Gives date, time, location, depth, and region for worldwide earthquakes of magnitude 3 and above.</td>
<td>Annual subscription: $21.00 (domestic); $26.25 (foreign)</td>
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<td>&quot;Earthquake Information&quot; Superintendent of Documents U.S. Government Printing Office Washington, DC 20402</td>
<td>Middle and High School Classes</td>
<td>Earthquakes and Volcanoes is published bimonthly by the U.S. Geological Survey to provide current information on earthquakes and seismology, volcanoes, and related natural hazards of interest to both generalized and specialized readers.</td>
<td>Annual subscription rates: $6.50 (domestic); $8.15 (foreign). Make check or money order payable to the Superintendent of Documents. To order by VISA or MASTER-CARD call 202-783-3238.</td>
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<tr>
<td>&quot;Earthquake Planning and Preparedness Activities for Childcare Providers&quot; Bay Area Regional Earthquake Preparedness Project Metro Center, #152 101 8th Street Oakland, CA 94607</td>
<td></td>
<td>This contains a set of activities that Day Care Staff can use to help them develop their earthquake plan. These activities are presented with an interactive, participatory approach. Includes worksheets with masters on the following: Common Expectations About the Role of Emergency Agencies After an Earthquake, Common Earthquake Hazards, Hazards Found in the Casings Schools After the Earthquake, Procedures to Reduce Earthquake Hazards, Emergency Procedures, Emergency Plans, Basic Brainstorming Rules, and Earthquake Plan Checklist.</td>
<td>$7.00 + $2.00 postage and handling</td>
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<td>Lafferty &amp; Associates, Inc. P.O. Box 1026 La Canada, CA 91012 (818) 952-5483</td>
<td>School Staff</td>
<td>Also available from Lafferty &amp; Associates, Inc.: &quot;Shake, Rattle &amp; Roll&quot; videocassette or slide/cassette; &quot;Be Ready&quot; videocassette or slide/cassette; &quot;Earthquake Sounds Tape&quot; 45 second tape composed of real earthquake sounds in combination with clanking and breaking glass, sloshing water; &quot;How to Survive A Major Earthquake&quot; a 30 minute tape dialogue on what can be done to prepare; &quot;Table-Talk Tent Cards&quot; (32 explanatory, stand-up cards to be used with actual objects as preparedness is explained); and &quot;Earthquake Fault Map&quot; of northern and southern California. Lafferty &amp; Associates, Inc. also has: Business and industry Preparedness, Community-Based Earthquake Preparedness Training Programs, and Instructor Training.</td>
<td>&quot;Shake, Rattle &amp; Roll&quot; slide/cassette program $150.00; Videotape $175. &quot;Earthquake Sounds Tape&quot; $10.00. &quot;How To Survive A Major Earthquake&quot; $6.00. &quot;Table-Talk Tent Cards&quot; $30.00. &quot;Earthquake Fault Map&quot; $25.00 (rolled); $50.00 (mounted).</td>
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3.3 Supplemental Informational Material (Continued)

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<tr>
<td>CALEEP Lawrence Hall of Science University of California Berkeley, CA 94720</td>
<td>5-6</td>
<td>This brochure gives a child clear instructions for what to do before, during, and after an earthquake. It includes a page of notes for a parent or other adult to fill out with the child.</td>
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<td>&quot;Earthquake Safety Guide for Children--What to do if You Are Alone&quot; American Red Cross Contract Educational Services 2700 Wilshire Boulevard Los Angeles, CA 90057</td>
<td></td>
<td>1. &quot;When the Unusual Happens&quot; consists of 3 lesson plans; 1 10-minute audiovisual presentation, &quot;Habit Rabbit;&quot; audiotape, &quot;Earthquake Sounds;&quot; masters of activity sheets; teacher's preparation materials on earthquake facts; vocabulary list of scientific terms related to earthquakes; common &quot;What if?&quot; questions asked by young children and recommended responses; reference list of resource materials for students and teachers; and parent information letter. The intended audience for this module is Preschool - 3rd Grade. 2. &quot;Rumble Ready&quot; consists of 3 lesson plans; 1 10-minute videotape, &quot;Desk Nest;&quot; masters of activity sheets; teacher's preparation materials on earthquake facts; vocabulary list of scientific terms related to earthquakes; reference list of resource materials for students and teachers; and a parent information letter. The intended audience for this module is 4th - 6th grades.</td>
<td>(1.) Videotape* (10 min.) or slides and learning module: 3/4&quot; cassette: $120 ea. 1/2&quot; Beta 1: $120 ea. 1/2&quot; Beta 2: $120 ea. 1/2&quot; VHS: $120 ea. (2.) Video* and learning module: $120 *Available in 1/2&quot; VHS, 1/2&quot; Beta 1 or 2, 3/4&quot; videocassette</td>
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*Copies available for viewing at NCEER
**Earthquake Watch Kit**  
Seismograph Model  
Mount St. Helens Ash Set  
Seismograms for the 1984 Alaskan Earthquake  
Science Kit and Boreal-Laboratories  
East Coast:  
777 East Park Drive  
Tonawanda, NY 14150-6782  
West Coast:  
P.O. Box 2726  
Santa Fe Springs, CA 90670-2726

**NOTE:** Earthquake Watch Kit and Seismograph Model are also available from  
Fisher-Educational  
Materials Division  
(1-800-621-4769)

Seismograph Model - Hubbard and Volcano Kit available from Nasco  
(1-800-558-9595)

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<td></td>
<td>For use in Earth Science Classes</td>
<td>The Earthquake Watch Kit contains a Pacific-centered, Mercator projection map on which students can plot location, time of occurrence, magnitude and depth of earthquakes. The map is 125 x 95 cm. and is shaded to indicate bathymetric contours and land relief. The seismograph model includes a recording needle, a support with a suspended weight, and a recording tape. It demonstrates the principles of seismograph recording. Comes with a teacher's guide. The Mount St. Helens Ash Set includes a 50 ml. flask of ash from Mount St. Helens, hand lens, illustrated brochure, and student activity sheet. The brochure lists facts about the mountain before and after eruption, volume of material expelled, composition of the ash, and illustrations of the structure of the mountain. The Seismograms for the 1984 Alaskan Earthquake Kit includes 12 exact size copies of seismograms for a 48-hour period showing the 1984 earthquake and its aftershocks. Includes a 40 page teacher's guide with interpretations of the seismograms, suggested student activities, and black line masters of maps, charts, and tables.</td>
<td>$17.40 (1989-90 catalog) $19.50 (1989-90 catalog) $10.00 (1989-90 catalog) $21.00 (1989-90 catalog)</td>
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Fisher:  
Educational Materials:  
Earthquake Watch Kit - $15.00 (88/89 catalog)  
Seismograph Model - $19.95 (88/89 catalog)

Nasco:  
Seismograph model-  
$14.00 (1989 catalog)  
Volcano Kit - $14.00 (1989 catalog)

*Copies available for viewing at NCEER*
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<tr>
<td>&quot;Earthquake! What to Do!! When the Ground Shakes&quot;*</td>
<td>K-3</td>
<td>Coloring book with easy to read tips about what to do during and after a quake. At the end there's a list of tips for parents, including basic home emergency supplies.</td>
<td>Single copies are free and can be copied.</td>
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<tr>
<td>City of El Segundo Police Department 348 Main Street El Segundo, CA 90245</td>
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<td></td>
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<tr>
<td>Earthquakes</td>
<td>7-12</td>
<td>This videotape is part of a series of ten videotapes available in both VHS or Beta format that focus on the study of earth science topics. Each is a &quot;video field trip&quot; that explores a specific geologic process. This one focuses on the causes and effects of movement within the earth. Faults, fractures, epicenters, and P and S waves are discussed. Also have videotapes on Volcanoes of the United States and Mount St. Helens: What Geologists Learned.</td>
<td>$9.50 each for Earthquakes and Volcanoes of the United States. $6.50 for Mount St. Helens (1989 catalog).</td>
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<td>Scott Resources P.O. Box 2121B Ft. Collins, CO 80522</td>
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<td>Earthquakes and Volcanoes* (1985) by Ruth Deery, illustrated by Sue Ellen Miller-Ray Good Apple Inc. Box 299 Carthage, IL 62321-0299</td>
<td>4-8</td>
<td>Part of the Natural Disaster Series, this is a workbook format containing reproducible student activity pages for classroom use: covers plate tectonics, earthquakes, tsunamis, seismographs, etc. It includes chapters such as: &quot;Two Myths About Earthquakes,&quot; &quot;Three Kinds of Volcanoes,&quot; &quot;Predicting Eruptions,&quot; and &quot;Pangaea: Super Continent.&quot; (Includes teacher's lesson notes to be used with the workbook.) Other books in this series are: Tornadoes and Hurricanes, Floods and Droughts, and Storms and Blizzards.</td>
<td>$5.95 for 48 pp. reproducible booklet, plus shipping and handling. Set of 4 titles: $23.80.</td>
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<tr>
<td>Earthquakes in Canada*</td>
<td>7</td>
<td>This public information videotape provides an overview of earthquakes in Canada; what causes them, and what to do before, during and after them to mitigate damage to life and property. Available in English and French.</td>
<td>English version available on request to agencies that might find it useful. Available in 1/2&quot; and 3/4&quot; VHS.</td>
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<tr>
<td>Mrs. Lesley Lynn Director of Public Information Emergency Preparedness Canada Second Floor, Jackson Building 122 Bank Street Ottawa, Ontario, Canada K1A 0W6</td>
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<tr>
<td>&quot;Emergency 'Q' Tips&quot;*</td>
<td>Middle School, Junior, and Senior High School or at any Grade for distribution to parents</td>
<td>These 2 pamphlets give a condensed version of an emergency survival food list, first aid supplies, Quake Tips ('Q-Tips') and emergency numbers. Also available from the Earthquake Education Center: &quot;Home Hazard Hunt and Earthquake Drill,&quot; Word puzzles, &quot;Earthquake History of South Carolina,&quot; an article on &quot;Mini Car Survival Kit,&quot; &quot;Earthquake Fact Sheet,&quot; Coping with Children's Reactions to Earthquakes and Other Disasters (FEMA 48/Sept. 1983), Home Hazard Hunt (FEMA 49/Sept. 1983), Family Earthquake Drill (FEMA 47/Sept. 1983) and Earthquake Safety Checklist (FEMA 46/Sept. 1983). The EEC at Baptist College at Charleston loans out films, slides, books, and three dimensional earth science models for demonstrations to schools in their area, and has a newsletter with activity suggestions.</td>
<td>Single copies free.</td>
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<tr>
<td>&quot;Guidelines for School Earthquake Safety Planning&quot;</td>
<td>Guide to assist schools in planning for a damaging earthquake.</td>
<td>The document outlines policies which must be determined to initiate a safety program. It recommends a framework for planning, including suggested committees and information needed for planning. The areas covered include communications, hazard assessment, supplies, evacuation, and training. Also available: Earthquake Preparedness Checklist for Schools: highlights important questions and activities that should be addressed and undertaken as part of a school safety and preparedness program as referred to in the California Education Code, 35295, 35296, 35297, and Hands-On Earthquake Learning Package (HELP) (For grades K-12): designed to teach students about nature, causes and effects of earthquakes, and to provide information on how to prepare. The curriculum contains an instructor's guide and can be used in non-science classes. The guide is made up of information and instructional activities. It is illustrated throughout and has an earthquake vocabulary section and scripted slide presentation. There is also a &quot;recipe book&quot; for building hands-on teaching materials. The activities are not sequential, allowing the instructor to select the activity he or she desires.</td>
<td>$2.35 for Guidelines, $.40 for Preparedness Checklist, and $13.95 for HELP.</td>
</tr>
<tr>
<td>&quot;An Instrument for the Study of Earthquakes&quot; by Gerald J. Shea</td>
<td>Center for Earthquake Research and Information Memphis State University Memphis, Tennessee 38152</td>
<td>This 11 page handout provides directions to construct a homemade seismograph. Also available, &quot;The Amateur Scientist&quot; by Jearl Walker which is a 6 page handout that describes how to build a simple seismograph to record earthquake waves at home. Some of the other handouts available from this Center are: &quot;Earthquake Education Project Film Review,&quot; &quot;Earthquake Education Project Book Review,&quot; &quot;A Major Earthquake Zone on the Mississippi&quot; by Arch C. Johnston which is a reprint of a Scientific American article on the New Madrid seismic zone, and &quot;New Madrid Seismic Zone Epicentral Map 1974-1981.&quot;</td>
<td>Single copies are available without charge.</td>
</tr>
</tbody>
</table>

*Copies available for viewing at NCEER
<table>
<thead>
<tr>
<th>Name/Address</th>
<th>Grade Level</th>
<th>Contents</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living With Our Faults</td>
<td>Junior High School - College or for younger children to share with parents.</td>
<td>Includes a home hazard hunt, supplies and utilities - do's and don'ts, lists of materials that should be in emergency kits in various locations, survival tips, shopping lists for emergency supplies, a calendar that can be copied and used for writing a list of preparedness tasks on, and cut-out emergency cards.</td>
<td>$5.00/copy $6.00 by mail</td>
</tr>
<tr>
<td>Quake Safe 10573 W. Pico Blvd. Suite 174 Los Angeles, CA 90064</td>
<td></td>
<td>Other services from Quake Safe: newsletter published 4 times in the school year; a center library with disaster planning guides, lesson plans developed for elementary and secondary school programs, maps, films, hands-on materials including a tectonic plate puzzle rug and earthquake simulation table, computer software programs, books, magazines and pamphlets on all aspects of earthquake preparedness; and workshops on such topics as &quot;Teacher training, for new curriculum materials,&quot; &quot;Coping with children in trauma,&quot; and &quot;Classroom hazard reduction.&quot; Programs are presented throughout the greater Los Angeles area on a cost-recovery basis. There is a travel charge of $1.50/mile beyond a 15-mile radius of the juncture of the 10 and 405 freeways.</td>
<td>$3.00/copy wholesale $30 - $99 memberships receive a year's subscription to the newsletter and a copy of &quot;Living with Our Faults.&quot; Newsletter alone is $15/year.</td>
</tr>
<tr>
<td>&quot;Myths and Realities of Natural Disasters&quot; Pan American Health Organization 525 Twenty-Third St. Washington, DC 20037</td>
<td>Adults involved in disaster planning in schools.</td>
<td>This explains the differences between the general perceptions of disasters (widespread myths) and what studies have proven to be true. This video attempts to explain why people might believe that there are always certain results such as plagues and mass hunger. It also outlines what should and should not be used in the aftermath of a disaster. Real life situations are used in this video to stress the importance of appropriate responses.</td>
<td>$25.00 Available in English or Spanish on either 3/4&quot; U-matic, VHS, or Beta Also available in Japanese. Contact: Dr. T. Ukai, Senri Critical Care Medical Center, 1-1 Tsukunodai, Suite 565, Osaka.</td>
</tr>
<tr>
<td>&quot;The Official Tommy Tsunami (Soo-Nah-Mee) and Ernie Earthquake Coloring Book&quot; Alaska Division of Emergency Services 3501 East Bogard Road Wasilla, Alaska 99687</td>
<td>K - 3</td>
<td>Contains large, clear drawings and gives preparedness tips for earthquakes as well as what to do during and after an earthquake. Gives signs of an upcoming tsunami.</td>
<td>Single copies free; can be reproduced.</td>
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*Copies available for viewing at NCEER
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<thead>
<tr>
<th>Name/Address</th>
<th>Grade Level</th>
<th>Contents</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-School Earthquake Preparedness Guidebook*&lt;br&gt; Southern California Earthquake Preparedness Project&lt;br&gt; 600 So. Commonwealth Ave.&lt;br&gt; Suite 1100&lt;br&gt; Los Angeles, CA 90005</td>
<td>Designed to assist pre-school owners, administrators, teachers and parents on how to develop an earthquake preparedness program.</td>
<td>Information in the Guidebook is divided into five categories: &quot;User's Guide,&quot; &quot;Pre-School Planning,&quot; &quot;Pre-School Hazard Mitigation,&quot; &quot;Pre-School Education/Counseling,&quot; and &quot;Pre-School Resources.&quot; Information focuses on addressing four major objectives: reducing the threat to life and property, developing self-sufficiency in responding to a damaging earthquake, providing care and safety to staff and children, and returning to normal operation as quickly as possible. Includes a list of items to put in an Earthquake Emergency Kit, list of &quot;Emergency Do's and Don'ts&quot; for Parents,&quot; sample emergency card and sample form for authorization for treatment of a minor.</td>
<td>$20.00</td>
</tr>
<tr>
<td>Quake Safe Patch Program*&lt;br&gt; Girl Scouts of Santa Clara County&lt;br&gt; 1310 S. Bascom Ave.&lt;br&gt; San Jose, CA 95128-4502</td>
<td>Designed for Brownie - Senior Scouts</td>
<td>This program includes a Leader's Guide, a patch, an Earthquake Game and Puzzle Book, and a copy of a comic book featuring Yogi, the Be-Prepared Bear in Earthquake Preparedness for Children. The leader's guide contains requirements for each level of scouting, information about earthquakes, a script to simulate a quake, preparedness tips, a list of resources, and sections on what to do before and after an earthquake. There is also a section on &quot;Understanding the Effects of Earthquakes on Children.&quot; The game and puzzle book contains activities for younger primary level children.</td>
<td>Single copies free.</td>
</tr>
<tr>
<td>&quot;Ready Teddy&quot; and &quot;Shimmie, Shimmie, Shake&quot; song scripts.*</td>
<td>K - 3</td>
<td>Contains a cassette tape that can be used with a talking bear. The tape talks about earthquake awareness and has a song called &quot;Shimmie, Shimmie, Shake.&quot; Can also obtain &quot;Rumble Tumble Ready&quot; buttons and certificates and &quot;Shimmie, Shimmie, Shake&quot; song scripts. The song is sung to the tune of &quot;Old McDonald's Farm.&quot; First verse:&lt;br&gt;&quot;Rumble, rockin, shakin ground - shimmie-shimmie-shake!&quot;&lt;br&gt;Wooops! it's hard not to fall down - shimmie-shimmie-shake! With a rattle rattle here&lt;br&gt;and a rumble tumble there&lt;br&gt;Here a rattle - there a rumble&lt;br&gt;Everywhere a rumble tumble.&lt;br&gt;Rumble, rockin, shakin ground - shimmie-shimmie-shake!&quot;</td>
<td>No charge for single copies. Certificates and scripts can be copied.</td>
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</tbody>
</table>

*Copies available for viewing at NCEER
### 3.3 Supplemental Informational Material (Continued)

<table>
<thead>
<tr>
<th>Name/Address</th>
<th>Grade Level</th>
<th>Contents</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Ready Teddy&quot; coloring book* and &quot;Rumble Tumble Ready for an Earthquake&quot; buttons. Illinois Emergency Services and Disaster Agency 110 East Adams Street Springfield, Illinois 62706</td>
<td>Primary Grades</td>
<td>The coloring book goes nicely with the cassette tape from Arkansas. It includes a section on the causes of earthquakes, information about earthquakes in Illinois, and tips for what to do during and after an earthquake. Includes words to &quot;Shimmie, Shimmie, Shake&quot; and an &quot;Earthquake Preparedness Test.&quot; Also available: &quot;Good Buildings and Bad: Basics of Earthquake Vulnerability&quot; for grades seven-twelve which contains basic information on buildings earthquake vulnerability including earthquake induced ground motion, structural movement, and a vulnerability checklist; &quot;Earthquakes in the Illinois Area&quot; for grades five-seven which contains general information on why earthquakes occur, specific information on the risk to the Central U.S. and Illinois, and safety tips; and &quot;Earthquake Insurance Information&quot; for grades seven-twelve which includes general information on earthquake insurance such as availability, cost, policies, deductibles, and demand.</td>
<td>Single copies free.</td>
</tr>
<tr>
<td>&quot;Reducing Non-Structural Earthquake Damage -- A Practical Guide for Schools&quot; Bay Area Regional Earthquake Preparedness Project Metro Center, #152 101 8th Street Oakland, CA 94607</td>
<td></td>
<td>This 13 minute video tape identifies major non-structural hazards in the school site and suggests ways to reduce these hazards.</td>
<td>Available in 1/2&quot; or 3/4&quot; VHS from: Final Cut 1000 Atlantic Ave. Suite 103 Alameda, CA 94501 (415) 522-5169 $35, including postage, within the United States.</td>
</tr>
<tr>
<td>The School Earthquake Preparedness Handbook by Irene Groot Earthquake Resource Associates 6323 Paso Los Cerritos San Jose, CA 95120</td>
<td>School administrators; Public safety officers; Parent groups</td>
<td>The School Earthquake Preparedness Handbook provides busy school administrators and other concerned individuals with a ready-to-implement system for preparing a school for an earthquake. Its clear, concise, easy-to-follow system includes such features as check lists, discussion guides, sample letters, signs, etc. Eighteen different planning areas are covered, including: staff readiness exam, hazard assessment checklist, drill procedures, student supervision, first aid, student release procedures, parents, communications, fire fighting, water, sanitation, search and rescue, student preparation, school bus operation, shelter, and writing the school plan. Each chapter is designed as a stand-alone action plan or as an integrated unit within a total school/district plan. Packaged in a notebook format for ease of use by planning teams.</td>
<td>$40.00 for single copies; $25.00 for quantities of 10 or more; 6.5% sales tax for California residents.</td>
</tr>
</tbody>
</table>

*Copies available for viewing at NCEER
Name/Address
Windows on Earth Science
Earth Science
Optical Data Corporation
30 Technology Drive
Box 4919
Warren, NJ 07050

Grade Level
The Windows on Earth Science is for elementary and middle school.
Earth Science is for Junior Highschool to College

Contents
This is a laser videodisc program which provides visual data with instantaneous retrieval of information. Includes slides, films, diagrams and maps. Topics include (but are not limited to) earthquakes, plate tectonics, and volcanoes. It can accompany any earth science curriculum. "Windows" program does not have a software component. Earth Science can be used with or without a computer. In the learning station mode, would use either Apple Macintosh or 2 GS.

Cost
Would need to have a videodisc player. The LDV 2200 model can be purchased for $845. "Windows" program is $595 and "Earth Science" program is $895.

*Copies available for viewing at NCEER
### 3.4 Magazines for Children

<table>
<thead>
<tr>
<th>Subscription Address</th>
<th>Subscription Cost</th>
<th>Reprint Policy **</th>
<th>Recent Articles Related to Earthquakes, Volcanoes, Tsunami *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription Service</td>
<td>P.O. Box 152079, Irving, TX 75015-2079</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| P.O. Box 11314       | Irving, TX 75015-2079 |                  |                                                              |
| Des Moines, IA 50340 |                                                              |                  |                                                              |

| **COBBLESTONE**      | A one-year subscription to COBBLESTONE (12 issues) costs $22.95; $6.00 additional for APO or Foreign Air Mail. | Back issues are available upon request at $3.95 per issue. |                                                              |
| 30 Grove Street      | Peterborough, NH 03458 |                  |                                                              |

* This is not intended to be a complete list, just a sampling of articles.
<table>
<thead>
<tr>
<th>Subscription Address</th>
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<th>Recent Articles Related to Earthquakes, Volcanoes, Tsunami *</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACES</td>
<td>A one-year...</td>
<td>Back issues...</td>
<td>&quot;The Island that blew up&quot; by Margaret Cooper. January, 1986.</td>
</tr>
<tr>
<td>30 Grove Street</td>
<td>($21.95)</td>
<td>available upon...</td>
<td></td>
</tr>
<tr>
<td>Peterborough, NH 03458</td>
<td>($6.00) additional</td>
<td>request at $3.95 per issue.</td>
<td></td>
</tr>
<tr>
<td>HIGHLIGHTS FOR CHILDREN</td>
<td>A one-year...</td>
<td>A copy of a single issue...</td>
<td>&quot;The News from Neptune&quot; by John Mood, June 1990.</td>
</tr>
<tr>
<td>Customer Service Dept.</td>
<td>(eleven issues)</td>
<td>of HIGHLIGHTS costs $2.95. Copies of back issues can be obtained...</td>
<td>&quot;What Happened to the Dinosaurs?&quot; by Jack Myers. September 1990.</td>
</tr>
<tr>
<td>2300 West Fifth Avenue</td>
<td>costs $19.95.</td>
<td>obtained by writing the Customer Service Department.</td>
<td>&quot;Surtsey is Born&quot; by J. Kabourak, May 1989.</td>
</tr>
<tr>
<td>P.O. Box 269</td>
<td></td>
<td></td>
<td>&quot;The Changing Look of Mount St. Helens&quot; by L. Peters, May 1986.</td>
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<td></td>
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<td>&quot;A Journey to the Center of the Earth,&quot; May 1971.</td>
</tr>
<tr>
<td>OWL</td>
<td>A one-year...</td>
<td>Back issues...</td>
<td>&quot;Why Are There Volcanoes on Earth?&quot; April, 1981.</td>
</tr>
<tr>
<td>P.O. Box 11314</td>
<td>(10 issues) costs $14.95. Two years costs $24.95.</td>
<td>and are subject to availability.</td>
<td></td>
</tr>
<tr>
<td>Des Moines, IA 50340</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>RANGER RICK</td>
<td>One year membership dues are $14.00; includes 12 issues of RANGER RICK. An additional fee of $8.00 is required outside the U.S.</td>
<td>Ranger Rick is reproduced on &quot;Talking Books&quot; by the Library of Congress and distributed free by regional libraries.</td>
<td>&quot;It Shakes. It Roars. It Throws Melted Rock into the Sky: It's a VOLCANO!&quot; by C. Wakeman Evans, June 1988.</td>
</tr>
<tr>
<td>National Wildlife Federation</td>
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<tr>
<td>1412 Sixteenth Street, NW</td>
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<td></td>
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<tr>
<td>Washington, DC 20077-0964</td>
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* This is not intended to be a complete list, just a sampling of articles.
### 3.4 Magazines for Children (Continued)

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<tr>
<th>Subscription Address</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SCIENCE WORLD</td>
<td></td>
<td></td>
<td>&quot;Quake Up, Sleepyhead&quot; by J. Brune, March, 1989.</td>
</tr>
<tr>
<td>2931 East McCarty Street</td>
<td>Eighteen issues (bi-weekly during the school year) cost $5.95 for 10 or more subscriptions to the same address; 1-9 subscriptions each $9.50 per student; $20 teachers edition.</td>
<td>Back issues can be obtained by writing: Customer Service Scholastic, Inc. 2931 East McCarty Street Jefferson, MO 65101 Back issues cost $2.50 for teachers editions and $1.25 for student editions: subject to availability.</td>
<td>&quot;Armenia: Scientist Survey the Damage&quot; by H. Brennan, March, 1989.</td>
</tr>
<tr>
<td>P.O. Box 3710</td>
<td></td>
<td></td>
<td>&quot;Tectonic Terror&quot; by K. Heller and J. Brune, April, 1989.</td>
</tr>
<tr>
<td>Jefferson City, MO 65102-9957</td>
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</tbody>
</table>

* This is not intended to be a complete list, just a sampling of articles.

** Copies of articles can also be obtained through Interlibrary Loan. If you are affiliated with a school, contact the school librarian. If you are not associated with a school, go to the reference desk at your public library and request the article. Allow at least 2 weeks to obtain an article through Interlibrary Loan.
### 3.5 Selected Software

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Available From:*</th>
<th>Grades</th>
<th>Computer</th>
<th>Program Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Continental Drift&quot;</td>
<td>Ward's Natural Science Establishment, Inc.</td>
<td>9-12</td>
<td>Apple II+/IlE, 48K Disk</td>
<td>Explores concepts behind continental drift. Programs questions and content can be modified by the teacher using Mentor Master.</td>
</tr>
<tr>
<td>(part of Earth Science series.)</td>
<td>P.O. Box 92912, Rochester, NY 14692-9012</td>
<td></td>
<td>Minimum DOS required: 3.3</td>
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<tr>
<td></td>
<td>1-800-962-2560, (716) 359-2502</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>&quot;Continental Drift&quot;</td>
<td>Prentice-Hall</td>
<td>6-12</td>
<td>Apple Series, IBM PC, PC Jr.</td>
<td>Students can journey back in time to look at and map the earth's surface as it appeared at various times in its past.</td>
</tr>
<tr>
<td></td>
<td>Sylvan Avenue</td>
<td></td>
<td>Tandy 1000; Requires DOS 2.1, double-sided disk drive, RGB color monitor, and color graphic adapter.</td>
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<td>Englewood Cliffs, NJ 07632</td>
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<td></td>
<td>(201) 592-2540, (800) 888-9500</td>
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<tr>
<td>&quot;The Earth and Its Composition&quot;</td>
<td>Right on Programs</td>
<td>Grade 3</td>
<td>Apple Series Commodore 64, 128</td>
<td>This two-part program first introduces the student to the basic components that make up the earth on which we live. Water, mountains, air, and volcanoes are explained. The second part of the program is a game to test the knowledge and retention of the student. Right answers are rewarded and incorrect answers are corrected without penalty. This comes with a reproducible Activity Packet and Teacher's Guide.</td>
</tr>
<tr>
<td></td>
<td>755 New York Ave.</td>
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<td></td>
<td>Huntington, NY 11743</td>
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<td></td>
<td>(516) 424-7777</td>
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<td>Program Name</td>
<td>Available From:*</td>
<td>Grades</td>
<td>Computer</td>
<td>Program Information</td>
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<tr>
<td>&quot;Earth: The Inside Story&quot;</td>
<td>Educational Activities, Inc. Dept. 88 P.O. Box 392 Freeport, NY 11520 (516) 223-4666 (800) 645-3739</td>
<td>4-9</td>
<td>Apple, 48K IBM, PC Jr. and MS-DOS compatibles, 128K Tandy 1000 and Tandy 2000</td>
<td>This tutorial program with attractive color graphics teaches students about: the earth's layers, volcanism, the Continental Drift theory, plate tectonics, seismology, earthquakes, the Ring of Fire, 4 types of mountain building and the formation of the three different types of rock. Students also learn about the operations of seismographs and the meaning and use of the Richter Scale. Includes reproducible activity Masters.</td>
</tr>
<tr>
<td>&quot;Earthquake&quot;</td>
<td>Micro-ED, Inc. P.O. Box 24750 Edina, MN 55424 (612) 929-2242</td>
<td>6-9</td>
<td>Commodore 64 (64K) Apple IIe</td>
<td>Given shock waves, find the epicenter.</td>
</tr>
<tr>
<td>&quot;Earthquake Simulator&quot;</td>
<td>Focus Media 939 Stewart Ave. P.O. Box 865 Garden City, NY 11530 (516) 794-8900 (800) 645-8989</td>
<td>7-12</td>
<td>Apple series, color monitor recommended; Disk</td>
<td>This is one in a series of earth science computer programs. Provides a simulation, tutorial and review. Graphically demonstrates earthquake waves, faults, folding. Each of the program's modules is supported with the Student Workbook containing worksheets which can be completed by students either at the computer or back at their desks.</td>
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<tr>
<td>Program Name</td>
<td>Available From:*</td>
<td>Grades</td>
<td>Computer</td>
<td>Program Information</td>
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<tr>
<td>&quot;The Earthquake Simulator&quot;</td>
<td>Ward's Natural Science Establishment, Inc.</td>
<td>7-12</td>
<td>Apple II Series</td>
<td>Put yourself in control of beautifully animated color simulations of the Earth's crustal movement. Demonstrate plate movement, including subduction zones and ridge development. Observe and compare earthquake waves, and locate epicenters. Utilize the programs to demonstrate various types of faults, as well as anticlines and synclines. Each of the program's modules is supported with the Student Workbook containing worksheets for activities. Program includes: 1 Teacher's Lesson Planner, 1 Student Workbook, 1 double-sided disk and backup. Additional Student Workbooks available in sets of 10.</td>
</tr>
<tr>
<td>&quot;Earthquakes&quot;</td>
<td>Cambridge Development Laboratory, Inc.</td>
<td>5-9</td>
<td>Apple</td>
<td>Provides hands-on experience plotting real earthquakes and volcanoes on a world map. Data comes from USGS and National Earthquake Information Service. After plotting earthquakes, can superimpose tectonic plate boundaries. Note: Is no longer listed in the catalog, but is still available.</td>
</tr>
<tr>
<td></td>
<td>42 Fourth Ave.</td>
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<td>Waltham, MA 02154</td>
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<td>1-800-637-0047</td>
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<td>(517) 893-4690</td>
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### 3.5 Selected Software (Continued)

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Available From:*</th>
<th>Grades</th>
<th>Computer</th>
<th>Program Information</th>
</tr>
</thead>
</table>
| "Earthquakes" | Science Kit and Boreal Laboratories  
Catalog (1986/87)  
777 East Park Drive  
Tonawanda, NY 14150-6782  
NY Schools:  
1-716-874-6020  
(800) 828-7777  
Also available from: Cambridge Development Laboratory, Inc. | Apple +  
48K Disk | Will plot epicenters of all earthquakes with magnitude greater than 5.0 on the Richter scale. |
| "Earthquakes"  
part of Earth Science series | Prentice-Hall  
Sylvan Ave.  
Englewood Cliffs, NJ 07632  
(201) 592-2540  
(800) 848-9500 | 6-12 | Apple Series,  
IBM PC,  
PC Jr.,  
Tandy 1000  
Requires DOS 2.1, double-sided disk drive, RGB monitor, and color graphic adapter | Students discover patterns in locations of earthquake origination points, and observe and control factors that cause earthquakes. They then use seismographs to record seismic waves and interpret resulting seismograms. Students use devices such as tiltmeters in earthquake prediction situations. |
| "Earthquakes/  
Latitude-Longitude" | Ward's Natural Science Establishment, Inc.  
5100 West Henrietta Road  
P.O. Box 92912  
Rochester, NY 14692-9012  
1-800-862-3660  
(716) 359-2502 | General Program effective at all levels:  
6-12 | Apple II+/IIe  
48K Disk | Minimum DOS required: 3.3  
Gives hands-on experience plotting earthquakes and latitude-longitude lines. Includes a detailed Teacher's Guide with instructions for modifying the program to include new seismic data. |
<table>
<thead>
<tr>
<th>Program Name</th>
<th>Available From:*</th>
<th>Grades</th>
<th>Computer</th>
<th>Program Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Earthquakes&quot; Picture File</td>
<td>Ward's Natural Science Establishment, Inc. 5180 West Henrietta Road P.O. Box 92912 Rochester, NY 14692-9012 1-800-962-2660 (716) 359-2502 Also available from: Cambridge Development Laboratory, Inc.</td>
<td>General Program effective at all levels: 6-12</td>
<td>Apple II+/IIe 48K Disc Minimum DOS required: 3.3</td>
<td>This is not a problem-solving program but a source of high-resolution, color diagrams that can be used as an electronic blackboard or in conjunction with any compatible authoring program, i.e., Mentor Master. This one includes: seismograph, wave speed, locating a quake, worldwide distribution, shadow zones, wave propagation, and earthquake disasters chart.</td>
</tr>
<tr>
<td>&quot;The Earth Moves&quot; A Simulation Program</td>
<td>Aquarius Instructional P.O. Box 128 Indian Rocks Beach, FL 34637 0128</td>
<td>For Life Science, Earth Science and Physical Science classes</td>
<td>2 Disk Set Apple</td>
<td>This contains two programs: &quot;Folds and Faults&quot; and &quot;Earthquakes.&quot; &quot;Folds and Faults&quot; allows students to watch geological processes change the landscape. Students are able to select folds, faults, erosion, deposition or intrusions in any sequence to see how the earth moves. Includes teacher's guide with reproducible skill sheets. &quot;Earthquakes&quot; gives students hands-on experience plotting earthquakes and latitude/longitude lines. Includes reproducible plotting map.</td>
</tr>
<tr>
<td>&quot;Earth Science&quot;</td>
<td>Nasco West, Inc. P.O. Box 3837 Modesto, California 95352 1-800-558-9595 (209) 529-6957</td>
<td>Upper elementary-junior high</td>
<td>Atari 400/800</td>
<td>Helps students determine an earthquake's epicenter and learn to identify minerals in different sections of this program.</td>
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</table>
### 3.5 Selected Software (Continued)

<table>
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<tr>
<th>Program Name</th>
<th>Available From</th>
<th>Grades</th>
<th>Computer</th>
<th>Program Information</th>
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</thead>
</table>
| "Geology" Picture File | Ward's Natural Science Establishment, Inc. 5100 West Henrietta Road P.O. Box 92912 Rochester, NY 14692-9012 1-800-962-2660 (716) 359-2502 | General Program effective at all levels: 6-12 | Apple II+/IIe 48K Disk | Minimum DOS required: 3.3 
Also available from: Cambridge Development Laboratory, Inc. 

This is not a problem-solving program but a source of high-resolution, color diagrams that can be used as an electronic blackboard or in conjunction with any compatible authoring program, i.e., Mentor Master. Includes: glaciers, river maturation, rock cycle, water cycle, earth's cross section, volcanoes, earthquakes, tectonic plates, tectonic plates cross section, island chain cross section, mountain types, relative age, igneous intrusions, types of wells. 

<p>| &quot;Geology in Action: Experiments and Puzzles&quot; | Cambridge Development Laboratory, Inc. 42 Fourth Ave. Waltham, MA 02154 1-800-637-0047 (617) 890-4640 | 8-12 | Apple | Allows students to experiment with different variables that teach them about the evolution of landscapes while learning basic geological concepts. Problems can be set for students or the program can be used to demonstrate basic geological processes such as faulting, sedimentation, volcanoes, and erosion. Includes Teaching Guide and backup. |</p>
<table>
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<tr>
<th>Program Name</th>
<th>Available From:*</th>
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<th>Computer</th>
<th>Program Information</th>
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<tbody>
<tr>
<td>&quot;Macmillan Earth Science Scienceprobe&quot;</td>
<td>Cambridge Development Laboratory, Inc. 42 Fourth Ave, Waltham, MA 02154 1-800-637-0047 (617) 890-4640</td>
<td>6-9</td>
<td>Apple</td>
<td>This package lets students apply science concepts to solving challenging problems. Each activity includes: a specific problem to solve, scientific data to be used in problem solving, immediate evaluation of solution, and an automatic manager that stores student's scores. Includes seismology, meteorology, hydrology and paleontology.</td>
</tr>
<tr>
<td>&quot;Plate Tectonics&quot; - part of Geomorphology Series.</td>
<td>Cambridge Development Laboratory, Inc. 42 Fourth Ave, Waltham, MA 02154 1-800-637-0047 (617) 890-4640</td>
<td>7-College</td>
<td>Apple</td>
<td>Discusses continental drift, breakup of Pangea, sea floor spreading and lithosphere plates. Shows the formation of submarine trenches, colliding or convergent boundaries and the forces that cause the plates to move.</td>
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### 3.5 Selected Software (Continued)

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<th>Program Name</th>
<th>Available From:*</th>
<th>Grades</th>
<th>Computer</th>
<th>Program Information</th>
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<tbody>
<tr>
<td>Science ToolKit</td>
<td>Broderbund Software, Inc.</td>
<td>4-12</td>
<td>Apple II + IIe/IIc and Apple II GS with at least 64K memory. One or two disk drives, printer (optional). To use an Apple II+ an adapter is needed for the game port.</td>
<td>This is both a software and hardware package that requires Science ToolKit Master Module. It is used to detect and record earthquake waves with the included &quot;seismoscope.&quot; The &quot;seismoscope,&quot; made of cardboard and plastic, is an optional lever type seismograph with a claimed magnification of 2000. It can detect hammer blows and books dropped at a range of up to 20 feet. The software draws a strip chart graph of the detected data.</td>
</tr>
<tr>
<td>&quot;Earthquake Lab&quot;</td>
<td>17 Paul Drive</td>
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<td></td>
<td>San Rafael, CA 94903-2101</td>
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<tr>
<td></td>
<td>(415) 492-3200</td>
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<td></td>
<td>(415) 479-1700</td>
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<td></td>
<td>Also available from:</td>
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<td></td>
<td>Cambridge Development</td>
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<tr>
<td></td>
<td>Laboratory, Inc.</td>
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<tr>
<td></td>
<td>(Apple and IBM)</td>
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<tr>
<td>&quot;Volcanoes&quot;</td>
<td>Ward's Natural Science</td>
<td>Advanced high school [9-12], college</td>
<td>Apple II/IIe, 48K, Disk, Minimum DOS required: 3.3</td>
<td>Simulates behavior of different active and dormant volcanoes and teaches the use of cartesian coordinates, simple mapping, volcanic terminology, seismic studies etc. Includes master copies of maps suitable for reproduction.</td>
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<tr>
<td></td>
<td>Establishment, Inc.</td>
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<td></td>
<td>5100 West Henrietta Rd.</td>
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<td></td>
<td>P.O. Box 97912</td>
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<td></td>
<td>Rochester, NY 14692-9012</td>
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<td>1-800-962-2660</td>
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<td></td>
<td>(716) 359-2502</td>
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<tr>
<td>&quot;Volcanoes&quot; - part of Earth Science series</td>
<td>Prentice-Hall</td>
<td>6-12</td>
<td>Apple Series, IBM PC, PC jr., Tandy 1000, 2 disk drives.</td>
<td>Students discover geographical patterns in volcano activity and plate interactions, compare the basic types of volcanoes with the subsurface activity and the composition of magma involved, and investigate the harmful and beneficial effects of volcanic eruption.</td>
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<tr>
<td></td>
<td>Sylvan Ave.</td>
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<td></td>
<td>Englewood Cliffs, NJ 07632</td>
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<td></td>
<td>(201) 592-2540</td>
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<td>(800) 893-9500</td>
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<td>Program Name</td>
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</table>
| "Volcanoes Deluxe"           | Earthware Computer Services  
P.O. Box 30039  
Eugene, OR  97403  
Also available from: Cambridge Development Laboratory | 5-12    | For the PC and Apple II GS. Deluxe PC requires CGA; Apple II GS requires 1.2 Meg RAM, Networkable. Color monitor recommended, Disk | Students investigate simulated volcanic situations and predict eruptions. Teaches deductive reasoning, map reading, skills and cooperation. Used in applied physics, geology, and geography courses. "Volcanoes" is a less graphic version of Volcanoes Deluxe. This is a simulation game where students study and learn how to predict earthquakes. Reviewed: Science and Children, May 1987. |

* Sources listed include publishers and/or dealers who have the software noted. It is not meant to be an all-inclusive listing of sources but a beginning resource list for teachers.
3.5 Selected List of Resource Organizations

**Organization:**

American National Red Cross
Disaster Services
18th and E Street N.W.
Washington, D.C. 20006

Arkansas Office of Emergency Services
P.O. Box 758
Conway, AR 72032
(501) 329-5601

Bay Area Regional Earthquake
Preparedness Project (BAREPP)
MetroCenter 101 8th Street, Suite 152
Oakland, CA 94607
(415) 540-2713

California Earthquake Education Project
Lawrence Hall of Science
University of California
Berkeley, CA 94720
(415) 327-6017

Center for Earthquake Research and Information
Memphis State University
Memphis, TN 38152
(901) 687-2007

Center for Earthquake Studies
Southeast Missouri State University
One University Plaza
Cape Girardeau, MO 63701-4799

Earthquake Education Center
Baptist College at Charleston
P.O. Box 10087
Charleston, SC 29411
(803) 797-4208 or (803) 797-4207

**Source For:**

Variety of disaster materials

"Ready Teddy" tape,
"Rumble, Tumble Ready"
buttons, (K-3)
Braille translations of FEMA Documents

Earthquake Planning and Preparedness Activities for Childcare Providers

CALEEP materials including
"Earthquake Hazards Around the Home" coloring book

Reprints of articles related to seismographs, the Earthquake Education Project and New Madrid Seismic Zone

New Madrid Earthquake by Fuller (reprint)

"Emergency 'Q' Tips" 1 & 2
Information about earthquakes in South Carolina
Emergency Preparedness Canada
Public Information
2nd floor, Jackson Building
122 Bank Street
Ottawa, Ontario
Canada K1A 0W6
(613) 991-7077

Environmental Volunteers
2448 Watson Court
Palo Alto, CA  94303
(415) 424-8035

Federal Emergency Management Agency
Earthquake and Natural Hazards Division
SL-NT
500 C Street, S.W.
Washington, D.C.  20472
(202) 646-2800

Lafferty & Associates, Inc.
4529 Angeles Crest Hiway
Suite 308, P.O. Box 1026
La Canada, CA  91011
(818) 952-5483

Math/Science Nucleus
3710 Yale Way
Fremont, CA  94538
(415) 490-MATH

National Center for Earthquake
Engineering Research
State University of New York at Buffalo
Red Jacket Quadrangle
Buffalo, NY  14261
(716) 636-3391

Earthquakes in Canada
videotape; also emergency
preparedness booklets in
French & English

Hands-On Earthquake Learning
Package with hands-on teaching
materials including motor
driven shaking table

Guidebook for Developing a
School Earthquake Safety
Program (FEMA 88),
Earthquakes: A Teachers
Package for K-6 (FEMA 159)
Big Bird Get Ready for
Earthquakes (CTW)

Preparedness handbook;
videotapes: "Shake,
Rattle, & Roll," "How to
Survive a Major Earthquake"

"Plate Tectonic Cycle"
curriculum (K-6)

Bibliography of Earthquake
Education Materials
Fact Sheets
Quake Safe
10573 W. Pico Blvd.
Suite 174
Los Angeles, CA 90064
(213) 744-2008

Seismological Society of America
201 Plaza Professional Building
El Cerrito, CA 94530
(415) 525-5474

Southern California Earthquake
Preparedness Project (SCEPP)
P.O. Box 50310
Pasadena, CA 91115-3010
(818) 795-9055

U.S. Geological Survey
Public Inquires Office
302 National Center
Reston, VA 22092
(703) 648-6891

Newsletter, programs for children

"A Catalog of Earthquake Related Sounds" - tape with 21 entries

Pre-School Earthquake Preparedness Guide

References on earthquakes; catalogs, maps of earthquake occurrences.