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NATIONAL CENTER FOR EARTHQUAKE
ENGINEERING RESEARCH

State University of New York at Buffalo

Fourth Edition of
Earthquake Education Materials
For Grades K-12

by

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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.

On May 26, 1988, the National Center for Earthquake Engineering Research initiated an education project whose focus was on earthquake education in school programs for grades K-12. From the start of this project, copies of and information about earthquake education curricula, related software, and supplemental informational materials and books were collected and compiled. As this compilation progressed, it became clear that there was a great deal of interest in a publication listing such materials.

The result was the *NCEER Interim Bibliography of Earthquake Education Materials* which was printed in March, 1989. Interest in this type of publication has maintained, leading to this expanded, fourth edition.

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Section 1
Introduction

Earthquake education has an important role in both school and society. All 50 states are vulnerable to earthquakes and at least 39 of these are subject to moderate or major seismic risk, as are the most heavily populated parts of Canada. Millions of people are exposed to significant earthquake hazards. When the mobility of society is taken into consideration, the number of individuals who may one day experience a damaging earthquake is even greater. In this century, earthquakes in North America have resulted in more than a thousand deaths and billions in property damage. Earthquake education that provides an understanding of the causes of earthquakes, their impacts, and the necessary steps to reduce loss of life and property is essential to our physical and emotional well-being.

Children spend a significant portion of their day in schools. The school community needs to be well-prepared to meet school earthquake emergencies in order to protect the welfare of students and staff both during and after the ground shaking. The development of an effective disaster preparedness program requires an understanding of the natural processes involved and the type of dangers they pose to the school community. Psychological issues of anticipatory anxiety, emotional trauma, response and recovery must also be considered. Appropriate countermeasures to reduce earthquake damage and personal harm can then be included in school and home emergency response plans.

An on-going Earthquake Education program incorporated into all grade levels will provide a continually developing foundation of science and safety information for students and staff tailored to their learning and emotional needs. Students of all ages must be able to take self-protective actions during an earthquake. Factual information on the science of earthquakes will help place the need for learning safety actions within the context of naturally occurring phenomena like weather, will help dispel common misperceptions that could inadvertently result in physical and emotional harm, and will help build a future population of knowledgeable adults capable of making decisions concerning appropriate policies needed to reduce earthquake hazards.

Earthquake Education provides an opportunity to satisfy a number of goals in the areas of both science and safety:

1. Reducing loss of life and property damage in schools during earthquakes.
2. Reducing emotional damage through realistic, but not alarmist, presentations and providing coping strategies to students and staff.
3. Ensuring the inclusion of accurate scientific concepts about the causes of earthquakes in school programs and textbooks.
4. Building scientific literacy through a hazard education program.
5. Providing a model for the development of other science and safety programs using natural hazards to illustrate basic science principles and safety actions, i.e. hurricane education, tornado education, etc.

6. Providing examples of the application of science to daily life.
7. Empowering the school community to realize they can survive a major earthquake.
8. Transferring information on how to reduce earthquake damage and personal loss to the community through school children.
9. Building social responsibility.
10. Encouraging the selection of scientific and technical careers.

News accounts of damaging earthquakes occurring somewhere in the world are frequent. Scientific understanding of these earthquakes continues to grow. Earthquake education that incorporates these new lessons into the curriculum provides an exciting introduction to the dynamic role of science in society. These occurrences provide opportunities to strengthen the interaction between the classroom, the scientific community, and emergency managers through the discussion of the causes, effects, and impacts of recent events.

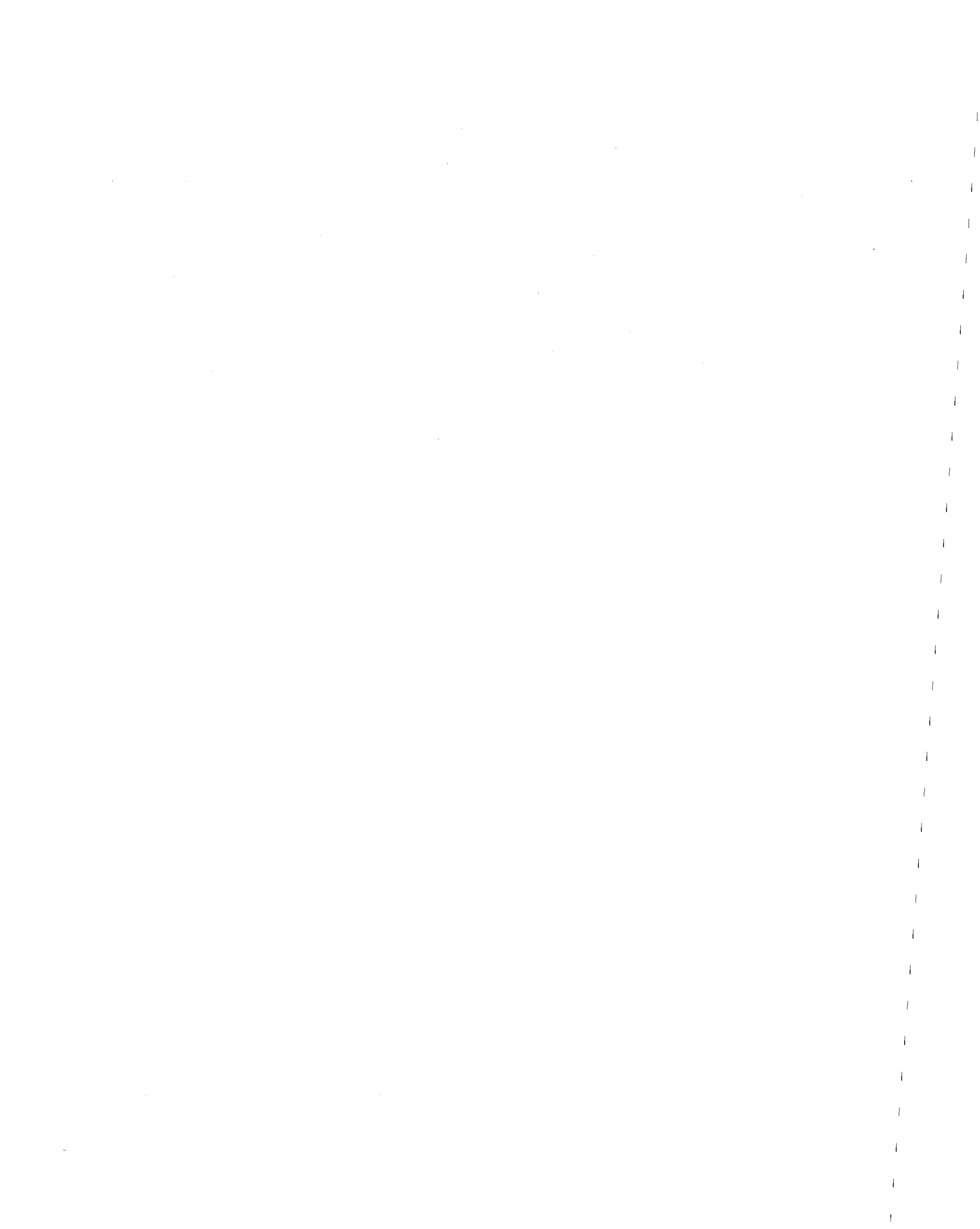
Education seeks to develop informed adults with the skills to address and find solutions to the problems that will face us. Earthquakes remain a potential hazard. Tomorrow's adults need to be aware of the dangers that earthquakes present to our communities and how to achieve a greater level of safety through 1) building codes to ensure more earthquake resistant structures, 2) training in earthquake safety actions to take during and after an earthquake, and 3) improved levels of preparedness in schools, homes and businesses. Earthquake education can provide insight into solving problems in science as well as making our environment a safer place to be.

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.

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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.

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A big earthquake: When will it come? (1988, October 28). Weekly Reader, Edition 3. For grade 3.

Blohm, C. E. (1986, April). Nature's violent side. Cobblestone, pp. 6-10. For ages 8-14.

Brown, D. P. (1986, April). Elsewhere (ancient disasters). Cobblestone, pp. 30-31. For ages 8-14.

Cooper, M. (1986, January). The island that blew up. Faces, pp. 23-26. For ages 8-14.

Curtis, S. (1987, June). Volcanoes of science and legend (Hawaii). Boys' Life, pp. 38-41. For ages 8-18.

Da Groomes, K. V. (1991, November). Volcano! Boy's Life, pp. 39-43.

Digging deeper. (1986, April). Cobblestone, pp. 44-46. For ages 8-14.

Duckworth, C. (1990, May). Meet a real quake watcher. Ranger Rick, pp. 20-21. For ages 5-12.

Earthquake! (1990, March). National Geographic World, pp. 8-13. For ages 8-13.

Evans, C. W. (1988, May). Volcano visit. Chickadee, pp. 24-25. For ages 4-8.

Evans, C. W. (1990, May). Great shakes: It's Doctor Quake! Ranger Rick, pp. 14-19. For ages 5-12.

Kabourek, J. (1989, May). Surtsey is born. Highlights, pp. 12-13. For ages 2-12.

Lin, S. C. (1990, March). Earthquake! hurricane! Boys' Life, pp. 32-35. For ages 8-18.

Mednick, E. R. (1987, March). Earthquake! scientists look beneath the surface. 3-2-1 Contact, pp. 24-27. For ages 8-14.

Mercer, C. (1986, October). Earthquake! Boys' Life, pp. 28-31+. For ages 8-18.

Mood, J. (1990, June). The news from Neptune. Highlights. For ages 2-12.

- Natural disasters. (1986, April). Cobblestone, pp. 4-5. For ages 8-14.
- Peters, L. (1986, May). The changing look of Mount St. Helens. Highlights, pp. 12-13. For ages 2-12.
- Plude, C. (1986, April). Charles Richter: "Earthquake man." Cobblestone, pp. 20-22. For ages 8-14.
- Plude, C. (1986, April). The Richter scale. Cobblestone, p. 22. For ages 8-14.
- Politzer, B. (1992, Jan.-Feb.). Magma, P.I., 3-2-1 Contact, pp. 6-9. For ages 8-14.
- Poynter, M. (1990, April). The killer waves. Cricket, pp. 44-47. For ages 6-12.
- Ring around the volcano. (1986, May). 3-2-1 Contact, pp. 2-3. For ages 8-14.
- Roop, P., & Roop, C. (1986, April). The New Madrid earthquake of 1811. Cobblestone, pp. 15-17. For ages 8-14.
- Roop, P., & Roop, C. (1986, April). The San Francisco earthquake and fire. Cobblestone, pp. 18-19. For ages 8-14.
- Shake, rattle and roll. (1985, November). 3-2-1 Contact, p. 2. For ages 8-14.
- Souza, D. M. (1988, July). Big waves in the harbors. Boys' Life, p. 9. For ages 8-18.
- Stuckey, S. (1988, June). Climbing the killer volcano. Boys' Life, pp. 28-31. For ages 8-18.
- Svarney, B. P. (1986, April). Tsunamis: When the ocean roars. Cobblestone, pp. 37-38. For ages 8-14.
- Try this experiment with Dr. Zed: Make a volcano erupt! (1988, May). Chickadee, pp. 22-23. For ages 4-8.
- Vigneron, F. H. (1990, December). After the earthquake. Jack & Jill, pp. 26-29. For ages 6-8.
- Volcano comics. (1990, July-August). Kid City, pp. 16-17. For ages 6-10.
- Volcano watch. (1986, May). World, pp. 18-23. For ages 8-13.
- Weyhmuller, B. (1991, April). A sense of danger. U*S*Kids, pp. 14-16. For grades 3-5.

2.4 Selected Books for Grades K-3

The following references were used to obtain reading and interest levels in this bibliography: Baker and Taylor, School Selection Guide - 1988; Book Review Digest, 1954-1989; Brodart In-Stock Books, K-8, 1986; Follett Library Book Company - Elementary 1987/88 catalog; Follett Library Book Company - K-12, 1987/88 hardbound, paperback catalog; and Project Quake, "Resources - Books."

- Arvetis, C. (1984). What is a volcano? Skokie, IL: Rand McNally. Reading level: 3.2, interest level: grades K-3. (fiction)
- Baker, K. (1989). The magic fan. San Diego, CA: Harcourt, Brace, Jovanovich.
- Berger, M. (1977). Jigsaw continents. New York: Coward, McCann, & Geoghegan. For grades 1-4. (47pp.)
- Branley, F. (1985). Volcanoes. New York: Thomas Y. Crowell. Reading level: 2.0, interest level: grades K-4. (32pp.) *
- Cazeau, C. J. (1974). Earthquakes. Chicago, IL: Follett. Reading level: 4.6, interest level: grades K-3. (32pp.)
- Challand, H. J. (1982). Earthquakes. Chicago, IL: Children's. For ages 5-9. (45pp.) *
- Cole, J. (1987). The magic school bus inside the earth. New York: Scholastic. Readability analysis: Wheeler Smith-K, Spache-1.5-2.2. (40 pp.)
- Curran, E. (1985). Mountains and volcanoes: What do you see? Mahwah, NJ: Troll Associates. Reading level: 1.0, interest level: grades K-3.
- Dudman, J. (1988). The San Francisco earthquake. Denver, CO: Wayland. For grades 1-6. (32pp.)
- Fradin, D. (1982). Disaster! volcanoes. Chicago, IL: Children's First. (63pp.)
- Gormley, B. (1987). Paul's volcano. Boston, MA: Houghton Mifflin. Interest level: grades 3-6. (143pp., fiction)
- Iacopi, R. (1974). Earthquake country: How, why and where earthquakes strike in California. Menlo Park, CA: Lane. For ages 7-21. (160pp.)
- Kaufman, J. (1978). Joe Kaufmans about the big sky, about the high hills. New York: Golden Press. For ages 6-8. (69pp.)

- Lambert, D. (1982). Earthquakes. New York: Franklin Watts. For ages 7-9. (32pp.)
- Lambert, D. (1985). Volcanoes. New York: Franklin Watts. Interest level: grades 3-4. (32pp.)
- Larson, N. (1982). Why do we have earthquakes? Mankato, MN: Creative Education. Reading level: 4.1, interest level: grades 3-6.
- Lewis, T. P. (1971). Hill of fire. New York: Harper & Row. (63pp.) *
- Marcus, E. (1984). All about mountains and volcanoes. Mahwah, NJ: Troll Associates. Reading level: 3.0, interest level: grades 3-6. (86pp.) *
- Matthews, A. (1986). Earthquake (a "Transformer" book). Ballantine. Reading level: 3.0, interest level: grades 3-6; designed for reluctant readers. (fiction)
- Merriams, D. (1975). I can read about earthquakes and volcanoes. Mahwah, NJ: Troll Associates. For grades 2-4.
- Nixon, H. H., & Nixon, J. L. (1981). Earthquakes: Nature in motion. New York: Dodd & Mead. For grades 2-5. (63pp.)
- Radlauer, E., & Radlauer, R.S. (1981). VolcanoMania. Chicago, IL: Children's.
- Radlauer, R. S., & Radlauer, E. (1987). Earthquakes. Chicago, IL: Children's. Interest level: grades 3-6. (48pp.)
- Rutland, J. (1987). The violent earth. New York: Random House. Reading level: 3.0, interest level: grades 3-6. (24pp.)
- Simon, S. (1991). Earthquakes. Morrow Junior. For grades 3-6. (32 pp.)
- Stein, R. C. (1983). The story of the San Francisco earthquake. Chicago, IL: Children's. For grades 3-6. (31pp.)
- Vita-Finzi, C. (1989). A pop-up guide: Planet earth; volcanoes; earthquakes; mountains; and the mighty forces that shape our world. New York: Simon and Schuster. For grades 3 and up. (10 pp.)
- Winner, P. (1986). Earthquakes. Lexington, MA: Silver. For grades 3-7.

*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.

Abrams, I. S. (1986, April). Prepare for disaster. Cobblestone, pp. 11-14. For ages 8-14.

After the big quake. (California earthquake, 1989; includes map). (1989, November 3). Current Events, pp. 1-2. For ages 10-16.

Andres, L. (1990, October). Can you predict a quake? Superscience Blue, pp. 26-27. For ages 9-12.

Baby island, Hawaii-style. (1991, October). Superscience Blue, p. 4. For ages 9-12.

The big quake of 1906. (1989, November 3). Current Events, p. 20. For ages 10-16.

Black, B. (1990, March 9). Learning from earthquakes. Scholastic News, Citizen Edition 5 and Edition 6, p. 1.

Black, B. (1990, March 9). Quake-proof building. Scholastic News, Explorer Edition 4, Hands-on Science Supplement.

Blohm, C. E. (1986, April). Nature's violent side. Cobblestone, pp. 6-10. For ages 8-14.

Boraiko, A. A. (1986). Earthquake in Mexico. National Geographic, 169, 655-675. For grades 5-Adult.

Bourgeois, P. (1991, October). Volcano. Owl, pp. 4-7.

Bracing for the big one. (1990, October). Superscience Blue, pp. 15-17. For ages 9-12.

Brown, D. P. (1986, April). Elsewhere (ancient disasters). Cobblestone, pp. 30-31. For ages 8-14.

Can winds trigger earthquakes? (1989, May 12). Current Science, p. 14, For grades 6-10.

Canby, T. Y. (1990). Earthquake: Prelude to the big one? National Geographic, 177(5), 76-105.

Chayet, B. (1990, March 9). Bending without breaking. Scholastic News, Citizen Edition 5 and Edition 6, Hands-on Science Supplement.

Cooper, M. (1986, January). The island that blew up. Faces, pp. 23-26. For ages 8-14.

- Curtis, S. (1987, June). Volcanoes of science and legend (Hawaii). Boys' Life, pp. 38-41. For ages 8-18.
- Da Groomes, K. V. (1991, November). Volcano! Boy's Life, pp. 39-43. For ages 8-18.
- Deadly quakes shake the world. (1990, October 5). Current Science, p. 9. For ages 10-16.
- Deepest hole being drilled for science. (1987, May 1). Current Science, p. 13. For ages 10-16.
- Digging deeper. (1986, April). Cobblestone, pp. 44-46. For ages 8-14.
- Duckworth, C. (1990, May). Meet a real quake watcher. Ranger Rick, pp. 20-21. For grades 5-12.
- Earth wobbles every few weeks. (1988, November 18). Current Science, p. 15. For ages 10-16.
- Earthquake! (1990, March). National Geographic World, pp. 8-13. For ages 8-13.
- Earthquake kills about a thousand people. (1987, January 2). Current Science, p. 14. For ages 10-16.
- Earthquake shakes up southern California. (1987, October 23). Current Events, pp. 1-2. For ages 10-16.
- Earthquake! when will the big one hit? (1987, November 20). Junior Scholastic, pp. 12-13. For ages 10-14.
- Eisenberg, G. (1991, October 18). A shy, gassy light show. Science World, p. 5.
- Evans, C. W. (1988, May). Volcano visit. Chickadee, pp. 24-25. For ages 4-8.
- Evans, C. W. (1988, June). It shakes, it roars. it throws melted rock into the sky: It's a volcano! Ranger Rick, pp. 24-31. For ages 5-12.
- Evans, C. W. (1990, May). Great shakes: It's Doctor Quake! Ranger Rick, pp. 14-19. For ages 5-12.
- Garrett, W. E. (1986). When the earth moves. National Geographic, 169, 638-639. For grades 5-Adult.
- Geyser eruptions forecast quakes? (1992, January 31). Current Science, p. 13. For ages 10-16.
- Harrigan, J. (1981, May). Through a volcano with Jules Verne. Cobblestone, pp. 30-33. For ages 8-14.

Huge ice sheets prevent earthquakes. (1988, September 9). Current Science, p. 12, For ages 10-16.

The huge wave that wasn't. (1986, September 19). Current Science, p. 10. For ages 10-16.

Ice erupts from volcanoes. (1988, December 16). Current Science, p. 10. For ages 10-16.

Joyce, H. (1991, March). Discovering Pompeii. Faces, pp. 14-19. For ages 8-14.

Kabourek, J. (1989, May). Surtsey is born. Highlights, pp. 12-13. For ages 2-12.

Kendrick, K., & Chayet, B. (1990, October). Shaky predictions. Superscience Blue, pp. 10-15. For ages 9-12.

Killer earthquake hits Mexico. (1985, October 18). Junior Scholastic, p. 13. For ages 10-14.

Lin, S. C. (1990, March). Earthquake! hurricane! Boy's Life, pp. 32-35. For ages 8-18.

McDowell, B. (1986). Eruption in Columbia. National Geographic, 169, 640-653. For grades 5-Adult.

Macy, S. (1981, May). Aftershock: Rescue and rebuilding. Cobblestone, pp. 12-15. For ages 8-14.

May 18th, 1980: Eyewitness accounts by Cobblestone readers. (May, 1981). Cobblestone, pp. 20-23. For ages 8-14.

Mednick, E. R. (1987, March). Earthquake! scientists look beneath the surface. 3-2-1 Contact, pp. 24-27. For ages 8-14.

Mercer, C. (1986, October). Earthquake! Boys' Life, pp. 28-31+. For ages 8-18.

Mexico City rebuilds after killer quake. (1985, October 11). Current Events, pp. 1-2. For ages 10-16.

Mood, J. (1990, June). The news from Neptune. Highlights. For ages 2-12.

More explosions rock "Lake of Death." (1987, March 27). Current Science, p. 12. For ages 10-16.

Most powerful quakes in U.S. (1988, February 5). Current Science, p. 14. For ages 10-16.

Mount St. Helens: An American volcano. (1981, May). Cobblestone, pp. 4-7. For ages 8-14.

Mount St. Helens won't blow its top again. (1988, October 21). Current Science, pp. 14-15. For ages 10-16.

- Natural disasters. (1986, April). Cobblestone, pp. 4-5. For ages 8-14.
- New method may predict earthquakes. (1990, February 16). Current Science, p. 13. For ages 10-16.
- New volcanoes form off Oregon coast. (1990, December 14). Current Science, p. 14. For ages 10-16.
- O'Connor, J. (1985, November 29). Mexico after the earthquake. Junior Scholastic, pp. 2-4. For ages 10-14.
- Oil wells trigger earthquakes. (1990, February 2). Current Science, p. 12. For ages 10-16.
- Pele's puffs. (1981, May). Cobblestone, p. 40. For ages 8-14.
- Peters, L. (1986, May). The changing look of Mount St. Helens. Highlights, pp. 12-13. For ages 2-12.
- Plude, C. (1986, April). Charles Richter: "Earthquake man." Cobblestone, pp. 20-22. For ages 8-14.
- Plude, C. (1986, April). The Richter scale. Cobblestone, p. 22. For ages 8-14.
- Politzer, B. (1992, Jan.-Feb.). Magma, P.I. 3-2-1 Contact, pp. 6-9. For ages 8-14.
- Poynter, M. (1990, April). The killer waves. Cricket, pp. 44-47. For ages 6-12.
- Quake forecast fizzles. (1991, March 15). Current Science, p. 10. For ages 10-16.
- Quake quiz. (1990, January 5). Current Science, p. 6. For ages 10-16.
- Quake shakes up earthquake class. (1989, December 1). Current Science, p. 14. For ages 10-16.
- Rasmussen, J. (1981, May). Mt. St. Helens: A geologists point of view. Cobblestone, pp. 8-11. For ages 8-14.
- Reichlin, L. (1986, January 3). Can earthquakes be predicted? Current Science, pp. 4-5. For ages 10-16.
- Reichlin, L. (1986, February 14). Volcano disaster: When will the next one strike? Current Science, pp. 6-7. For ages 10-16.
- Reichlin, L. (1986, October 31). Superquake: When will it strike? Current Science, pp. 4-5. For ages 10-16.

- Reichlin, L. (1987, February 27). Erupting volcanoes threaten villages. Current Science, pp. 4-5. For ages 10-16.
- Reichlin, L. (1988, January 8). Damaging quake: A warning of the big one? Current Science, pp. 6-7. For ages 10-16.
- Ring around the volcano. (1986, May). 3-2-1 Contact, pp. 2-3. For ages 8-14.
- Rocks light up during earthquakes. (1987, May 15). Current Science, p. 8. For ages 10-16.
- Roop, P., & Roop, C. (1986, April). The New Madrid earthquake of 1811. Cobblestone, pp. 15-17. For ages 8-14.
- Roop, P., & Roop, C. (1986, April). The San Francisco earthquake and fire. Cobblestone, pp. 18-19. For ages 8-14.
- Rosenstock, L. (1988, May 13). Can animals predict earthquakes? Current Science, pp. 4-5. For ages 10-16.
- Sextro, D. (1981, May). Mount St. Helens' Harry Truman. Cobblestone, pp. 26-29. For ages 8-14.
- Shake, rattle and roll. (1985, November). 3-2-1 Contact, p. 2. For ages 8-14.
- Soren, D. (1988). The day the world ended at Kourion: Reconstructing an ancient earthquake. National Geographic, 174, 30-53. For grades 5-Adult.
- Souza, D. M. (1988, July). Big waves in the harbors. Boys' Life, p. 9. For ages 8-18.
- Stuckey, S. (1988, June). Climbing the killer volcano. Boys' Life, pp. 28-31. For ages 8-18.
- Students lend a hand. (1989, January 27). Junior Scholastic, p. 7. For ages 10-14.
- Svarney, B. P. (1986, April). Tsunamis: When the ocean roars. Cobblestone, pp. 37-38. For ages 8-14.
- Tenney, E. (1981, May). The legend of Loo-Wit. Cobblestone, pp. 34-37. For ages 8-14.
- Thousands buried alive. (1985, December 6). Current Events, pp.1-2. For ages 10-16.
- Try this experiment with Dr. Zed: Make a volcano erupt! Chickadee, pp. 22-23. For ages 4-8.
- U.S. volcano may be active for decades. (1987, April 17). Current Science, p. 12. For ages 10-16.

- Volcanic eruption triggered famine many years ago. (1988, April 1). Current Science, p. 14. For ages 10-16.
- Volcano comics. (1990, July-August). Kid City, pp. 16-17. For ages 6-10.
- Volcano erupts under sea. (1988, January 22). Current Science, p. 8. For ages 10-16.
- Volcanoes: Still a threat. (1991, November 1). Junior Scholastic, p. 5. For ages 10-14.
- Volcano watch. (1986, May). National Geographic World, pp. 18-23. For ages 8-13.
- Wall stops lava from burying town. (1992, March 13). Current Science, p. 13. For ages 10-16.
- Walter, B. (1990, February 16). Volcano! deadly force. Junior Scholastic, pp. 10-11. For ages 10-14.
- Westrup, H. (1990, January 5). Giant quake: When will it strike? Current Science, pp. 4-5. For ages 10-16.
- Westrup, H. (1990, March 16). Predicting volcanic eruptions saves thousands of lives. Current Science, pp. 4-5. For ages 10-16.
- Westrup, H. (1990, September 7). Volcanic eruption buries entire town. Current Science, pp. 4-5. For ages 10-16.
- Westrup, H. (1991, October 4). Volcanic cloud could change climate. Current Science, pp. 8-10. For ages 10-16.
- Weyhmuller, B. (1991, April). A sense of danger. U*S* Kids, pp. 14-16. For grades 3-5.
- What triggers volcanic eruptions? (1988, April 29). Current Science, p. 8. For ages 10-16.
- Wong, L. (1981, May). Monitoring a mountain. Cobblestone, pp. 16-19. For ages 8-14.
- Worst quakes of the 20th century. (1989, March 17). Current Science, p. 15. For ages 10-16.
- Young quake victims go home. (1989, September 22). Current Science, p. 14. For ages 10-16.

2.6 Selected Books for Grades 4-6

The following references were used to obtain reading and interest levels in this bibliography: Baker and Taylor, School Selection Guide - 1988; Book Review Digest, 1954-1989; Brodart In-Stock Books, K-8, 1986; El-Hi Series Textbooks in Print, 1977-1988; Follett Library Book Company - Elementary 1987/88 catalog; Follett Library Book Company - K-12, 1987/88 hardbound, paperback catalog; and Project Quake, "Resources - Books."

- Asimov, I. (1978). How did we find out about earthquakes? New York: Walker. For ages 10-19; reading level: 5.4. (58pp.) (**) (***)
- Asimov, I. (1981). How did we find out about volcanoes? New York: Walker. Reading level: 6.4. (64pp.)
- Aylesworth, T. (1979). Geologic disasters: Earthquakes and volcanoes (Impact Book). New York: Franklin Watts. For grades 4 and up. (88pp.)
- Aylesworth, T. G., & Aylesworth, V. L. (1983). The Mount St. Helens disaster. New York: Franklin Watts. For grades 5-7. (86pp.)
- Bain, I. (1984). Mountains and earth movements. New York: Franklin Watts. Reading level: 5.0, interest level: grades 5-8. (48pp.)
- Baker, K. (1989). The magic fan. San Diego, CA: Harcourt, Brace, Jovanovich.
- Berger, M. (1977). Jigsaw continents. New York: Coward, McCann, & Geoghegan. For grades 1-4. (47pp.)
- Bramwell, M. (1986). Volcanoes and earthquakes. New York: Franklin Watts. Reading level: 6.7, interest level: grades 5-8.
- Brandreth, G. (1981). Amazing facts about our earth. New York: Doubleday. For ages 10-14.
- Brandt, K. (1985). Earth. Mahwah, NJ: Troll Associates. (30pp.) *
- Branley, F. M. (1974). Shakes, quakes, and shifts (earth tectonics). New York: Thomas Y. Crowell. For grades 4-8. (33pp.)
- Branley, F. M. (1985). Volcanoes. New York: Thomas Y. Crowell. Reading level: 2.0, interest level: grades K-4. (32pp.)
- Branley, F. M. (1990). Earthquakes. New York: Harper Collins. For grades 5-9. (32 pp.)

- Brown, B., & Brown, W. (1974). Historical catastrophies: Earthquakes. Reading, MA: Addison-Wesley. For grades 5-7. (191pp.)
- Cazeau, C. J. (1974). Earthquakes. Chicago, IL: Follett. Reading level: 4.6, interest level: grades K-3. (32pp.)
- Challand, H. (1982). Activities in the earth sciences. Chicago, IL: Children's. For grades 5 and up. (93pp.)
- Challand, H. (1982). Earthquakes. Chicago, IL: Children's. For ages 5-9. (45pp.) *
- Christopher, M. F. (1975). Earthquake. Boston, MA: Little, Brown. For ages 9-11. (111pp.)
- Cole, J. (1987). The magic school bus inside the earth. New York: Scholastic. Readability analysis: Wheeler Smith-K, Spache-1.5-2.2. (40 pp.)
- Dudman, J. (1988). The San Francisco earthquake. Denver, CO: Wayland. For grades 1-6. (32pp.)
- Fodor, R. V. (1977). What does a geologist do? New York: Dodd, Mead. For grades 5-12. (62pp.)
- Fradin, D. B. (1982). Disaster! earthquakes. Chicago, IL: Children's. For ages 8-19. (63pp.)
- Fradin, D. B. (1982). Disaster! volcanoes. Chicago, IL: Children's. For ages 8-19. (62pp.)
- Gilbreath, A. (1986). Ring of fire and the Hawaiian islands and Iceland. Minneapolis, MN: Dillon. Reading level: 6.0, interest level: grades 5-8. (95pp.)
- Gilfond, H. (1981). Disastrous earthquakes. New York: Franklin Watts. For ages 10-19. (66pp.)
- Goldner, K. A., & Vogel, C. G. (1981). Why Mount St. Helens blew its top. Minneapolis, MN: Dillon. Reading level: 6.3, interest level: grades 5-8. (88pp.)
- Gormley, B. (1987). Paul's volcano. Boston, MA: Houghton Mifflin. Interest level: grades 3-6. (143pp., fiction)
- Gray, G. (1977). Alaskan woman. St. Paul: EMC. For grades 4-9. (40pp.)
- Harris, S. (1979). Volcanoes. New York: Franklin Watts. (48pp.)
- Heintze, C. (1968). The circle of fire; the great chain of volcanoes and earth faults. New York: Meredith. For grades 6 and up. (161pp.)

- Iacopi, R. (1974). Earthquake country: How, why and where earthquakes strike in California. Menlo Park, CA: Lane. For ages 7-21. (160pp.)
- Ingoglia, G. (1991). Look inside the earth. NY: Grosset & Dunlop. (14 pp.)
- Irving, R. (1962). Volcanoes and earthquakes** New York: Alfred Knopf. For grades 4-7. (123pp.)
- Jennings, T. (1989). Volcanoes and earthquakes. New York: Marshal Cavendish. For grades 4-5. (48 pp.)
- Kiefer, I. (1978). Global jigsaw puzzle, story of continental drift. New York: Atheneum. For ages 10-14. (79pp.)
- Knapp, B. (1990). World disasters: Earthquake. Austin, TX: Steck-Vaughn. For grades 5-9.
- Lambert, D. (1982). The active earth. New York: Lothrop, Lee, & Shepard. For grades 4-7. (41pp.)
- Lambert, D. (1982). Earthquakes. New York: Franklin Watts. For ages 7-9. (32pp.)
- Lambert, D. (1985). Volcanoes. New York: Franklin Watts. Interest level: grades 3-4. (32pp.)
- Larson, N. (1982). Why do we have earthquakes? Mankato, MN: Creative Education. Reading level: 4.1, interest level: grades 3-6.
- Lauber, P. (1972). Earthquakes: New scientific ideas about how and why the earth shakes. New York: Random House. Reading level: 3, for grades 2-6. (81pp.)
- Lauber, P. (1986). Volcano: The eruption and healing of Mount St. Helens. Scarsdale, NY: Bradbury Press. Reading level: 6.5, interest level: grades 5-8. Newberry Honor Book 1987. (60 pp.) NCEER readability analysis shows reading level of 7.9.
- Levine, E. (1987). If you lived at the time of the great San Francisco earthquake. New York: Scholastic.
- Lye, K. (1983). The earth. Morristown, NJ: Silver Burdette.
- Marcus, E. (1984). All about mountains and volcanoes. Mahwah, NJ: Troll Associates. Reading level: 3.0, interest level: grades 3-6. (30pp.) *
- Marcus, R. B. (1972). The first book of volcanoes and earthquakes. New York: Franklin Watts. For grades 5-7. (86pp.)

- Markle, S. (1987). Digging deeper. New York: Lothrop, Lee, and Shepard. (111 pp.)
- Matthews, A. (1986). Earthquake (a "Transformer book"). New York: Ballantine. Reading level: 3.0, interest level: grades 3-6; designed for reluctant readers. (fiction)
- Matthews, W. (1969). Story of volcanoes and earthquakes. Harvey House. For grades 4-6. (126pp.)
- May, J. (1969). Why the earth quakes. New York: Holiday. For grades 2-4. (37pp.)
- Merriams, D. (1975). I can read about earthquakes and volcanoes. Mahwah, NJ: Troll Associates. For grades 2-4.
- Miklowitz, G. D. (1977). Earthquake! New York: Julian Messner. For grades 4-7. (96pp.)
- Navarra, J. G. (1980). Earthquake! New York: Doubleday. For grades 5-7. (95pp.)
- Nixon, H., & Nixon, J. L. (1981). Earthquakes: Nature in motion. New York: Dodd, Mead. For grades 2-5. (63pp.)
- Paananen, E. (1982). Tremor earthquake technology in the space age. New York: Julian Messner. For ages 10-19. (126pp.)
- Pough, F. H. (1953). All about volcanoes and earthquakes.** New York: Random House. (150pp.)
- Poynter, M. (1980). Volcanoes, the fiery mountains. New York: Julian Messner. (128pp.)
- Radlauer, R. S. (1981). Volcanoes. Chicago, IL: Children's. Reading level: 4.4. (48pp.)
- Radlauer, R. S., & Radlauer, E. (1987). Earthquakes. Chicago, IL: Children's. Interest level: grades 3-6. (48pp.)
- Rutland, J. (1987). The violent earth. New York: Random House. Reading level: 3.0, interest level: grades 3-6. (24pp.)
- Salvadori, M. (1990). The art of construction. Chicago, IL: Chicago Review Press. For ages 10 and up.
- Santrey, L. (1985). Earthquakes and volcanoes. Mahwah, NJ: Troll Associates. Reading level: 4.0, interest level: grades 3-6. (30pp.) *
- Simon, S. (1991). Earthquakes. Morrow Junior. For grades 3-6. (32 pp.) (1979 version)***

- Stein, R. C. (1983). The story of the San Francisco earthquake. Chicago, IL: Children's. For grades 3-6. (31pp.)
- Sullivan. (1982). Earthquake 2099. New York: Dutton. Reading level: 5.8. (119 pp., fiction)
- Updegraff, I., & Updegraff, R. (1981). Earthquakes and volcanoes. Chicago, IL: Children's. Reading level: 5, for grades 4-7. (25pp.)
- Vita-Finzi, C. (1989). A pop-up guide: Planet earth; volcanoes; earthquakes; mountains; and the mighty forces that shape our world. New York: Simon and Schuster. For grades 3 and up. (10pp.)
- Walker, B., & the editors of Time-Life Books. (1982). Earthquake (Planet Earth Series). Alexandria, VA: Time-Life. For ages 11-19. Reading level: 12+ (176pp.)
- Watson, N., et al. (1982). Our violent earth. Washington, DC: National Geographic Society. (103pp.)
- Watts, L., & Tyler, J. (1978). The children's book of the earth. St. Paul, MN: EMC. (32pp.)
- Williamson, T. (1984). Understanding the earth. Morristown, NJ: Silver Burdett.
- Winner, P. (1986). Earthquakes. Lexington, MA: Silver. For grades 3-7.

* 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 (numbers begin with RC) and available from the National Library Service for the Blind and Physically Handicapped, The Library of Congress.



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

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Andres, L. (1990, October). Can you predict a quake? Superscience Blue, pp. 26-27. For ages 9-12.

Baby island, Hawaii-style. (1991, October). Superscience Blue, p. 4. For ages 9-12.

Bedway, B. (1990, February 23). Building for a landscape on the loose. Science World, pp. 9+. For ages 12-15.

The big quake of 1906. (1989, November 3). Current Events, p. 20. For ages 10-16.

Blohm, C. E. (1986, April). Nature's violent side. Cobblestone, pp. 6-10. For ages 8-14.

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Bracing for the big one. (1990, October). Superscience Blue, pp. 15-17. For ages 9-12.

Brennan, H. (1989, March 24). Armenia: Scientists survey the damage. Science World, p. 3. For ages 12-15.

Brennan, H., & Goodman B. (1989, April 12). Quakes from man-made lakes. Science World, pp. 6-9. For ages 12-15.

Brown, D. P. (1986, April). Elsewhere (ancient disasters). Cobblestone, pp. 30-31. For ages 8-14.

Brune, J. (1989, March 10). Quake up, sleepy head. ScienceWorld, p. 5. For ages 12-15.

Can winds trigger earthquakes? (1989, May 12). Current Science, p. 14. For ages 10-16.

Canby, T. Y. (1990). Earthquake: Prelude to the big one? National Geographic, 177(5), 76-105. For grades 5-Adult.

Cooper, M. (1986, January). The island that blew up. Faces, pp. 23-26. For ages 8-14.

- Curtis, S. (1987, June). Volcanoes of science and legend (Hawaii). Boys' Life, pp. 38-41. For ages 8-18.
- Da Groomes, K. V. (1991, November). Volcano! Boy's Life, pp. 39-43. For ages 8-18.
- Deadly quakes shake the world. (1990, October 5). Current Science, p. 9. For ages 10-16.
- Deepest hole being drilled for science. (1987, May 1). Current Science, p. 13. For ages 10-16.
- Digging deeper. (1986, April). Cobblestone, pp. 44-46. For ages 8-14.
- Earth wobbles every few weeks. (1988, November 18). Current Science, p. 15. For ages 10-16.
- Earthquake! (1990, March). National Geographic World, pp. 8-13. For ages 8-13.
- Earthquake damage in the U.S. (1988, April 22). Science World, p. 5. For ages 12-15.
- Earthquake kills about a thousand people. (1987, January 2). Current Science, p. 14. For ages 10-16.
- Earthquake shakes up southern California. (1987, October 23). Current Events, pp. 1-2. For ages 10-16.
- Earthquake! when will the big one hit? (1987, November 20). Junior Scholastic, pp. 12-13. For ages 10-14.
- Earthquakes! (1989, January 27). Junior Scholastic, pp. 6-7. For ages 10-14.
- Fishman, J. (1991, January 25). Deep heat. Science World. For ages 12-15.
- Fritz, S. (1985, November 29). Major earthquake hits Mexico City. Science World, pp. 4-7. For ages 12-15.
- Garrett, W. E. (1986). When the earth moves. National Geographic, 169, 638-639. For grades 5-Adult.
- Gerdes, V. L. (1987, March 23). The caldron called Kilauea. Science World, pp. 4-5. For ages 12-15.
- Geyser eruptions forecast quakes? (1992, January 31). Current Science, p. 13. For ages 10-16.
- Goodman, B. (1988, April 8). Waiting for the big one--in eastern North America. Science World, p. 6. For ages 12-15.

- Gore, R. (1985). Our restless earth. National Geographic, 168, 142-181. For grades 5-adult.
- Gwynne, P. (1981). Let's make the most of our faults. National Wildlife, 19,(6), 34-39.
- Harrigan, J. (1981, May). Through a volcano with Jules Verne. Cobblestone, pp. 30-33. For ages 8-14.
- Heller, K., & Brune, J. (1989, April 7). Tectonic terror. Science World, pp. 6-9. For ages 12-15.
- Huge ice sheets prevent earthquakes. (1988, September 9). Current Science, p. 12. For ages 10-16.
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- Ice erupts from volcanoes. (1988, December 16). Current Science, p. 10. For ages 10-16.
- Joyce, H. (1991, March). Discovering Pompeii. Faces, pp. 14-19.
- Kendrick, K., & Chayet, B. (1990, October). Shaky predictions. Superscience Blue, pp. 10-15. For ages 9-12.
- Kilgore, J. (1987, April 6). Earthquake: A.D. 365. Science World, pp. 16-19. For ages 12-15.
- Killer earthquake hits Mexico. (1985, October 18). Junior Scholastic, p. 13. For ages 10-14.
- Lin, S. C. (1990, March). Earthquake! hurricane! Boys' Life, pp. 32-35. For ages 8-18.
- McDowell, B. (1986). Eruption in Columbia. National Geographic, 169, 640-653. For grades 5-Adult.
- Macy, S. (1981, May). Aftershock: Rescue and rebuilding. Cobblestone, pp. 12-15. For ages 8-14.
- May 18th, 1980: Eyewitness accounts by Cobblestone readers. (1981, May). Cobblestone, pp. 20-23. For ages 8-14.
- Mednick, E. R. (1987, March). Earthquake! scientists look beneath the surface. 3-2-1 Contact, pp. 24-27. For ages 8-14.
- Mercer, C. (1986, October). Earthquake! Boys' Life, pp. 28-31+. For ages 8-18.
- Mexico City rebuilds after killer quake. (1985, October 11). Current Events, pp. 1-2. For ages 10-16.
- More explosions rock "Lake of Death." (1987, March 27). Current Science, p. 12. For ages 10-16.

- Most powerful quakes in U.S. (1988, February 5). Current Science, p. 14. For ages 10-16.
- Mount St. Helens: An American volcano. (1981, May). Cobblestone, pp. 4-7. For ages 8-14.
- Mount St. Helens won't blow its top again. (1988, October 21). Current Science, pp. 14-15. For ages 10-16.
- Natural disasters. (1986, April). Cobblestone, pp. 4-5. For ages 8-14.
- New method may predict earthquakes. (1990, February 16). Current Science, p. 13. For ages 10-16.
- New volcanoes form off Oregon coast. (1990, December 14). Current Science, p. 14. For ages 10-16.
- O'Connor, J. (1985, November 29). Mexico after the earthquake. Junior Scholastic, pp. 2-4. For ages 10-14.
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- Plude, C. (1986, April). Charles Richter: "Earthquake man." Cobblestone, pp. 20-22. For ages 8-14.
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- Pope, G. (1989, April 21). Volcano guts. Science World, p. 5. For ages 12-15.
- Pope, G. (1990, September 7). River of fire. Science World, p. 3. For ages 12-15.
- Proujan, C. (1985, November 29). Build a model tiltmeter--an earthquake warning system. Science World, p. 9. For ages 12-15.

- Proujan, C. (1985, November 29). Tiltmeters--when tilt means danger! Science World, p. 8. For ages 12-15.
- Quake shakes up earthquake class. (1989, December 1). Current Science, p. 14. For ages 10-16.
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- Reichlin, L. (1986, January 3). Can earthquakes be predicted? Current Science, pp. 4-5. For ages 10-16.
- Reichlin, L. (1986, February 14). Volcano disaster: When will the next one strike? Current Science, pp. 6-7. For ages 10-16.
- Reichlin, L. (1986, October 31). Superquake: When will it strike? Current Science, pp. 4-5. For ages 10-16.
- Reichlin, L. (1987, February 27). Erupting volcanoes threaten villages. Current Science, pp. 4-5. For ages 10-16.
- Reichlin, L. (1988, January 8). Damaging quake: A warning of the big one? Current Science, pp. 6-7. For ages 10-16.
- Ring around the volcano. (1986, May). 3-2-1 Contact, pp. 2-3. For ages 8-14.
- Rocks light up during earthquakes. (1987, May 15). Current Science, p. 8. For ages 10-16.
- Roop, P., & Roop, C. (1986, April). The New Madrid earthquake of 1811. Cobblestone, pp. 15-17. For ages 8-14.
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- Rosenstock, L. (1989, March 17). Can buildings be made to survive earthquakes? Current Science, pp. 6-7. For ages 10-16.
- Samz, J. (1987, November 6). Volcanoes on other worlds. Science World, pp. 16-18. For ages 12-15.

Samz, J. (1988, February 12). The strange case of the missing polar earthquakes. Science World, p. 6. For ages 12-15.

Satellite warns of tsunamis. (1989, April 14). Current Science, p. 12. For ages 10-16.

Scientists predict: Big quake will strike eastern U.S. (1989, January 6). Current Science, p. 7. For ages 10-16.

Sextro, D. (1981, May). Mount St. Helens' Harry Truman. Cobblestone, pp. 26-29. For ages 8-14.

Shake, rattle and roll. (1985, November). 3-2-1 Contact, p. 2. For ages 8-14.

Soren, D. (1988). The day the world ended at Kourion: Reconstructing an ancient earthquake. National Geographic, 174, 30-53. For grades 5-Adult.

Souza, D. M. (1988, July). Big waves in the harbors. Boys' Life, p. 9. For ages 8-18.

Stuckey, S. (1988, June). Climbing the killer volcano. Boys' Life, pp. 28-31. For ages 8-18.

Students lend a hand. (1989, January 27). Junior Scholastic, p. 7. For ages 10-14.

Svarney, B. P. (1986, April). Tsunamis: When the ocean roars. Cobblestone, pp. 37-38. For ages 8-14.

Tenney, E. (1981, May). The legend of Loo-Wit. Cobblestone, pp. 34-37. For ages 8-14.

Thousands buried alive. (1985, December 6). Current Events, pp. 1-2. For ages 10-16.

Tina vs. the volcano. (1991, November 15). Science World, pp. 6-9. For ages 12-15.

Two killer quakes strike Asia. (1989, January 20). Current Science, p. 14. For ages 10-16.

U.S. volcano may be active for decades. (1987, April 17). Current Science, p. 12. For ages 10-16.

Volcanic eruption triggered famine many years ago. (1988, April 1). Current Science, p. 14. For ages 10-16.

Volcano erupts under the sea. (1988, January 22). Current Science, p. 8. For ages 10-16.

Volcanoes: Still a threat. (1991, November 1). Junior Scholastic, p. 5. For ages 10-14.

Volcano watch. (1986, May). National Geographic World, pp. 18-23. For ages 8-13.

Wall stops lava from burying town. (1992, March 13). Current Science, p. 13. For ages 10-16.

- Walter, B. (1990, February 16). Volcano! deadly force. Junior Scholastic, pp. 10-11. For ages 10-14.
- Westrup, H. (1990, January 5). Giant quake: When will it strike? Current Science, pp. 4-5. For ages 10-16.
- Westrup, H. (1990, March 16). Predicting volcanic eruptions saves thousands of lives. Current Science, pp. 4-5. For ages 10-16.
- Westrup, H. (1990, September 7). Volcanic eruption buries entire town. Current Science, pp. 4-5. For ages 10-16.
- Westrup, H. (1991, October 4). Volcanic cloud could change climate. Current Science, pp. 8-10. For ages 10-16.
- What triggers volcanic eruptions? (1988, April 29). Current Science, p. 8. For ages 10-16.
- Wong, L. (1981, May). Monitoring a mountain. Cobblestone, pp. 16-19. For ages 8-14.
- Worst quakes of the 20th century. (1989, March 17). Current Science, p. 15. For ages 10-16.
- Young quake victims go home. (1989, September 22). Current Science, p. 14. For ages 10-16.



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- Asimov, I. (1978). How did we find out about earthquakes? New York: Walker. For ages 10-19, reading level: 5.4. (58pp.)(**)(***)
- Aylesworth, T. G., (1990). Moving continents - Our changing earth. Hillside: NJ: Enslow. For Junior High School-High School. (64 pp.)
- Aylesworth, T. G., & Aylesworth, V. L. (1983). The Mount St. Helens disaster. New York: Franklin Watts. For grades 5-7. (86pp.)
- Bain, I. (1984). Mountains and earth movements. New York: Franklin Watts. (48pp.)
- Berger, M. (1981). Disastrous volcanoes. New York: Franklin Watts. For ages 8-12. (47pp.)
- Bramwell, M. (1986). Volcanoes and earthquakes. New York: Franklin Watts.
- Brandreth, G. (1981). Amazing facts about our earth. New York: Doubleday. For ages 10-14.
- Brown, B., & Brown, W. (1974). Historical catastrophies: Earthquakes. Reading, MA: Addison-Wesley. For grades 5-7. (191pp.)
- Carson, J. (1984). Volcanoes. New York: Franklin Watts. (48pp.)
- Challand, H. J. (1982). Activities in the earth sciences. Chicago, IL: Children's. For ages 10-19. (93pp.)
- Eicher, D. L. (1976). Geologic time. Englewood Cliffs, NJ: Prentice-Hall. (150pp.)
- Fearon. Quake 8.1. Palo Alto, CA: Fearon. (Part of Flashback Disaster Series, high interest/easy reading - fiction.) Reading level: 4.0, interest level: grades 7-10.
- Fodor, R. V. (1978). Earth in motion: The concept of plate tectonics. New York: William Morrow. (95pp.) For grades 5-12.
- Fradin, D. B. (1982). Disaster! earthquakes. Chicago, IL: Children's. For ages 8-19. (63pp.)

- Fradin, D. B. (1982). Disaster! volcanoes. Chicago, IL: Children's. For ages 8-19. (62pp.)
- Gallant, R. A. (1986). Our restless earth. New York: Franklin Watts. For grades 5-9. (96pp.)
- Gere, J. M., & Shah, H. C. (1984). Terra non firma - understanding and preparing for earthquakes. New York: W. H. Freeman. For grades 7-Adult. (203pp.)
- Gilbreath, A. (1986). Ring of fire and the Hawaiian islands and Iceland. Minneapolis, MN: Dillon. Reading level: 6.0, interest level: grades 5-8. (95pp.)
- Gilfond, H. (1981). Disastrous earthquakes. New York: Franklin Watts. For ages 10-19. (66pp.)
- Golden, F. (1983). The trembling earth: Probing and predicting quakes. New York: Scribner. For grades 7-Adult. (175pp.)**
- Goldner, K. A., & Vogel, C. G. (1981). Why Mount St. Helens blew its top. Minneapolis, MN: Dillon. Reading level: 6.3, interest level: 5.8. (88pp.)
- Gray, G. (1977). Alaskan woman. St. Paul, MN: EMC. For grades 4-9. (40pp.)
- Heintze, C. (1968). The circle of fire; the great chain of volcanoes and earth faults. New York: Meredith. For grades 6 and up. (161pp.)
- Iacopi, R. (1974). Earthquake country: How, why and where earthquakes strike in California. Menlo Park, CA: Lane. For ages 7-21. (160pp.)
- Jennings, T. (1980). Volcanoes and earthquakes. Freeport, NY: M. Cavendish. For ages 12 and up. (132pp.)
- Jones, P. (1981). The forces of nature. Chicago: Children's. For grades 7-8. (64pp.)
- Kiefer, I. (1978). Global jigsaw puzzle: The story of continental drift. New York: Atheneum. For ages 10-14. (79pp.)
- Knapp, B. (1990). World disasters: Earthquake. Austin, TX: Steck-Vaughn. For grades 5-9.
- Kohler, P. (1987). Volcanoes and earthquakes. New York: Barron. For Junior High and up. (80pp.)
- Lambert, D. (1982). The active earth. New York: Lothrop, Lee, & Shepard. For grades 4-7. (41pp.)
- Lauber, P. (1972). Earthquakes: New scientific ideas about how and why the earth shakes. New York: Random House. For grades 2-6, reading level: 3. (81pp.)

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- Navarra, J. G. (1980). Earthquake! New York: Doubleday. For grades 5-7. (95pp.)
- Nixon, H., & Nixon, J. L. (1978). Volcanoes: Nature's fireworks. New York: Dodd & Mead. Reading level: 7.4. (63pp.)
- Paananen, E. (1982). Tremor earthquake technology in the space age. New York: Julian Messner. For ages 10-19. (126pp.)
- Poynter, M. (1990). Earthquakes: Looking for answers. Hillside, NJ: Enslow. For grades 7-12.
- Raymo, C. (1983). The crust of our earth. Englewood Cliffs, NJ: Prentice Hall. For grades 6-12. (135pp.)
- Rosbacher, L. A. (1986). Recent revolutions in geology. New York: Franklin Watts. For grades 7-12. (125pp.)
- Salvadori, M. (1990). The art of construction. Chicago, IL: Chicago Review Press. For ages 10 and up.
- Scariano. Earthquake! (Part of High Adventure series; high interest/easy reading - fiction.) Reading level: 3.0, interest level: grades 7-10.
- Simon, S. (1979). Danger from below: Earthquakes past, present, and future. New York: Four Winds. Reading level: 6.4, interest level: grades 5-8. (86pp.)***
- Taylor, G. J. (1983). Volcanoes in our solar system. New York: Dodd & Mead. For grades 4 and up. (95pp.)
- Tributsch, H. (1982). When the snakes awake: Animals and earthquake prediction. Cambridge, MA: MIT. (248pp.)
- Tufty, B. (1969). 1001 questions answered about earthquakes, avalanches, floods and other natural disasters. New York: Dover. For grades 10-Adult. (350pp.)
- Updegraff, I., & Updegraff, R. (1981). Earthquakes and volcanoes. Chicago, IL: Children's. For grades 4-7, reading level: 5. (25pp.)

Walker, B., & the editors of Time-Life Books. (1982). Earthquake (Planet Earth series). Alexandria, VA: Time-Life. For ages 11-19. Reading level: 12+. (176pp.)

Walker, B., & the editors of Time-Life Books. (1982). Volcano (Planet Earth series). Alexandria, VA: Time-Life. (176pp.)

Yanev, P. (1991). Peace of mind in earthquake country: How to save your home and your life. San Francisco, CA: Chronicle. (304pp.) (1974 version)**

* 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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2.9 Animals and Earthquakes

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- Can animals predict earthquakes? (1990, March). National Geographic World, 175, 12.
- Can California chimps predict earthquakes? (1976, November 4). New Scientist, 72 (1025), 275.
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- Kerr, R. A. (1980, May 16). Quake prediction by animals gaining respect. Science, 208 (4445), p. 695.
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- Logan, J. M. (1977, February 3). Animal behavior and earthquake prediction. Nature, 265 (5593), pp. 404-5.
- Lott, D. F., Hart, B. L., & Howell, M. W. (1981). Retrospective studies of unusual animal behavior as an earthquake predictor. Geophysical Research Letters, 8, 1203-1206.
- Magida, P. (1977, September). If pandas scream...an earthquake is coming! International Wildlife, pp. 37-39.
- Monagan, D. (1981, June). How animals predict earthquakes. Science Digest, 89 (5), 92-95, 124.
- Raskin, D. (1990). Earthquakes: Do animals know? American Health, 9, 102.
- Reasenber, P. (1978, January-February). Unusual animal behavior before earthquakes. Earthquake Information Bulletin, pp. 42-49.
- Rosenstock, L. (1988, May 13). Can animals predict earthquakes? Current Science pp. 4-5.

- Shaw, E. (1977, November). Can animals anticipate earthquakes? Natural History, LXXXVI (9), 14-20.
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- Tributsch, H. (1982). When the snakes awake: Animals and earthquake prediction. Cambridge, MA: MIT. (translated by Paul Langner).
- Tyckoson, D. A. (1986). Earthquake Prediction. Phoenix, Arizona: Oryx Press.
- West, S. (1980). Pet seismologists. Science News, 117, 376.

Section 3

Educational Resources

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3.1 Earthquake Education - Curricula Summary

<u>Name/Address</u>	<u>For Grades</u>	<u>Copyright</u>	<u>Content</u>	<u>Test Piloted</u>	<u>Cost</u>
<p>CALEEP Curricula Lawrence Hall of Science Univ. of California at Berkeley Berkeley, CA 94720</p> <p>More information can be found: 1. Dr. Wm. Ritz Science & Math. Institute CSU Long Beach, CA 90840</p> <p>2. Dr. Bonnie Brunckhorst Assoc. Prof. of Science Ed. CSU San Bernardino, CA 92407</p>	4-8	<p>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/Engin- eering Library.</p>	<p>"Mini-Kit" consists of 14 Hands-On earthquake education activities:</p> <ol style="list-style-type: none"> Teacher's Guide - including blackline masters Computer Disk - (Apple II+ and/or Ile 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 <p>Await the Quake Game can be purchased through the Lawrence Hall of Science Eureka catalog.</p>	<p>Have been field-tested throughout California in grades 4-8.</p>	<p>"Mini-Kit" \$30, plus \$5 shipping and handling.</p>

<u>Name/Address</u>	<u>For Grades</u>	<u>Copyright</u>	<u>Content</u>	<u>Test Piloted</u>	<u>Cost</u>
I Can Make X the Difference Chair Emergency Preparedness Committee Utah State PTA 1037 E. South Temple Salt Lake City, UT 84102	Primary Grades, written at 4th grade reading level	1978 - <u>Index for Teachers</u> 1983 - <u>Elementary Curriculum</u>	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: 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.	\$3.50/copy plus postage.
<u>Crustal Evolution Education Project</u> available from: Ward's Natural Science Establishment, Inc. 5100 W. Henrietta Rd. P.O. Box 92912 Rochester, NY 14692-9012 1-800-962-2660	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, 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 supplement 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.	Class Pack which contains 1 Teacher's Guide and 30 copies of Student Investigation Booklet - \$23.50, except for "Quake Estate"-\$31.50 and "The Eruption of Mount Saint Helen's" - \$31. Ward's also offers a master binder containing the teacher guides from each of the 33 modules, \$99.00.

3.1 Earthquake Education - Curricula Summary (Continued)

<u>Name/Address</u>	<u>For Grades</u>	<u>Copyright</u>	<u>Content</u>	<u>Test Piloted</u>	<u>Cost</u>
<u>Earthquake Awareness and Preparedness Curriculum</u> Junior League of Oakland-East Bay 3685 Mt. Diablo Blvd. Suite 251 Lafayette, CA 94549 ATTN: President	Pre-K-6; has been used with students up to 8th grade	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 <u>Instructor's Guide</u> 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 JOEB, 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.	\$10.00
<u>The Earthquake Hazard in Utah</u> Publications Department Utah Geological Survey 2363 Foothill Drive Salt Lake City, UT 84109-1491 Sandra N. Eldredge*	High School	1991	This is part of a larger curriculum called "Places with Hazards; A Teacher's Handbook on Natural Hazards in Utah" developed for secondary-level earth science teachers as a means of preparing students to live more safely in a world that can pose problems from natural hazards. Students should be able to make wise choices about where to live and work. The objectives are to learn about natural hazards, how they can be identified, what effects they have, and how they can be mitigated. Places in Utah are identified where natural hazards have occurred and can be expected to occur. The curriculum contains ten sections: 1) overview, 2) earthquakes, 3) slope failures, 4) problem soil and rock, 5) radon, 6) volcanoes, 7) avalanches, 8) wildfires, 9) floods, and 10) dam safety. Each lecture is accompanied by a set of 35 mm slides for classroom use. Also included are activities, master sheets, glossaries, and resources.	During the 1990-1991 school year, ten teachers in eight schools participated in a pilot project using the curriculum materials. The curriculum has been a pilot project during the 1991-1992 school year. Feedback is anticipated to further improve the lecture set.	Utah Geological Survey Open-File Report 211-A, 83 p p . \$ 6 . 8 0 , accompanying set of 40 slides and text (6 pp.), \$15.00 (can be purchased separately).

* Indicates principal authors

<u>Name/Address</u>	<u>For Grades</u>	<u>Copyright</u>	<u>Content</u>	<u>Test Piloted</u>	<u>Cost</u>
<u>Earthquakes: A Teacher's Package for K-6/FEMA 159</u> Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812	K-6	Developed for FEMA by the National Science Teachers Association	This 280-page package was developed by the National Science Teachers Association. It contains hands-on classroom activities that support virtually all elementary subject areas. Designed for the classroom teachers with little or no background in earth science, the six-unit package focuses on: <ul style="list-style-type: none"> • Defining an earthquake; • Why and where earthquakes occur; • Physical results of earthquakes; • Measuring earthquakes; • Recognizing an earthquake; and • Earthquake safety and survival. 	Has been field tested in Alaska, Calif., Indiana, Maryland, Missouri, Montana, NY, So. Carolina, Tennessee, and Washington	Distribution of publications is limited to one free copy per school while supplies last. Send single copy requests on school letterhead to FEMA. Also available from NSTA (202) 328-5800, for \$16.50 soft cover (#PB-77) or \$15.00 3-hole punch (#PB-77/1).
			The Teacher's Package includes Background, Earthquake Legends, Scope and Sequence Charts, and Line Masters.		
			Also available: FEMA 88a <u>Earthquake Safety for Children</u> . This 4-part booklet for teachers contains excerpts from Units 5 and 6 of <u>Earthquakes - A Teacher's Package for K-6</u> (FEMA 159). It provides classroom activities designed to prepare students to cope safely when an earthquake occurs.		
			The booklet covers: <ul style="list-style-type: none"> • What happens during an earthquake; • Hazard Hunts; • Assembling emergency kits; and • Earthquake simulation and drills. 		

3.1 Earthquake Education - Curricula Summary (Continued)

<u>Name/Address</u>	<u>For Grades</u>	<u>Copyright</u>	<u>Content</u>	<u>Test Piloted</u>	<u>Cost</u>
<u>Earthquakes</u> (module) "Minorities in Engineering" Project Currently used by MESA Univ. of Washington 353 Loew Hall, FH-18 Seattle, Wash. 98195 *Dr. Tom Liau SUNY at Stony Brook	8-10	1980, developed by National Coordinating Center for Curriculum Development, College of Engineering and Applied Sciences, State University of New York at Stony Brook.	This is a module designed to interest students in earthquakes through activities, modeling, engineering applications, and simulation strategies. Has 12 lessons: 1-5 introduce students to earthquakes; 6-9 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, i.e. 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 NCEER to copy the module on request.

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Hands-On Earthquake Learning Package Environmental Volunteers 2448 Watson Court Palo Alto, CA 94303 (415) 424-8035	K-12	First earthquake teaching kit - developed 1981; copyright 1983	<ol style="list-style-type: none"> 1. Instructor's Guide <ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> The Story of the Earth Red Cross' Safety and Survival in an Earthquake "Getting Ready for a Big Quake" - Sunset magazine Complete guide to school earthquake planning Neighborhood Preparedness Guide "Plans for the Teaching Materials" 2. Hands-On Teaching Materials <ol style="list-style-type: none"> a. Plate Tectonics Globe (removable plates) b. Earth Hemisphere Model c. Plate Puzzle map (ocean floor features) d. Wood Plate/Fault Blocks e. 9 ft. sq. plate tectonics rug (pattern also available) f. Sea Floor Basalt rock sample g. Sea Floor spreading box h. Time cards, markers and time-tape i. Continental Drift film (computer-generated) j. Fault Zone Model k. Magni-tube Model l. Motor driven shaking table and accessories 	Used in FEMA earthquake education center in Seattle, Charleston, and Memphis. Palo Alto and Sunnyvale, CA, have adopted HELP for use in their schools. Currently involved in development of elementary curriculum with FEMA and National Science Teacher's Assoc.	\$8,280 Total. Instructors' Guide \$200. Shaking Table \$1,900. Plate globe \$450.

3.1 Earthquake Education - Curricula Summary (Continued)

<u>Name/Address</u>	<u>For Grades</u>	<u>Copyright</u>	<u>Content</u>	<u>Test Piloted</u>	<u>Cost</u>
Northwest Earthquake Workshop for Teachers (N.E.W.T.) Pacific Science Center 200 Second Ave. N. Seattle, WA 98109	Not organized by grade level; activities grouped in a conceptual hierarchy of simple concepts to more complex ones.		The goal of this curriculum is two-fold: to promote a better understanding of science processes through the investigation of Earthquake phenomena by providing conceptually sequenced, hands-on activities and to promote scientific literacy by encouraging the learner to develop and utilize the science process skills necessary for doing science and for living in a complex technological society. This curriculum is not organized by grade level. Within each section/concept, the activities are organized from the most simple to the most complex. Depending on the grade level taught, a teacher will tend to teach the activities listed near the beginning or ends of the sections. Concepts include: <ul style="list-style-type: none"> • The intensity of earthquake shaking within an area is directly affected by the local geology and soil type. • Structures behave differently during earthquake shaking due to differences in building size and shape, building materials and construction. • Earthquakes are a frightening experience. However, there are ways to minimize the risks and damage. Appendices include a pre-test, Resource List, and Earthquake Histories of Washington, Oregon, Idaho, Montana and Alaska.		Not currently available.

* Indicates principal authors

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<u>Plate Tectonic Cycle - Earth's Moving Force</u> <u>Moving Force</u> Math Science Nucleus 3710 Yale Way Fremont, CA 94538 *Dr. Joyce Blueford	K-6	1991 Math/Science Nucleus, Second Edition	<p><u>Plate Tectonic Cycle - Earth's Moving Force</u> (259 pp., 84 lesson plans including 28 innovative hands-on lab activities; 12/grade level K-6).</p> <p>Themes covered include volcanoes, earthquakes, plate tectonics, and hazards. Students learn that the Earth is dynamic as it spins on its axis, revolving around the Sun. The Earth is restless inside, as it tries to cool its interior. The crust of the Earth is pulled and pushed causing earthquakes and volcanoes along the boundaries of plates. Hands-on activities teach students how scientists investigate the Earth by looking at data derived from earthquakes and volcanoes and to think about present theories about why the Earth's surface moves. Learning about earthquakes and volcanic hazards will help children to understand disasters that sometimes occur and help them learn how to cope. Also includes a position paper on earthquake education, a section on developing a school wide disaster plan, and a listing of organizations where more information can be obtained. This volume represents 4 weeks of a 34 week elementary science program per grade level called the Integrating Science, Math, and Technology (I. Science MaTe) Program.</p>	Formally test piloted program for 10 years; currently used in schools throughout California.	<p><u>Plate Tectonic Cycle book</u> - \$18.95 plus \$2.50 shipping and handling (259 pp.).</p> <p>Hands-on material and childrens' books also available, request information sheet for current prices.</p>

3.2 Supplemental Informational Material

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Be Brave! Earthquake!" KYOU-TV Santa Ana Community Television 2900 W. Edinger E-103 Santa Ana, CA 92704 (714) 667-3266	Ages 3-10	This is a 6 and one-half minute video designed for young children. Blossom the Clown discusses preparedness for natural disasters. Includes a lesson plan by Mary Picard.	\$20.00
"Big Bird Get Ready for Earthquakes" Children's Television Workshop Dept. NH-EQ K One Lincoln Plaza New York, N.Y. 10023 or FEMA P.O. Box 70274 Washington, D.C. 20024	K - 6 for parents/ caregivers to use with children	<p>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 pre-schoolers.</p> <p>2. "Big Bird Get Ready! For Hurricanes" Kit* includes a 16 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. Also available: "Big Bird Get Ready! For Floods" kit which includes a booklet, a "Match the Message" card game, and an audiocassette story: "The Great Flood on Sesame Street."</p> <p>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.</p> <p>4. FEMA also has other related publications: FEMA 46, <u>Earthquake Safety Checklist</u>; FEMA 48, <u>Coping with Children's Reactions to Earthquakes and Other Disasters</u> (also available in Spanish - FEMA 66); and FEMA 88, <u>Guidebook for Developing a School Earthquake Safety Program</u>.</p>	Individual copy \$2.25, 100-500 copies \$2.00, and 500 and up \$1.75. Make check payable to Children's Television Workshop. Videotape is available only from CTW for \$19.95. Single copies of kits are available at no charge from FEMA.

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"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.	\$10.00
<u>Colors of the Earthquake*</u> <u>Quake Tales*</u> Carol Hill Mintie White School 515 Palm Watsonville, CA 95076 (408) 728-6321	K - 6	<u>Colors of the Earthquake</u> contains children's art illustrating Carol Moran's poem reflecting the emotions of the aftermath of the Loma Prieta earthquake. <u>Quake Tales</u> is an anthology of children's writings about their experiences during and after the Loma Prieta earthquake.	Each booklet is \$4.00 and includes price of shipping.
<u>Containing Crisis: A Guide to Managing School Emergencies (1990)</u> by R.W. Watson, J.H. Poda, C.T. Miller, E.S. Rice, G. West National Educational Service 1821 West Third Street Post Office Box 8 Bloomington, IN 47402 (812) 336-7700	For Educators	This 113 page book illustrates how, in an emergency situation, educators can limit injury and trauma to their co-workers, students and community. It also demonstrates how to minimize the risk of a school emergency, what actions to take should one occur, and what post-crisis activities are vital to the emotional well-being and future safety of students and faculty. Much of the information in this book relates to school emergencies precipitated by earthquakes, tornadoes, or other natural hazards.	\$19.95. There is no shipping charge if payment is prepaid; otherwise, include \$1.50 per copy for shipping. Indiana residents add 5% sales tax.

3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<p><u>Coping with Children's Reactions to Earthquakes and Other Disasters*</u> FEMA 48 (FEMA 66 Spanish version.) Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812</p>	<p>School staff, PTA</p>	<p>This pamphlet was developed by the San Fernando Valley Child Guidance Clinic after the 1971 San Fernando Earthquake. It is intended to help parents and teachers deal with children's fears and anxieties following a disaster.</p>	<p>One free copy/school while supplies last. Send single copy requests on school letterhead.</p>
<p>"Critical Time; Earthquake Response Planning & Schools** Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812</p>	<p>School staff, PTA</p>	<p>This 14 minute videotape was produced for FEMA by the Missouri Emergency Management Agency. It is intended to complement the <u>Guidebook for Developing a School Earthquake Safety Program</u> (FEMA 88). It discusses the responsibilities of school administrators, teachers, and staff to acquire the knowledge and skills needed to protect and care for the student population until outside help is available.</p>	<p>Videos are available for loan. Broadcast quality on 3/4" tape or standard 1/2" VHS.</p>
<p><u>Customized Disaster Survival Manuals</u> Disaster Survival Planning, Inc. Headquarters: 669 Pacific Cove Drive Port Hueneme, CA 93041 (805) 984-9547</p>	<p>School staff, teachers - all grades.</p>	<p>Contains everything you need to do to create your own customized disaster survival manuals for your school or classrooms. Includes a comprehensive workbook which illustrates how to use each form and provides step-by-step instructions; an assembled manual ready to be filled in by you or your people; a custom-cut plexiglass wallmount for displaying your completed manual prominently for easy access. Extra manuals, forms, workbooks, wallmounts, software and other supplies can be purchased separately. Also available is their new book, <u>Disaster Survival Planning: A Practical Guide for Businesses</u> by Judy K. Bell. All the information in it applies to schools as well.</p>	<p>Each customized manual set - \$79.95. Book - \$19.95.</p>

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Disaster, Helping Your Child Cope*</u> (1988) Cooperative Disaster Child Care 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. Cooperative Disaster Child Care provides a 24 hour training program for persons interested in becoming disaster child care givers.	
The Drift Globe Omni Resources, Inc. P.O. Box 2096 Burlington, NC 27216-2096 (919) 227-8300 (800) 742-2677	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. Instruction guide discusses climate and fauna during each time period, and is illustrated with cartoons. Also available from Omni Resources, Inc., Satellite Image Maps (about 79 x 59 cm.) including "San Francisco, CA: Earthquakes?" (67-8780) and "Shiprock, NM: Eroded Volcanic Plug" (67-8782), for \$6.95 each.	\$179.95, plus shipping (68-2800).
"Earthquake Awareness and Risk Reduction in Utah" Public Information Series 10 Utah Geological Survey Publication Sales 2363 Foothill Drive Salt Lake City, UT 84109-1491	General	This videotape (VHS) outlines activities in Utah aimed at public awareness and reduction of risks associated with earthquakes.	\$6.00, plus \$2.50 for mailing. Utah residents add 6.25% sales tax.

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"The Earthquake Connection" Ward's Natural Science Establishment, Inc. 5100 West Henrietta Rd., P.O. Box 92912 Rochester, NY 14692-9012 Toll Free: (800) 962-2660	7-12	This live-action video (VHS format) presents the latest theories on earthquakes and their origins, including why earthquakes happen and where they are likely to occur. Presented in two parts: Part 1 (23 minutes), Part 2 (21 minutes). (Catalog No. 193 E 0222). Also available from Ward's: "Quake: Our Trembling Earth," a sound filmstrip for grades 7-12; "Earthquakes" (Solo-Learn), a sound filmstrip for grades 7-12; "Plate Tectonics: The Puzzle of the Continents," a VHS Video (15 minutes) for grades 7-12; "Earthquakes and Faults," a set of 38 color slides; and "Earthquakes," a sound filmstrip with audiocassette or set of 20 color slides.	"Quake: Our Trembling Earth" - \$110; "Earthquakes" (Solo-Learn) \$51; "Plate Tectonics" - \$59.95; "Earthquakes and Faults" - \$82.33; "Earthquakes" - \$38.50 (sound filmstrip) and \$43.00 (color slides).
"Earthquake! Disaster in L.A." Omni Resources, Inc. P.O. Box 2096 Burlington, NC 27216-2096 (919) 227-8300 (800) 742-2677	High School and older	This 53 minute videotape includes footage shot <u>during</u> an earthquake, a seismologist discussing what would happen if a large earthquake struck Southern California, and what steps the Red Cross has taken to prepare. Also available: "When the Earth Moves" (27 minutes), "Earthquakes" (20 minutes), "Volcanoes of the United States" (20 minutes), and "The Alaska Earthquake, 1964" (21 minutes).	\$29.95 each
<u>Earthquake Hazards Around the Home*</u> CALEEP Lawrence Hall of Science University of California Berkeley, CA 94720 (510) 642-8718 FAX: (510) 642-1055	Primary Grades	A coloring book that features the rooms in a house and identifies potential earthquake hazards in each. Also available: • <u>Finding Earthquake Hazards Close to Home/Neighborhood Field Trip</u> • <u>Living Safely in Your School Buildings</u> - a pamphlet and activity guide for administrators to help them plan for earthquake preparedness in their schools. Includes: surveying the hazards at your school site, developing an emergency plan for your school, and earthquake awareness drills for schools.	\$5.00 for classroom set of 35. 100 brochures \$11.00 \$2.00

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Earthquake I Am Prepared*</u> One & Only Publishing 2221 Las Palmas "H" Carlsbad, CA 92009 (619) 931-7777, Toll free (1-800-451-6659)	K - 6 Coloring Workbook, 7 - 9 Activity Workbook, T e a c h e r s Guide	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 "Plates" and a map of North and South America showing earthquake activity. 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 "Plates" and a map of North and South America showing earthquake activity. Both books are available in Spanish.	Sample books are available on request. Up to 1000 books, \$.25 each; 1000-2000 books, \$.22 each; 2001-3000 books, \$.19 each (plus shipping). Teachers Guide \$15.00. Orders under \$40 must be prepaid, 2% less discount with prepaid orders.
"Earthquake Information" Geologic Inquiries Group U.S. Geological Survey 907 National Center Reston, VA 22092 (703) 648-4383	Elementary, Middle and High School Classes	"Selected References on Earthquakes" (Bibliography) (January, 1991). List includes material on specific earthquakes, general earthquakes, prediction and preparedness; lists catalogs and maps of earthquake occurrences. Also available, "Selected References on Continental Drift and Plate Tectonics" (Bibliography) (April, 1991).	Free
"Earthquake Information" Branch of Distribution U.S. Geological Survey Box 25286, Federal Center Denver, CO 80225	Elementary, Middle and High School Classes Available from Books and Open- File Reports	Earthquakes (Booklet) San Andreas Fault (Booklet) Safety and Survival (Leaflet) Severity of an Earthquake (Leaflet)	Single copies available FREE from Branch of Distribution.

* Copies available for viewing at NCEER

3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Earthquake Information" Superintendent of Documents (see address below)	Middle and High School Classes	<u>Preliminary Determination of Epicenter</u> . Gives date, time, location, depth, and region for worldwide earthquakes of magnitude 3 and above.	Annual subscription: \$21.00 (domestic); \$26.25 (foreign). Available from Superintendent of Documents. Single copies (\$3.00 domestic, \$3.50 foreign) available from USGS, Branch of Distribution. Sample copies available.
"Earthquake Information" Superintendent of Documents U.S. Government Printing Office Washington, DC 20402	Middle and High School Classes	<u>Earthquakes and Volcanoes</u> 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.	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 MASTERCARD call 202-783-3238. Single copies available for \$1.25 from USGS Book and Report Sales in Denver.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Earthquake Planning and Preparedness Activities for Childcare Providers*</u> (1989) Bay Area Regional Earthquake Preparedness Project Metro Center, #152 101 8th Street Oakland, CA 94607		This 54 page publication 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 Activities After an Earthquake, Common Earthquake Hazards, Hazards Found in the Coalinga Schools After the Earthquake, Procedures to Reduce Earthquake Hazards, Emergency Procedures, Emergency Plans, Basic Brainstorming Rules, and Earthquake Plan Checklist.	\$10.00 (#P89002BAR from ABAG).
"Earthquake-Predictable Disaster" Ztek Co. P.O. Box 1055 Louisville, KY 40201-1055 (800) 247-1603 FAX: (502) 584-9090		A NOVA videodisc documentary in which students can learn how certain scientists can be about the size, time and location of major earthquakes (L00475). Also available: "Born of Fire," a National Geographic videodisc in which students can see how the movements of the plates of the earth's crust cause earthquakes and volcanic eruptions (L00014).	\$30 each.
<u>Earthquake Preparedness and Safety Tips*</u> Emergency Management Section City of Santa Ana Fire Department 120 West Walnut Santa Ana, CA 92701	K - 4	This is a 16 page, tri-lingual (English with Spanish and Vietnamese captions) coloring book.	Send 8½" x 11" self-addressed, stamped envelope for single copy.

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3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Earthquake Preparedness Handbook</u> Lafferty & Associates, Inc. P.O. Box 1026 La Canada, CA 91011 (818) 952-5483	Jr. High-College School Staff	A 32 page, comprehensive step-by-step guide on how to prepare for earthquakes. Available in English and Spanish. Also available from Lafferty & Associates, Inc.: "Shake, Rattle & Roll" videotape, or slide/cassette; "Be Ready" videotape, or slide/cassette; "Earthquake Sounds Tape" a 45 second tape composed of real earthquake sounds in combination with clanking and breaking glass, sloshing water; "How to Survive A Major Earthquake," a 30 minute tape dialogue on what can be done to prepare; "Table-Talk Tent Cards" (32 explanatory, stand-up cards to be used with actual objects as preparedness is explained); and "Earthquake Fault Map" of northern and southern California. Lafferty & Associates, Inc. also has: Business and Industry Preparedness, Community-Based Earthquake Preparedness Training Programs, and Instructor Training.	\$5.00/single copy. Quantity price list available. "Shake, Rattle & Roll" slide/cassette program \$150.00; Videotape \$175. "Earthquake Sounds Tape" \$10.00. "How To Survive A Major Earthquake" \$6.00. "Table-Talk Tent Cards" \$30.00. "Earthquake Fault Map" \$25.00 (rolled); \$50.00 (mounted).
<u>Earthquake Preparedness Policy. Considerations for School Governing Boards</u> (1991) Association of Bay Area Governments P.O. Box 2050 Oakland, CA 94604		Provides information about current laws regulating earthquake preparedness in public and private schools in California. Indicates policies all schools should consider adopting in order to develop comprehensive earthquake preparedness and response plans.	12 pp. \$4.00 #P91001BAR
"Earthquake Preparedness: The School Bus Driver" American Motion Pictures Company 2247 15th Avenue West Seattle, WA 98119 (206) 282-1776	School Bus Drivers, School District Administrators	This is a 16:44 minute videotape of an earthquake preparedness presentation targeted for school bus drivers. This videotape and support materials were developed by Seattle School District Support Services, Laidlaw Transit, Inc., EBI O'Ryan (a private enterprise), School Earthquake Safety & Education Project, and American Motion Pictures Company. It provides information on earthquake zones, typical earthquake damage and goes through a scenario of a morning school-bus route earthquake disaster. Ends with recommendations for appropriate actions.	\$20 including tax and shipping.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Earthquake - Ready" (Leaders Guide)(1983) CALEEP Lawrence Hall of Science University of California Berkeley, CA 94720	A book for use by leaders to help Girl Scouts get an Earthquake- Ready patch (Juniors and Cadettes)	Seven activities must be completed to obtain the patch: 1. Act it Out 2. Improve Your EQ 3. Bedroom Hazard Hunt 4. Earthquake Drills a. Home b. Troop 5. First Aid 6. What Will Your Family Do After an Earthquake? 7. Reaching Out It also contains some informational appendices, i.e. "How to make a Search-And-Find Puzzle."	Single copies available free. Girl Scout leaders have permission to reproduce all printed materials girls need to use the program.
<u>Earthquake Ready:</u> <u>Preparedness Planning for</u> <u>Schools (1990)</u> Association of Bay Area Governments P.O. Box 2050 Oakland, CA 94604		Materials in the six packets of this training kit discuss steps in developing a safety plan and ways to train school personnel. Detailed are ways to organize and form planning and emergency response teams. For administrators, faculty, staff, and interested parent groups.	76 pp. \$8.00 #P90002BAR
<u>Earthquake Safety Checklist</u> (FEMA 46) Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812	General	One of several pamphlets describing how to prepare for an earthquake, what to do during an earthquake, and what hazards to avoid afterwards. Also available: <u>Family Earthquake Safety - Home Hazard Hunt and Drill (FEMA 113)</u> , a booklet of family preparedness activities which includes: • How to identify and correct hazards in the home; • Where to go for protection when your house starts to shake; • How to hold family earthquake drills; and • How to cope during the aftermath of the earthquake.	Distribution of publications is limited to one free copy per school while supplies last. Send single copy requests on school letterhead.

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Earthquake Safety Guide For Children--What To Do If You Are Alone*</u> Los Angeles Chapter, American Red Cross Contract Educational Services 2700 Wilshire Boulevard P.O. Box 57930 Los Angeles, CA 90057-0930	5 - 6	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.	\$.10/copy Shipping charges: 1-25 copies - \$.25 total. 25-250 copies - \$1.00 total.
Earthquake Safety Teaching Modules Health Sciences Center for Educational Resources University of Washington SB-56 Seattle, Washington 98165 (206) 685-1186 FAX: (206) 543-8051 Contact Person: Marie Gary, Program Coordinator	(1.) Pre- school - 3 (2.) 4 - 6	1. "When the Unusual Happens" consists of 3 lesson plans; 1 10-minute audio-visual presentation, "Habit Rabbit," audiotape, "Earthquake Sounds;" masters of activity sheets; teacher's preparation materials on earthquake facts; vocabulary list of scientific terms related to earthquakes; common "What If" 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 Pre-school - 3rd Grade. 2. "Rumble Ready" consists of 3 lesson plans; 1 10-minute videotape, "Desk Nest;" 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. ** Copies available for preview at Health Sciences Center for Educational Resources. Preview charge \$35.00 for 30 days. Preview charges go toward purchase price.	(1.) Videotape* (10 min.) or slides and learning module: 3/4" cassette: \$120 ea. 1/2" Beta 1: \$120 ea. 1/2" Beta 2: \$120 ea. 1/2" VHS: \$120 ea. (2.) Video* and learning module: \$120 * Available in 1/2" VHS, 1/2" Beta 1 or 2, 3/4" videocassette.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
Earthquake Sound Cassette Tape* Emergency Preparedness Committee Utah State PTA 1037 East South Temple Salt Lake City, UT 84102 (801) 359-3875	K - 12	A one minute cassette tape of earthquake sounds beginning with a rumbling noise that includes sounds of breaking glass, books falling and walls creaking. No screaming, crying or sounds that may terrify children.	\$2.00 per tape includes mailing costs.

3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
Earthquake Watch Kit Seismograph Model Mount St. Helens Ash Set Seismograms for the 1964 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 90670-4490	For use in Earth Science Classes	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 (SK 66016-01). The seismograph model includes a recording needle, a support with a suspended weight, and a recording tape. It demonstrates the principles of seismograph recording, and comes with a teacher's guide (SK 64110). 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 (SK 60147).	\$16.38 \$17.78 \$10.96
NOTE: Earthquake Watch Kit and Seismograph Model are also available from: Fisher-Educational Materials Division (1-800-955-1177) Seismograph Model - Hubbard and Volcano Kit available from Nasco (1-800-558-9595)		The Seismograms for the 1964 Alaskan Earthquake Kit include 12 exact size copies of seismograms for a 48-hour period showing the 1964 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 (SK 60209).	\$23.24 (refer to quote #SE 21074 to insure order is processed with correct prices).
Fisher Educational Materials: Earthquake Watch Kit (S45098) - \$19.90 (92/93 catalog) Seismograph Model (S45068) - \$22.30 (92/93 catalog) <u>Nasco:</u> Seismograph model - (SA-2832M) \$17.85 (1992 catalog) Volcano Kit - (SB15280) \$15.00 (1992 catalog).			

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Earthquake" What to Do!!! <u>When the Ground Shakes*</u> City of El Segundo Police Department 348 Main Street El Segundo, CA 90245	K - 3	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.	Single copies are free and can be copied.
"Earthquakes" Scott Resources P.O. Box 2121B Ft. Collins, CO 80522 (303) 484-7445 FAX: (303) 484-8067	7 - 12	This videotape is part of a series of videotapes available in both VHS or Beta format that focuses on the study of earth science topics. Each is a "video field trip" 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 (20 minutes). Also have videotapes on: <ul style="list-style-type: none"> • "Faulting and Folding" - explores the processes that result in the faulting and folding of the Earth's crust. Uses footage from Loma Prieta earthquake of 1989 to illustrate the ways that faults and folds affect humans (15 minutes). • "Mount St. Helens; What Geologists Learned" - incorporates footage of the eruption of Mt. St. Helens and subsequent eruptions in exploring the causes of volcanism (grades 9-12) (40 minutes). • "Plate Tectonics - The Puzzle of the Continents" - explores the fundamentals of the Plate Tectonics Theory from Wegener's observations on continental drift to the latest computer analysis of movements at plate boundaries (15 minutes). • "Volcanoes of the United States" - takes students to the regions of the United States where volcanic activity has been most concentrated (20 minutes). 	\$59.95 each for "Earthquakes," "Volcanoes of the United States," "Faulting and Folding," and "Plate Tectonics - The Puzzle of the Continents." \$85.50 for "Mount St. Helens."
"Earthquakes" Self-Help Advice Brochure Communications Directorate Emergency Preparedness Canada Jackson Building, 2nd Floor 122 Bank Street Ottawa, Ontario K1A 0W6 (613) 991-7035		This brochure includes what to do to be prepared for an earthquake, what to do if one occurs, and actions after an earthquake. Includes a map showing the risk of earthquake damage in Canada. Part of a series of Self-Help Advice Brochures. Others in the series are: Floods, Winter Power Failures, Winter Storms: You and Your Car, Severe Storms, Prepared for the Woods. These brochures are also available on cassette tapes which have the titles written in braille for the visually impaired.	Single copies free.

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Earthquakes and Volcanoes*</u> (1985) by Ruth Deery, illustrated by Sue Ellen Miller-Ray Good Apple Inc. Box 299 Carthage, IL 62321-0299	4 - 8	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: "Two Myths About Earthquakes," "Three Kinds of Volcanoes," "Predicting Eruptions," and "Pangaea: Super Continent." Includes teacher's lesson notes to be used with the workbook. Other books in this series are: <u>Tornadoes and Hurricanes</u> , <u>Floods and Droughts</u> , and <u>Storms and Blizzards</u> .	\$6.95 for 48 pp. reproducible booklet, plus shipping and handling. Set of 4 titles: \$27.80.
<u>"Earthquakes: Building a Plan for Preschools"</u> Emergency Management Division City of Irvine P.O. Box 19575 Irvine, CA 92713 (714) 724-7149	School staff, PTA	This consists of five VHS videotapes of the City of Irvine's 1988 conference on emergency preparedness for preschools. Subjects covered include: The Earthquake Threat, Making a Plan, Non-Structural Hazards, Psychological, and Medical. Also available: "School Disaster Preparedness Workshop," three VHS videotapes of the Orange County Cities Emergency Management Organization's 1989 workshop for schools. Subjects covered include: Evaluating Hazards, Non-structural Hazard Mitigation, Team Concept/The Buddy System, American Red Cross and Schools, Working with your City, First Aid Team, Search and Rescue, How to Finance your Disaster Plan, Damage Assessment for Schools, Communications for Schools, How to Write a Disaster Plan and Student Release/Security.	\$35.00 \$20.00

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Earthquakes in Canada?"*/ "Tremblement de terre au Canada?"* Mrs. Lesley Lynn Director of Public Information Emergency Preparedness Canada Second Floor, Jackson Building 122 Bank Street Ottawa, Ontario, Canada K1A 0W6 (613) 991-7077	General	An overview of earthquakes in Canada -- their historical frequency, how and why they occur, areas most at risk, and how individuals can prepare themselves before an earthquake and what they can do to protect themselves during one. Produced by Emergency Preparedness Canada in co-operation with Energy, Mines and Resources in 1988. Winner of a gold medal at the Houston International Film Festival. Approximately 15 minutes. Available in English and French.	English version available on request to agencies that might find it useful. Available for loan only in 1/2" and 3/4" VHS from Communications Directorate.
"Earthquakes: Environments and Effects" CALEEP Lawrence Hall of Science University of California at Berkeley Berkeley, CA 94720 (510) 642-8718 FAX: (510) 642-1055	4-Adult	This 15 minute interactive videotape takes viewers on an exploration of various environments before and after earthquakes. Participants learn what to expect near oceans and bays, in hilly terrain, in cities, and in rural areas. A detailed leader's guide is provided. Questions and suggested stop points for discussion make the experience interactive for students.	\$20.00 (1/2" VHS).

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Earthquakes in Illinois</u> Illinois Emergency Management Agency 110 East Adams Springfield, IL 62706	9 - 12	Pamphlet explains the more technical aspects of midwestern earthquakes. Also available: <ul style="list-style-type: none"> • <u>Earthquakes in the Illinois Area</u> - For students in grades 7-8, this pamphlet explains the origins of earthquakes and reviews the location of the New Madrid Fault. Safety tips are also included. • <u>Home Preparedness Kit List</u> - Reviews essential items to be included in a disaster survival kit. • <u>Modified Mercalli Map</u> - Shows counties at risk in Illinois from a Richter 7.6 event in the New Madrid Seismic zone. 	Single copies free.
Emergency! LM Media Marketing Services 115 Torbay Road Unit 9 Markham, Ontario L3R 2M9 CANADA (416) 475-3750 FAX: (416) 475-3756	7 - 10	This Emergency Preparedness Teaching Kit is the result of a collaborative effort between Emergency Preparedness Canada and private educators. It contains a 50 page teacher's manual (1991) and a 30 minute videotape (1991, VHS). The videotape presents a docudrama about young people working on a television news show for teens who experience three emergencies. Earthquakes are included. Also includes pre- and post-viewing activities.	In Canada, copies of the kit cost \$29.95 (Canadian) and can be obtained from LM Media Marketing Services. In the U.S., copies cost \$34.95, plus shipping and can be ordered from Karol Media, 350 North Pennsylvania Avenue, Wilkes Barr, PA 18773-7600, (800) 526-4773.

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Emergency 'Q' Tips #1 and #2*</u> Earthquake Education Center Charleston Southern University 9200 University Blvd. P.O. Box 10087 Charleston, SC 29411-0087 Contact: Joyce B. Bagwell Phone: (803) 863-8088 FAX: (803) 863-7533	Middle School, Junior, and Senior High School or at any Grade for distribution to parents	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: <ul style="list-style-type: none"> • <u>Earthquake Preparedness Systems</u> - A cardboard window-wheel which turns to describe actions to take before, during and after an earthquake. • <u>Family Earthquake Drill</u> - A description of how a family can conduct an earthquake drill and earthquake hazard hunt as a part of their family earthquake plan. • <u>Earthquake Mitigation Slide Show</u> - An earthquake mitigation strategy slide show for decision makers to use in addressing the issue of mitigation actions necessary to reduce emergency risks. • <u>Workshop on Lessons from California and Utah</u> - Results of a workshop conducted by the South Carolina Seismic Safety Consortium. • <u>Charleston, S.C., 1886 Earthquake Slides</u> - Slides that can be used for educational purposes only, courtesy of the Charleston Museum. • <u>Earthquake Don'ts and Do's</u> - Video and 16mm film of John Ritter portraying the right and wrong actions during an earthquake. A videotape showing a dramatic, sensitive account of the earthquake of 1989 in Santa Cruz County, California. Also available is a sequel, "Prepare, Survive, Recover," which shows how the city of Santa Cruz, California dealt with a major disaster and is now recovering.	Single copies free, include \$1.00 for postage. \$3.00 (includes postage). Single copies free, include \$1.00 for postage. Please call Joyce Bagwell if interested. \$10.00 plus postage. Please call Joyce Bagwell if interested. \$200.00 to buy, \$30.00 to loan. \$29.95 + California sales tax if California resident.
"Get Up! We Need to See You Standing" Personal Touch Video 1525 Tudor Court Modesto, CA 95351 (209) 544-0186	General - for awareness for school staff		

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Guidebook for Developing a School Earthquake Safety Program/FEMA 88*</u> Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812	Designed to assist school community to develop and tailor an earthquake safety program for the school.	This 50-page guide is designed to assist the school community of principal, teachers, staff, students, and parents develop and tailor an earthquake safety program for their school. The guide takes a step-by-step approach to: <ul style="list-style-type: none"> • Identify potential earthquake hazards; • Prepare and conduct earthquake drills; • Plan for immediate response and care requirements; • Develop alternative plans for communication with emergency service personnel; and • Plan for the aftermath of a damaging earthquake and the long-term shelter and care requirements. 	Distribution of publications is limited to one free copy per school while supplies last. Send single copy requests on school letterhead to FEMA. Videos are available for loan: Broadcast quality on 3/4" tape or standard 1/2" VHS.

Also available: "Critical Time; Earthquake Response Planning & Schools," a 14 minute videotape produced for FEMA by the Missouri Emergency Management Agency, intended to complement the Guidebook for Developing a School Earthquake Safety Program.

* Copies available for viewing at NCEER

Name/Address

Contents

Cost

Guidelines for School Earthquake Safety Planning
Southern California
Earthquake Preparedness Project
1110 E. Green St., Suite 300
Pasadena, CA 91106

Guide to assist schools in planning for a damaging earthquake.

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 "recipe book" for building hands-on teaching materials. The activities are not sequential, allowing the instructor to select the activity he or she desires.

\$2.35 for Guidelines,
\$.40 for Preparedness Checklist,
and \$13.65 for HELP.

"How to Construct A Paper Model Showing the Motion that Occurred on the San Andreas Fault During the Loma Prieta, California, Earthquake of October 17, 1989."*
by Tau Rho Alpha, John C. Lahr, and Linda F. Wagner
U.S. Geological Survey
Mentlo Park, CA 94025

4th grade through Senior High School

This report contains instructions and patterns for preparing a three-dimensional paper model that schematically illustrates the fault motion that occurred during the Loma Prieta earthquake of October 17, 1989, in California. The model is intended to help students and others visualize the process of fault slip during earthquakes. By constructing and examining this model, students will be better able to visualize the fault motion on this part of the San Andreas fault and will have a better understanding of how the natural landscape evolves.

Open File Report 89-640

Paper Copy - \$1.50
Diskette - \$10.00
Order from: U.S. Geological Survey
Books and Open-File Reports Section
Box 25425
Denver, CO 80225
(303) 236-7476

Purchasers of the diskette version of this report can use the SuperPaint software (not supplied) to change the model (by adding geologic patterns, symbols, colors, etc.) or to transfer the model to other graphics software packages.

Requirements for the MacIntosh version are: Apple MacIntosh 512, Plus, SE or II and Silicon Beach SuperPaint graphics software.

OF89-640-A, paper copy, 10 p. OF89-640-B, 3.5 inch diskette.

* Copies available for viewing at NCEER

3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"How to Construct Seven Paper Models That Describe Faulting of the Earth" (1990) by Tau Rho Alpha and John C. Lahr U.S. Geological Survey Menlo Park, CA 94025	Senior High School Earth Science	This report contains illustrations and patterns for preparing seven, 3-dimensional paper models that schematically illustrate common earth faults and associated landforms. Faults described are: normal, reverse, right-and left-lateral, strike-slip, and oblique-slip. There are also models and discussions of two fault-produced landforms, a graben and a horst. These models are intended to help students visualize the principle classes of faults and learn some of the terminology used by geologists to describe faults.	Open File Report 90-257 A, paper copy, 42 p., \$6.25. B, diskette (3.5 inch MacIntosh) - \$10.00. Order from: Geological Survey Books and Open-File Reports Section Box 25425 Denver, CO 80225 (303) 236-7476

Purchasers of the diskette version of this report, which includes all text and the graphics, can use the SuperPaint Software (not supplied) to change the models (by adding geologic patterns, symbols, colors, etc.) or to transfer the models to other graphics software packages. Requirements for the diskette version are: Silicon Beach SuperPaint graphics software, and an Apple MacIntosh 512, Plus, SE or II.

Also available "Earthquake Effects - A Computer Animation and Paper Model" by T.R. Alpha, et. al (1992). This illustrates with computer animation how an earthquake occurs and what kinds of damage may result. It is intended to help visualize what causes earthquake shaking and its results. Includes educator's guide (OF 92-200A, paper copy, \$3.00; OF 92-200B, diskette, \$10.00).

* Copies available for viewing at NCEER

<p>How to Develop Your Own <u>Earthquake Safety Education</u> Program Earthquake Survival Project Central Utah Chapter American Red Cross 865 North Freedom Blvd. Provo, UT 84604</p>	<p>Pre-school - adult Earthquake safety presenta- tions have been given by volunteers in over 500 classrooms.</p>	<p>Packet includes guidelines for developing/implementing a volunteer-centered earthquake safety program with ideas for recruiting/training volunteers; media, resources, and curriculum used and reasons for selection; and the following materials developed by the project:</p> <ul style="list-style-type: none"> • "Timothy Turtle" - flannel board story about a turtle who knows how to respond to an earthquake. • "ESP" (Earthquake Survival Project) cards for both adults and Jr./Sr. High school students (hard copy and floppy disk). • "ESP" Buttons that say "I have ESP (Earthquake Survival Plan), do you?" • School pre-visit checklist/schedule form for scheduling equipment, volunteers, classroom assignments. • Classroom presentation and volunteer instructor and evaluation form. • "It only takes a few seconds" desk tent for teachers to place on their desks as a reminder to practice earthquake drills. • Videotape of actual in-class presentations to K, 2, and 6. Good for training and preview of selected media. • General earthquake information/classroom activities for use by classroom teachers.
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3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"How to Prepare for Earthquakes" Advocate Films ATTN: EQ Video Distribution Manager 555 Bryant Street - #263 Palo Alto, CA 94301 (408) 244-9489	Designed especially for persons with developmental disabilities	This 8 minute videotape depicts what to do before, during, and after a major quake. Topics covered include: <ul style="list-style-type: none"> • What an earthquake looks like • Earthquake-proofing your home or workplace • Conducting drills • The "drop, cover and hold" reaction technique • What if you're outside or in a vehicle • Staying calm • Post-quake recovery 	\$34.50 each, 7.25% sales tax (CA residents only, \$2.50 per tape), shipping (\$3.50 for 1st tape, \$1.50 for each additional).
<u>Identification and Reduction of Nonstructural Earthquake Hazards in California Schools (1990)</u> . Association of Bay Area Governments P.O. Box 2050 Oakland, CA 94604		Pauses are included to provide time for review and practice. A sign language inset is included for persons with hearing impairments. A three-page checklist of nonstructural hazards facilitates a survey of a school site; 15 pages of illustrated "fixes" allow school personnel to mitigate the hazards they identify. Applicable to any school in an area of seismic risk.	\$2.00.
"An Instrument for the Study of Earthquakes" by Gerald J. Shea Center for Earthquake Research and Information Memphis State University Memphis, TN 38152		This 11 page handout provides directions to construct a homemade seismograph. Also available, "The Amateur Scientist" by Jearl Walker, 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: "Earthquake Education Project Film Review," "Earthquake Education Project Book Review," "A Major Earthquake Zone on the Mississippi" by Arch C. Johnston, which is a reprint of a Scientific American article on the New Madrid seismic zone, and "New Madrid Seismic Zone Epicentral Map 1974-1981."	Single copies are available without charge.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>Living With Our Faults</u> (Hundreds of Ways to Reduce Your Risks in the Next Earthquake)* Quake Safe 700 State Dr. Los Angeles, CA 90037 (213) 744-2008	Junior High School - College or for younger children to share with parents.	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. Other services from Quake Safe: newsletter published 4 times in the school year; a reference library providing school disaster planners access to state-of-the-art resources; "Let's Make the Earth Shake" - a specially designed program for children in grades 3-6; "It's Our Fault" - a 45 minute slide presentation ideal for junior and senior high school assemblies, parent and teacher meetings, neighborhood and civic presentations, and office training sessions. Programs are presented throughout the greater Los Angeles area on a cost-recovery basis. There is a travel charge of 25¢/mile beyond a 15-mile radius of the juncture of the 10 and 405 freeways.	\$5.00/copy \$6.00 by mail \$3.00/copy wholesale \$30 - \$99 memberships receive a year's subscription to the newsletter and a copy of "Living with Our Faults." Newsletter alone is \$15/year.
<u>Low Country Quake Tales</u> Earthquake Education Center Charleston Southern University 9200 University Blvd. P.O. Box 10087 Charleston, SC 29411-0087 Contact: Joyce B. Bagwell Phone: (803) 863-8088 FAX: (803) 863-7533	Appropriate for 5th grade to adults.	A description of the tales and accounts about the 1886 earthquake that have been passed on to today's generation.	\$12.50, includes postage.

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<p><u>Make Your Own Paper Model of a Volcano*</u> (1991) by Tau Rho Alpha and Leslie C. Gordon U.S. Geological Survey Menlo Park, CA 94025</p>	<p>Elementary - Junior High</p>	<p>This report contains instructions and a pattern for making a three-dimensional paper model of a volcano. This model is intended to help students and others to visualize a stratovolcano (inside and out) and to learn some of the terms used by geologists in describing it. By constructing and examining the model, students will obtain a greater appreciation of the relationship between the internal structure of the volcano and its exterior shape and features. This exercise may give the student an insight as to how a stratovolcano is formed. Included in this report are the paper model, instruction for assembly, educators' guide, and a simple description of volcanoes.</p> <p>Requirements for the diskette version are: Apple Computer, Inc. HyperCard™ version 2.0 software, and Apple Macintosh™ Plus, Classic, SE, or II series computer.</p>	<p>OF 91-115A, paper copy, 4 p. \$3.00. OF 91-115B, 3.5" MacIntosh Diskette \$10.00.</p> <p>Purchasers of the diskette version of this report, which includes all of the text and graphics, can use HyperCard 2.0™ software (not supplied) to change the model (by adding geologic patterns, symbols, colors, etc.) or to transfer the model to other graphics software packages.</p>
<p>"Movers & Shakers" State Farm Insurance Cos. One State Farm Plaza Bloomington, IL 61710-0001</p>	<p>K - 12</p>	<p>This is an educational earthquake preparedness program developed to help educators integrate information about earthquakes and earthquake preparedness into a wide range of subject areas. Critical thinking, decision-making, planning and group cooperation skills are emphasized in lessons and activities targeted to specific grade levels.</p> <p>The complete program includes a 22-minute, sitcom-type video and a two-sided classroom poster, which provides basic safety messages and how and why earthquakes occur, in addition to the lessons.</p>	<p>The entire program is free to educators by writing to: Movers & Shakers (E-8), State Farm Insurance Cos.</p>

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Myths and Realities of Natural Disasters" Pan American Health Organization 525 Twenty-Third St. Washington, DC 20037	Adults involved in disaster planning in schools.	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.	\$25.00, Avail. in English, Spanish, French, Portuguese, or Japanese, on 3/4" U-matic, VHS, or Beta. For Japanese version contact: Dr. T. Ukai, Senri Critical Care Medical Ctr., 1-1 Tsukunodai, Suite 565, Osaka.
"Officer Ollie's Earthquake Show" Emergency Management Division City of Irvine P.O. Box 19575 Irvine, CA 92713 (714) 724-7149	Pre-school, elementary grades	This is a 5 minute VHS video for children containing earthquake safety tips using puppets of Irvine Police Officer, child and raccoon. Also available: <u>Zoo Friends Earthquake Safety Tips</u> , a 12 page picture booklet of earthquake tips designed to be read by an adult to a pre-reader.	\$7.50 for videotape \$3.50 for picture booklet
The Official Tommy Tsunami (Soo-Nah-Mee) and Ernie Earthquake Coloring Book* Alaska Division of Emergency Services P.O. Box 5750 Fort Richardson, AK 99505-5750 (907) 428-7000	K - 3	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.	Single copies free; can be reproduced.

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Overview of Loma Prieta Earthquake of October 1989" Earthquake Engineering Research Institute 499 14th Street Suite 320 Oakland, CA 94612-1902 Phone: (510) 451-0905 FAX: (510) 451-5411	High school - adults	This 10 minute videotape is an edited version of the 57 minute Loma Prieta videotape also available from EERI. Designed for classroom use and non-technical audiences, the tape uses live footage to explain the earthquake and the range of impacts. Excellent visual aid for earthquake preparedness education. VHS format, color. Also available: • "Loma Prieta Earthquake of October 1989" - a 57 minute videotape featuring presentations by EERI and NAS reconnaissance team members on seismology, geotechnical issues, lifelines, building performance, and emergency response. Original slides and footage. Discussions of lessons for design and practice. VHS format, color. International tape conversion (PAL) available for \$55 (members \$50). • "Armenia Earthquake of December 1988" - a 60 minute videotape of the EERI briefing on the devastating Armenian Earthquake. Ten members of the U.S. Investigation Team present slides and live footage. The presentations address seismology, geotechnical issues, lifelines, structural performance, search and rescue, emergency response, industrial building performance, and policy issues. Produced by EERI with funding provided by the National Science Foundation. VHS format, color. International tape conversion (PAL) available for \$50 (members \$45). • Loma Prieta Earthquake Series Slide Sets: LP-I "Overview of the Loma Prieta, California Earthquake of October 17, 1989" - 20 slides, annotated, 35 mm. \$35 (members \$30) LP-II "Loma Prieta, Engineered Structures" - 20 slides, contributed by H.S. Lew, annotated, 35 mm. \$35 (members \$30) LP-III "Loma Prieta, Bridges" - 20 slides, contributed by Ian Buckle, annotated, 35 mm. \$35 (members \$30) LP-IV "Loma Prieta, San Francisco, Marina District" - 35 slides, contributed by John Egan, annotated, 35 mm. \$62 (members \$52) LP-V "Loma Prieta, Landslides" - 12 slides, contributed by Gerald Wiczorek, annotated, 35 mm. \$22 (members \$18).	\$15 - Request an Audio Visual and Publications Catalog and use order form at the back. \$45 (members \$40) \$40 (members \$35) All orders must be prepaid in U.S. dollars drawn on a U.S. bank, or charged to VISA or MasterCard. Make checks payable to EERI. Within the United States: Prices for all videotapes include first-class postage. Prices for slides include 4th-class (surface) postage and handling. California residents add 8.25% sales tax. Allow 4 to 6 weeks delivery time. Outside the United States: For orders of videotapes add \$5 for air postage in addition to

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Plate Tectonics" EME earth science 41 Kenosia Ave. P.O. Box 2805 Danbury, CT 06813-2805	Earth Science classes	This 15 minute, VHS tape traces Wegener's ideas on continental drift to the discoveries of the mid-ocean ridges, paleomagnetism, abyssal trenches, sea-floor spreading, transform faults, and the global pattern of shifting tectonic plates. Other videotapes also available: <ul style="list-style-type: none"> • "Volcanoes!" • "Earthquakes!" • "Sea-Floor Spreading" 	the 10% for the order. Videotapes are not shipped by surface mail. \$98.00. Preview charge \$12.00 per title, refundable if ordered.
Plate Tectonics Chart Scott Resources P.O. Box 2121K Fort Collins, CO 80522 (800) 289-9299	Earth Science classes	The concept of plate tectonics is graphically depicted. Specimens of representative rock-mineral materials related to the plate tectonics processes are mounted on the chart where they would occur in action zones (ES2522).	\$39.95. Shipping and handling - 10% of order, \$5 minimum.
<u>Pre-School Earthquake Preparedness Guidebook*</u> Southern California Earthquake Preparedness Project 1110 E. Green St., Suite 300 Pasadena, CA 91106 (818) 795-9055	Designed to assist pre-school owners, administrators, teachers and parents on how to develop an earthquake preparedness program.	Information in the Guidebook is divided into five categories: "User's Guide," "Pre-School Planning," "Pre-School Hazard Mitigation," "Pre-School Education/Counseling," and "Pre-School Resources." Information focuses on addressing four major objectives: reducing the threat to life and property from a damaging earthquake, developing self-sufficiency in responding to a damaging earthquake, providing care and safety to staff and children under the center's care, and returning to normal operation as quickly as possible. Includes a list of items to put in an Earthquake Emergency Kit, list of "Emergency 'Do's and Don'ts' for Parents," activities to help explain earthquakes to small children, sample emergency card, and sample form for authorization for treatment of a minor.	\$20.00

* Copies available for viewing at NCEER

3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<p>Quake, Rattle and Roll* by Ruth Deery Scholar Dollar Press 3148 Laurel Road Longview, WA 98632 (206) 423-4658</p>	3 - 7	<p>This 25 page book contains classroom activities for earthquake preparedness. Safety searches, dramatizations, simulations, picture study and consideration of community resources are followed by a brief exploration of mythological and scientific explanations of earthquakes. Activities also illustrate tsunamis. Includes a seismic map of Washington state, a current risk map of the area affected by the New Madrid fault, and an overall risk map of the United States.</p>	<p>\$5.00 ppd. (1-9 copies) \$4.50 ppd. (10-99 copies) \$4.00 ppd. (100-up) Washington residents add 7.6% sales tax.</p>
<p>Quake Safe Patch Program* Girl Scouts of Santa Clara County 1310 S. Bascom Ave. San Jose, CA 95128-4502</p>	<p>Designed for Brownie- Senior Scouts</p>	<p>This program includes a Leader's Guide, a patch, an <u>Earthquake Game and Puzzle Book</u>, and a copy of a comic book featuring Yogi, the Be-Prepared Bear in <u>Earthquake Preparedness for Children</u>. 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 "Understanding the Effects of Earthquakes on Children." The game and puzzle book contain activities for younger primary level children.</p>	<p>Single copies free.</p>
<p>"Ready Teddy" and "Shimmie, Shimmie, Shake" song scripts* State of Arkansas Office of Emergency Services P.O. Box 758 Conway, AR 72032</p>	K - 3	<p>Contains a cassette tape that can be used with a talking bear. The tape talks about earthquake awareness and has a song called "Shimmie, Shimmie, Shake." Can also obtain "Rumble Tumble Ready" buttons and certificates and "Shimmie, Shimmie, Shake" song scripts. The song is sung to the tune of "Old McDonald's Farm." First verse: "Rumble, rockin, shakin ground - shimmie-shimmie-shake! Whoops! it's hard not to fall down - shimmie-shimmie-shake! With a rattle rattle here and a rumble tumble there Here a rattle - there a rumble Everywhere a rumble tumble, Rumble, rockin, shakin ground - shimmie-shimmie-shake!" Adapted from Sylvia Herndon</p>	<p>No charge for single copies; audiotapes, certificates and scripts can be copied. Can also obtain information about materials adapted for the visually impaired.</p>

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Reducing Non Structural Earthquake Damage -- A Practical Guide for Schools" Bay Area Regional Earthquake Preparedness Project Metro Center, #152 101 8th Street Oakland, CA 94607		This 13 minute video tape identifies major non-structural hazards in the school site and suggests ways to reduce these hazards.	Available in 1/2" or 3/4" VHS from: Final Cut 1000 Atlantic Ave. Suite 103 Alameda, CA 94501 (415) 522-5169 \$35, including postage, within the United States.
or Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812			From FEMA, video available for loan: Broadcast quality on 3/4" tape or standard 1/2" VHS.
"San Francisco Bay Area Earthquakes" Map Distribution U.S. Geological Survey Box 25286, Federal Center Denver, CO 80225 (303) 236-7477	Jr. High +	This 23" by 38" full color poster depicts Bay Area earthquakes from 1972 to 1989. It is also available in a postcard version.	\$4.00 plus \$1.00 mailing. Call about availability, price of postcards.

* Copies available for viewing at NCEER

3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"San Francisco Earthquake Seismogram Poster With Guide" Ward's Natural Science Establishment, Inc. 5100 West Henrietta Rd. P.O. Box 92912 Rochester, NY 14692-9012 Toll Free: (800) 962-2660	All levels	This dramatic poster depicts a seismogram of the October 1989 San Francisco (Loma Prieta) earthquake as recorded at the Mt. Hamilton seismograph station just east of San Jose, California. Size: 14 1/2" x 35", complete with guide. (No. 33 E 2657).	\$5.95
<u>School Intervention Following a Critical Incident: Project COPE</u> FEMA 220.* 20 pp. <u>How to Help Children After a Disaster: A Guidebook for Teachers.</u> FEMA-219.* 1991. 17 pp. "Children and Trauma: The School's Response" FEMA - Earthquake Education 500 C Street, S.W. Washington, DC 20472	School staff	These materials focus on helping children and adolescents deal with disaster situations by 1) presenting background information on psychological stress due to emergencies; 2) providing teachers, school nurses, and administrators with methods to help both themselves and their students cope with such stress; and 3) suggesting predisaster planning measures that will alleviate much of the confusion that inevitably arises when adult authorities are not prepared to handle unforeseen crises. The School Intervention document was developed by a group of Project COPE (Counseling Ordinary People in an Emergency) clinicians and is based on their experiences in a crisis counseling program activated in response to the Loma Prieta earthquake. <u>How to Help Children</u> was designed by a team of Alameda County, California, educators and child mental health professionals as part of another post-Loma Prieta project. "Children and Trauma: The School's Response" is a 20 minute videotape to be used by teachers.	All 3 items are free and can be obtained by writing to Marilyn MacCabe, FEMA, Earthquake Education Program, 500 C Street, S.W., Washington, DC 20472.
"Schools and Earthquakes - Building Schools to Withstand Earthquakes" Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812	School staff, PTA	This 14-minute video complements <u>Seismic Considerations: Elementary and Secondary Schools (FEMA 149)</u> . It conveys the lifesaving and economic benefits of including earthquake resistant design in new school construction.	Videos are available for loan: Broadcast quality on 3/4" tape or standard 1/2" VHS.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
<u>The School Earthquake Preparedness Handbook*</u> by Irene Groot Earthquake Resource Associates 6323 Paso Los Cerritos San Jose, CA 95120	School administrators; Public safety officers; Parent groups	<u>The School Earthquake Preparedness Handbook</u> 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.	\$40.00 for single copies; \$25.00 for quantities of 10 or more; 6.5% sales tax for California resident.
<u>School Preparedness Supplies and Student Emergency Comfort Kits*</u> Emergency Management Division City of Irvine P.O. Box 19575 Irvine, CA 92713 (714) 724-7149	General	This is a 3-page article written by Dr. Frances E. Winslow, Emergency Management Coordinator, City of Irvine, California, based upon preparedness measures in that city. Also available: <u>Emergency Communications: Irvine Alternatives</u> , a two page article written by Dr. Frances E. Winslow, based upon emergency communications plans made in that City.	\$2.50 each
<u>Seismic Considerations: Elementary and Secondary Schools - FEMA 149</u> Marilyn MacCabe FEMA - Earthquake Ed. (625) Washington, DC 20472 (202) 646-2812	School staff, PTA	This 102-page (including appendices) guidebook was prepared by the Building Seismic Safety Council. The guide discusses the cost and benefits of applying seismic design in the construction of new school facilities. It also explains how school buildings are damaged by earthquakes, and how damage occurs to nonstructural components and building contents.	One free copy/school while supplies last. Send single copy requests on school letterhead.

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Seismicity of Alaska, 1786-1987" NEIC Seismicity Maps USGS/NEIC Box 25046, Denver Federal Center, MS 967 Denver, CO 80225-0046 (303) 236-1602 or (303) 236-1506	Jr. High +	Over 2400 earthquakes having magnitudes estimated at 5.0 and greater are represented on this large (36" x 62") map. Magnitude 6.5 and greater earthquakes are distinguished from smaller magnitude events by the size of the epicenter symbols. Earthquakes that occurred between 1965 and 1987 are differentiated from earlier events by the color of the epicenter symbol. Map scale 1:2,500,000. Also available: • Seismicity of California, 1808 - 1987 • Seismicity of Hawaii, 1962 - 1985 • Earthquakes in Utah, 1884 - 1989	\$7.00 \$5.00 (\$15.00 laminated) \$5.00 (\$15.00 laminated) \$10.00 (\$20.00 laminated) Checks for the full amount plus \$2.00 shipping should be made payable to DOI-USGS.
"Silent Quake: Preparedness for the Hearing-Impaired"* American Red Cross Los Angeles Chapter 2700 Wilshire Boulevard P.O. Box 57930 Los Angeles, CA 90057		This videotape uses American Sign Language, captioning, and voice overs. It discusses actions to take before, during, and after an earthquake. It also presents a family that developed an earthquake plan with a neighbor.	The tape sells for \$30, plus \$5 shipping and handling. Also available on loan from BAREPP Resource Center.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Teacher's Packet of Geologic Materials" U.S. Geological Survey Geologic Inquiries Group 907 National Center Reston, VA 22092	For secondary school teachers of earth science, college teachers of introductory geology, and leaders of workshops for earth science teachers.	It contains: • Leaflets: Collecting Rocks, Erosion, Sediment, Geologic Maps, Geology and Caves, Geysers, Gold, Ground Water, The Hydrologic Cycle, Interior of the Earth, Landforms, Our Changing Continent, Topographic Maps, Tree Rings, and Water of the World. • Booklets: Earthquakes, Geologic Time, Glaciers--Clue to Future Climate?, Marine Geology, U.S. Geological Survey-Earth Science in the Public Service, and Volcanoes. • Activity Sheet: Make Your Own Paper Model of a Volcano. • Reference lists: USGS Sales Publications That are Especially Useful to Teachers, Geology and Related Subjects, Physiography and Regional Geology of the United States, Plate Tectonics, Careers in Earth Science, Volcanoes and Earthquake Information for Classroom Use, and selected references (the geology of your State).	If you are interested in receiving: (1) Send request on school letterhead. (2) Indicate the subject(s) you teach. (3) Indicate grade level.
"Tectonocycle" Geo-Learning Corp. P.O. Box 2042 Sheridan, WY 82801 (307) 674-6436 (800) 843-6436	Ages 10 and up	Packet for college teachers also includes: • Reference lists Selected Books on Geology and its Specializations. • Indexes to geologic and topographic maps for your State. Also available: "Selected Packet of Geologic Teaching Aids," prepared for elementary and high school teachers of general science, social studies, and environmental education. This is a paper tectonic plate model demonstrating the breakup of Pangea that shows the drifting of the continents in four stages. Also available: - Tectoniccube - Each side of this seven-sided geometric form corresponds to one or more of the earth's crustal plates. Plate boundaries show areas of sea floor spreading, subduction zones and transform faults. Easy to assemble. Ages 8 and up.	2-pack/\$3, 10-pack/\$10, 30-pack/\$15 Bulk pricing on request.

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3.2 Supplemental Informational Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"Visiting the New Madrid Fault Zone" University of Missouri-Columbia College of Education Southwestern Bell Science Education Center 108 Townsend Columbia, MO 65211-0211 (314) 882-4363	Earth Science Teachers, Grades 7-12	A videotape about the New Madrid fault zone. Also available from the Center, examples of demonstrations and resources appropriate for earth science teachers.	Available August 1, 1993. Cost of tape, including handling, will be approximately \$15.00.

* Copies available for viewing at NCEER

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
Ward's Horizontal Seismograph Ward's Natural Science Establishment, Inc. 5100 West Henrietta Rd. P.O. Box 92912 Rochester, NY 14692-9012 Toll Free: (800) 962-2660	Working seismograph for classroom use.	This consists of a 40" x 22" seismometer base with an adjustable weighted boom and coil/magnet arrangement that transmits a seismic wave signal through a pre-amp into a power amplifier and strip chart recorder. The power amplifier (120 VAC, 60Hz, 4W) features separate offset and gain controls, along with 50 feet of connecting cable. The recorder (120VAC, 60Hz, 4W) has a detachable power cord. The recorder maintains a constant chart speed of 12 inches per hour, with automatic time markings every five minutes. The Seismograph also features a damping fluid reservoir, damping fin and 8 oz. bottle of damping fluid. The damping fluid ensures that the pendulum action of the boom remains steady until seismic activity occurs. After an activity occurs, the damping fluid reduces the oscillation and returns the boom to its neutral position. Wards includes a 30-day supply of 3" printed grid chart paper and a package of 5 disposable pen cartridges, along with all mounting and assembly hardware. To completely explain how to set up the seismograph and start it running, a clearly written User's Manual with step-by-step instructions and student activities is included. Also included is a 36-page, full-color reference book <u>Earthquakes</u> .	\$2,195.00 for standard strip chart recorder version.
		As an added benefit, you can register your seismograph in the Ward's Seismograph Network. You'll receive special mailings several times each year updating lists of fellow Ward's Seismograph users. That way, you and your class can communicate directly with other seismograph stations to compare data and triangulate results (13Y4100).	\$1,795.00
		NEW computerized model allows use of an Apple computer to interface and record seismic activity with Ward's Seismograph (can operate with or without strip chart recorder). Includes A/D + D/A interface board, clock card, connecting cables, and software (5 1/4" diskette). Comes with seismometer, power amplifier, and complete instructions (13 Y 4101). Other seismograph packages available.	

* Copies available for viewing at NCEER

3.2 Supplemental Information Material (Continued)

<u>Name/Address</u>	<u>Grade Level</u>	<u>Contents</u>	<u>Cost</u>
"While There's Still Time" UCLA Extension P.O. Box 24901 Department K Los Angeles, CA 90024-0901	Is intended for adult and mature teen audiences. The subject matter is not suitable for viewing by younger children.	"While There's Still Time," a videotape, is designed to promote earthquake preparedness in schools in California and other earthquake-prone areas. This videotape is copyrighted, 1990, by the Regents of the University of California and cannot be duplicated without the express written consent of the Regents of the University of California. A planning guide focuses on creative solutions to common problems. Also available: "Before It's Too Late," a 17-minute videotape to help promote school earthquake safety and facilitate disaster planning at your site. A comprehensive guide provides content, discussion questions, resources, and worksheets to facilitate planning.	Copies of: "While There's Still Time" (HA 006) - \$50.00/copy. "Before It's Too Late" (HA 003) - \$50.00/copy. Make checks payable to: The Regents of the University of California. California residents add local sales tax.
<u>Windows on Science Earth Science</u> Optical Data Corporation 30 Technology Drive Box 4919 Warren, NJ 07060	The <u>Windows on Science Earth Science</u> is for elementary and middle school. <u>Earth Science is for Junior High School to College.</u>	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. <u>Earth Science</u> can be used with or without a computer. In the learning station mode, would use either Apple Macintosh or 2 GS.	Would need to have a videodisc player. The LDV 220 model can be purchased for \$845. "Windows" program is \$595 and "Earth Science" program is \$895. Complete Product, Volumes I, II, & III is \$1,095 (No. 16-7).
<u>Windows on Science Core Bundle</u> Optical Data Corporation (see address above)		Includes Primary, Earth, Life, and Physical, Windows on Science Update and One Free Panasonic LX-120 videodisc player.	\$4,195, shipping and handling add 3%.

* Copies available for viewing at NCEER

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"World Seismicity Map" Ward's Natural Science Establishment, Inc. 5100 West Henrietta Rd. P.O. Box 92912 Rochester, NY 14692-9012 Toll Free: (800) 962-2660	6 - 12	Large 48" x 36" wall map shows earthquake activity around the world since 1897. Epicenters and depth of focus are shown for quakes of magnitude 4.5 or greater. Date and magnitude of large shocks (8.0 +) are printed right on the map. Multicolored map displays many international boundaries, major mountain ranges, and hydrographic features. (No. 33 E 0028).	\$5.95
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3.3 Magazines for Children

<u>Subscription Address</u>	<u>Subscription Cost</u>	<u>Reprint Policy</u> *	Recent Articles Related to <u>Earthquakes, Volcanoes, Tsunami</u> **
BOYS' LIFE Subscription Service 1325 West Walnut Hill Lane P.O. Box 152079 Irving, TX 75015-2079	A one-year subscription to BOYS' LIFE costs \$15.60; add \$7.20 postage for subscriptions sent outside USA. For Boy Scout members, one-year subscription is \$7.80.	The reprint program has been discontinued, but readers may still purchase single copies of BOYS' LIFE within the last 12 months at \$1.75 per copy.	"Volcano!" by Kathy V. DaGroomes, November 1, 1991. "Earthquake! Hurricane!" by S.C. Lin, March, 1990. "Big Waves in the Harbors" by D.M. Souza, July, 1988. "Climbing the Killer Volcano" by S. Stuckey, June, 1988. "Volcanoes of Science and Legend" by S. Curtis, June, 1987. "Earthquake" by C. Mercer, October, 1986.
CHICKADEE 255 Great Arrow Ave. Buffalo, NY 14207	A one-year subscription to CHICKADEE (10 issues) costs \$14.95. Two years costs \$24.95.	Back issues are \$4.00 per issue, and are subject to availability.	"Volcano Visit" by C. Wakeman Evans, May, 1988. "Volcanoes, Did you know that...," May, 1988.

* 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.

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

Recent Articles Related to
Earthquakes, Volcanoes, Tsunami **

Reprint Policy *

Subscription Cost

Subscription Address

<p>COBBLESTONE 30 Grove Street Peterborough, NH 03458</p>	<p>A one-year subscription to COBBLESTONE (12 issues) costs \$22.95; \$8.00 additional outside U.S.; no APO or Foreign Air Mail.</p>	<p>Back issues are available upon request at \$3.95 per issue, plus 10% for shipping and handling.</p>	<p>"Nature's Violent Side" by C. Blohm, April, 1986. "Prepare for Disaster" by I. Abrams, April, 1986. "The New Madrid Earthquake: 1811" by P. and C. Roop, April, 1986. "The San Francisco Earthquake and Fire" by P. and C. Roop, April, 1986. "Charles Richter: 'Earthquake Man' " biography by C. Plude, April, 1986. "The Richter Scale" by C. Plude, April, 1986.</p>
<p>FACES 30 Grove Street Peterborough, NH 03458</p>	<p>A one-year subscription to FACES (10 issues) costs \$21.95; \$6.00 additional outside U.S.</p>	<p>Back issues are available upon request at \$3.95 per issue, plus 10% for shipping and handling.</p>	<p>"Tsunamis: When the Ocean Roars" by P. Barnes-Svarney, April, 1986. "Aftershock: Rescue and Rebuilding" by S. Macy, May, 1981. "Mount St. Helens: A Geologist's Point of View" by J. Rasmussen, May, 1981. "Mount St. Helens: An American Volcano," May, 1981. "Discovering Pompeii" by Hetty Joyce, March, 1991. "The Island that blew up" by Margaret Cooper, January, 1986.</p>

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

3.3 Magazines for Children (Continued)

<u>Subscription Address</u>	<u>Subscription Cost</u>	<u>Reprint Policy</u> *	<u>Recent Articles Related to Earthquakes, Volcanoes, Tsunami</u> **
HIGHLIGHTS FOR CHILDREN Customer Service Dept. 2300 West Fifth Avenue P.O. Box 269 Columbus, OH 43216-0269	A one-year subscription (11 issues) costs \$21.95.	A copy of a single issue of HIGHLIGHTS costs \$2.95. Copies of back issues can be obtained by writing the Customer Service Department.	"The News from Neptune" by John Mood, June 1990. "What Happened to the Dinosaurs?" by Jack Myers, September 1990. "Surtsey is Born" by J. Kabourek, May 1989. "The Changing Look of Mount St. Helens" by L. Peters, May 1986. "Mount St. Helens," December (Resource), 1981. "Earthquake Prediction," March 1980. "A Journey to the Center of the Earth," May 1971. "Our Quaking Earth," March 1971. "What's New in the World?" February (Resource) 1971. "Volcanoes: Windows in the Earth," May 1968.
NATIONAL GEOGRAPHIC WORLD Post Office Box 2330 Washington, DC 20077-9955	A one-year subscription (12 monthly issues) for U.S., \$12.95; for Canada \$17.95 (U.S. funds); for all other countries; \$20.75.	Single copy cost: \$1.60, United States; \$2.25 in U.S. funds, Canada; for all other countries, \$2.60.	"Earthquake!" March, 1990.

* 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.

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

<u>Subscription Address</u>	<u>Subscription Cost</u>	<u>Reprint Policy</u> *	Recent Articles Related to <u>Earthquakes, Volcanoes, Tsunami</u> **
OWL 255 Great Arrow Ave. Buffalo, NY 14207	A one-year subscription (10 issues) costs \$14.95. Two years costs \$24.95.	Back issues are \$4.00 per issue, and are subject to availability.	"Volcano" by P. Bourgeois, October, 1991. "Why Are There Volcanoes on Earth?" April, 1981.
RANGER RICK National Wildlife Federation 1400 Sixteenth Street, NW Washington, DC 20036- 2266	One year membership dues are \$15.00; includes 12 issues of RANGER RICK. An additional fee of \$9.00 is required outside the U.S.	Ranger Rick is reproduced on "Talking Books" by the Library of Congress and distributed free by regional libraries.	"Great Shakes: It's Doctor Quake!" by C. Wakeman Evans, May, 1990. "Meet a Real Quake Watcher" by C. Duckworth, May, 1990. "It Shakes. It Roars. It Throws Melted Rock into the Sky: It's a VOLCANO!" by C. Wakeman Evans, June 1988.
SCIENCE WORLD Scholastic, Inc. 2931 East McCarty Street P.O. Box 3710 Jefferson City, MO 65102- 9957	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.	Back issues can be obtained by writing: Customer Service Scholastic, Inc. 2931 East McCarty Street Jefferson, MO 65101	"Deep Heat" by J. Fishman, January 25, 1991. "Quakes from Man-Made Lakes" by H. Brennan and B. Goodman, April, 1989. "Tectonic Terror" by K. Heller and J. Brune, April, 1989. "Armenia: Scientists Survey the Damage" by H. Brennan, March, 1989. "Quake Up, Sleepyhead" by J. Brune, March, 1989.
		Back issues cost \$2.50 for Teachers' Editions and \$1.25 for Student Editions; subject to availability.	

* 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.

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

3.3 Magazines for Children (Continued)

<u>Subscription Address</u>	<u>Subscription Cost</u>	<u>Reprint Policy</u> *	<u>Recent Articles Related to Earthquakes, Volcanoes, Tsunami</u> **
SUPERSCIENCE BLUE Scholastic, Inc. P.O. Box 3710 2931 East McCarty Street Jefferson City, MO 65102-9957	Eight issues during the school year, \$5.75/year 10 or more subscriptions to the same address. 1-9 subscriptions, each \$11.50. \$20.00 Teachers' Edition, per school year. Each Teachers' Edition subscription includes a copy of the student edition.	Single copies: \$1.25 student; \$2.50 Teachers' Edition. Teachers can write for permission to reproduce selected articles for use in workshops or with their class.	"Earthquake Power" in October, 1990 issue. Includes articles on the following: "Science and Society: Earthquake," "Shaking Predictions," "Bracing for the Big One," and "SuperGraph: Predict a Quake."

* 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.

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

3.4 Selected Software

<u>Program Name</u>	<u>Available From:</u> *	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Continental Drift"	Ward's Natural Science Establishment, Inc. 5100 West Henrietta Road P.O. Box 92912 Rochester, NY 14692-9012 (800) 962-2660 (716) 359-2502	7-12	Apple II+/Ile 48K Disk Minimum DOS required: 3.3	Explores concepts behind continental drift through separate tutorials, graphics, questions and review.
"Continental Drift"- part of <u>Earth Science</u> series.	Prentice-Hall Sylvan Avenue Englewood Cliffs, NJ 07632 (800) 848-9500 (201) 592-2540	6-12	Apple Series, IBM PC, PC jr, Tandy 1000; Requires DOS 2.1, double-sided disk drive, RGB color monitor, and color graphic adapter.	Students can journey back in time to look at and map the earth's surface as it appeared at various times in its past.
"The Earth and Its Composition"	Right on Programs 755 New York Ave. Huntington, NY 11743 (516) 424-7777	Grade 3	Apple Series Commodore 64, 128	This two-part program first introduces the student to some basic geologic information. It includes information about water, mountains, earthquakes, and volcanoes. The second part of the program is a game to test student retention of the information just read. Students are informed whether their answers are correct or incorrect. This comes with a reproducible Activity Packet and Teacher's Guide.

* 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.

3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Earth: The Inside Story"	Educational Activities, Inc. P.O. Box 392 Freeport, NY 11520 (800) 645-3739 (516) 223-4666 FAX:(516) 623-9282	4-9	Apple, 48K IBM, PC Jr. and MS-DOS compatibles, 128K Tandy 1000 and Tandy 2000	Using computer graphics and animation, along with action news footage of recent earthquakes, this fascinating video teaches students the theory of plate tectonics and the earth's layers and plates, how and why earthquakes and volcanoes occur, how earthquakes are measured, and how to identify the most earthquake-prone areas. The guide includes activities to develop critical thinking and problem-solving skills. Note: Educational Activities also publish a live-action video program for grades 6 to 8, entitled, "Earthquakes and Moving Continents."
"Earthquake"	Micro-ED, Inc. P.O. Box 24750 Edina, MN 55424 (612) 929-2242	6-9	Commodore 64 (64K) Apple IIE	Given shock waves, find the epicenter.

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<u>Program Name</u>	<u>Available From:</u> *	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Earthquake Effects: A Computer Animation and Paper Model" Open-File Report 92-200B by Tau Rho Alpha, Robert A. Page, and Leslie C. Gordon, U.S. Geological Survey Menlo Park, CA 94025	U.S. Geological Books and Reports Section P.O. Box 25425 Denver, CO 80225 (303) 236-4476	Junior-Senior Highschool	Requirements for the diskette version are: Apple Computer, Inc., HyperCard 2.0™ software, and an Apple Macintosh™ computer with High-Density drive. If you are using System 7, we recommend using at least 3 MB of RAM with 1.5 MB of system memory available for HyperCard.	This report illustrates, by means of a computer animation, how an earthquake occurs and what types of damage may result. The report is intended to help students and others visualize what causes earthquake shaking and some of the possible results of the shaking. By studying the animation and the paper model, students will come to understand that earthquakes result from faulting in the Earth and that the potential consequences of earthquakes are numerous and serious. Included in the diskette version of this report are the templates for making a paper model, instructions for assembly, educators' guide, and animations describing the effects of the earthquake, including the collapse of structures, fire, and a tsunami. The paper version of this report includes everything except the animations.
				Purchasers of the diskette version of this report, which includes all of the text and graphics, can use HyperCard 2.0™ software (not supplied) to change the model (by adding geologic patterns,

* 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.

3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From:</u> *	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Earthquake Simulator"	Focus Media 839 Stewart Ave. P.O. Box 865 Garden City, NY 11530 (800) 645-8989 (516) 794-8900 Also available from: Cambridge Development Laboratory, Inc.	7-12	Apple series, color monitor recommended; Disk	symbols, colors, etc.) or to transfer the model to other graphics software packages. Also available from the U.S. Geological Survey Books & Open-File Reports Section: "How to Construct a Paper Model Showing the Motion that Occurred on the San Andreas Fault During the Loma Prieta, California, Earthquake of October 17, 1989" (Open File Report 89-640); "How to Construct Seven Paper Models That Describe Faulting of the Earth" (Open File Report 90-257); and "Make Your Own Paper Model of a Volcano" (Open File Report 91-115B).
		7-12	Apple	This is one in a series of earth science computer programs. Provides a simulation, tutorial and review. Graphically demonstrates earthquake waves, faults, folding. Students observe anticlines and synclines, faults, and future movement of the San Andreas fault. Each of the program's modules is supported with the Student Workbook containing worksheets which can be completed by students either

* 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.

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"The Earthquake Simulator"	Ward's Natural Science Establishment, Inc. 5100 West Henrietta Road P.O. Box 92912 Rochester, NY 14692-9012 (800) 962-2660 (716) 359-2502	7-12	Apple II Series	<p>at the computer or back at their desks.</p> <p>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.</p>

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3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Earthquakes"	Cambridge Development Laboratory, Inc. 214 Third Ave. Waltham, MA 02154 (800) 637-0047 (617) 890-4640	5-9	Apple Screen displays can be reproduced on a printer.	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.
"Earthquakes"	Science Kit and Boreal Laboratories 777 East Park Drive Tonawanda, NY 14150-6782 (800) 828-7777 (716) 874-6020 Also available from: Cambridge Development Laboratory, Inc.		Apple II+ 48K Disk	Will plot epicenters of all earthquakes with magnitude greater than 5.0 on the Richter scale.

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<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Earthquakes"- part of <u>Earth Science</u> series	Prentice-Hall Sylvan Ave. Englewood Cliffs, NJ 07632 (800) 848-9500 (201) 592-2540	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 (800) 962-2660 (716) 359-2502	General Program effective at all levels: 6-12	Apple II+/Ile 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.

* 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.

3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"The Earth Moves" A Simulation Program	Aquarius Instructional P.O. Box 128 Indian Rocks Beach, FL 34635-0128	For Life Science, Earth Science and Physical Science classes	2 Disk Set Apple	This contains two programs: "Folds and Faults" and "Earthquakes." "Folds and Faults" 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. "Earthquakes" gives students hands-on experience plotting earthquakes and latitude/ longitude lines. Includes reproducible plotting map.
"Earth Science"	Nasco West, Inc. P.O. Box 3837 Modesto, California 95352 (800) 558-9595 (209) 529-6957	Upper elementary- junior high	Atari 400/800	Helps students determine an earthquake's epicenter and learn to identify minerals in different sections of this program.

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<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Geodynamics Database"	Cambridge Development Laboratory, Inc. 214 Third Ave. Waltham, MA 02154 (800) 637-0047 (617) 890-4640	8 - college	Requires a PC XT, AT, PS/2 or compatible with hard disk and graphics card (IBM). Site license and Network available (call for price).	This is a comprehensive software resource with extensive data on 1,353 volcanoes and 23,000 earthquakes which lets students plot locations on maps of the world, a hemisphere, a particular geologic region, or other area of their choice. Volcano data includes: name, location, height, type, eruptive activity, lava characteristics, casualties, and damage. Earthquake data includes location of epicenter by latitude and longitude, date and depth of focus. Includes a comprehensive teacher's guide.
"Geology in Action: Experiments and Puzzles"	Cambridge Development Laboratory, Inc. 214 Third Ave. Waltham, MA 02154 (800) 637-0047 (617) 890-4640	6-12	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.

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3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"The Great Quake of '89"	The Voyager Company 1351 Pacific Coast Highway Santa Monica, CA 90401 (310) 451-1383 Also available from: Ztek, Co. P.O. Box 1055 Louisville, KY 40201-1055	5-12	Macintosh Plus or greater, hard disk with 185K free space, laser disc player with an RS-232 interface	This videodisc and software is a vast resource and collection of films, stills, maps, and drawings related to this and other earthquakes. The laser disc has been assembled from the ABC News Company's coverage of this earthquake. The HyperCard stack lets the teacher view the sequences in any order, pause at segments, and customize material for presentation. Chapters include: "The Bay Bridge," "Highway 880," "San Francisco Marina and Downtown," "The Richter Scale," and "Earthquake Preparation at Home." Reviewed: <u>Science and Children</u> , April, 1992.
"Macmillan Earth Science Scienceprobe"	Cambridge Development Laboratory, Inc. 214 Third Ave. Waltham, MA 02154 (800) 637-0047 (617) 890-4640	6-9	Apple	This package lets students apply science concepts to solve 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 that student's scores. Includes seismology, meteorology, hydrology and paleontology.

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<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"The Moving Crust"	Focus Media 839 Stewart Ave. Garden City, NY 11530 (516) 794-8900 (800) 645-8989 Also available from: Ward's Natural Science Establishment, Inc. (800) 962-2660 74 E 1976 (IBM) 74 E 1977 (Apple)	7-12	Apple 64K, IBM 256K, MS-DOS Compatible	This program introduces the theory of plate tectonics with interactive simulation where students collect evidence to prove the theory. The program emphasizes decision making and strategy formation in individual and group situations. Includes three disks, back-ups, manual/planner/black-linemasters (26 pp.). Reviewed: <u>Science and Children</u> , April, 1992.
"Plate Tectonics" - part of <u>Earth Science</u> series.	Prentice-Hall Sylvan Ave. Englewood Cliffs, NJ 07632 (800) 848-9500 (201) 592-2540 Also available from: Ward's Natural Science Establishment, Inc. (800) 962-2660 74 E 1705 (IBM) 74 E 1704 (Apple)	6-12	Apple Series, IBM PC, PC Jr., Tandy 1000, 2 disk drives	Uses graphics, text, questions to demonstrate how earth's crust is divided into plates and how volcanoes, mountains, earthquakes relate to plate movement. Reviewed: <u>Science and Children</u> , Feb. 1987.
"The Restless Earth"	Cambridge Development Laboratory, Inc. 214 Third Ave. Waltham, MA 02154 (800) 637-0047 (617) 890-4640	9-12	Apple	Provides highly graphic tutorial with many student options for review and remediation.

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3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
Science ToolKit Module 2: "Earthquake Lab"	Broderbund Software - Direct, Dept. 15 P.O. Box 6125 Novato, CA 94948-6125 (800) 521-6263 FAX: (415) 491-6665 Also available from: Cambridge Development Laboratory, Inc. (Apple and IBM)	4-12	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+ and adapter is needed for the game port.	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 "seismoscope." The "seismoscope," 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. New Experiment Manual. Note: to upgrade existing copies of any Science Toolkit Module, send original program disks, the manual cover, or a copy of the original purchase order with the appropriate price. Free upgrades are available if ordered within three months of purchasing.

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<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Seismological Data Acquisition Software"	Joseph J. Gerencher, Jr. Department of Physics and Earth Sciences Moravian College 1200 Main Street Bethlehem, PA 18018-6650	6-12; college	Apple IIe or Iigs with 128K; one or two disk drives; AE 8-bit A/D and D/A board; access to an Apple ProDOS Utilities disk; Orange Micro Pro-Grappler or Grappler Plus Printer Interface; and a compatible parallel printer. Also an AE Timemaster II HO clock card is required for the Apple IIe.	Monitor and display in real time from 1 to 4 simultaneous seismometer inputs. Digitized data is accumulated in internal memory in 12K or 24K blocks until subsequent seismic inputs are evaluated. If selected seismic traces exceed user-set boundaries, all sequestered data is saved to disk, along with all current inputs from seismometers. User-friendly menus alter the variables which control the data acquisition, monitoring, displaying, system triggering, and subsequent viewing and printing of any combination of inputs. SAS package includes 3 disks (source code, assembled object code, and example data) and detailed 64-page <u>User's Manual</u> . Most of the features of the software are described in the article, "Cross Utilization of a Multi-Axis Lehman Seismograph System" by Gerencher and Jackson, <u>Journal of Geological Education</u> (1991), volume 39, pp. 306-310.

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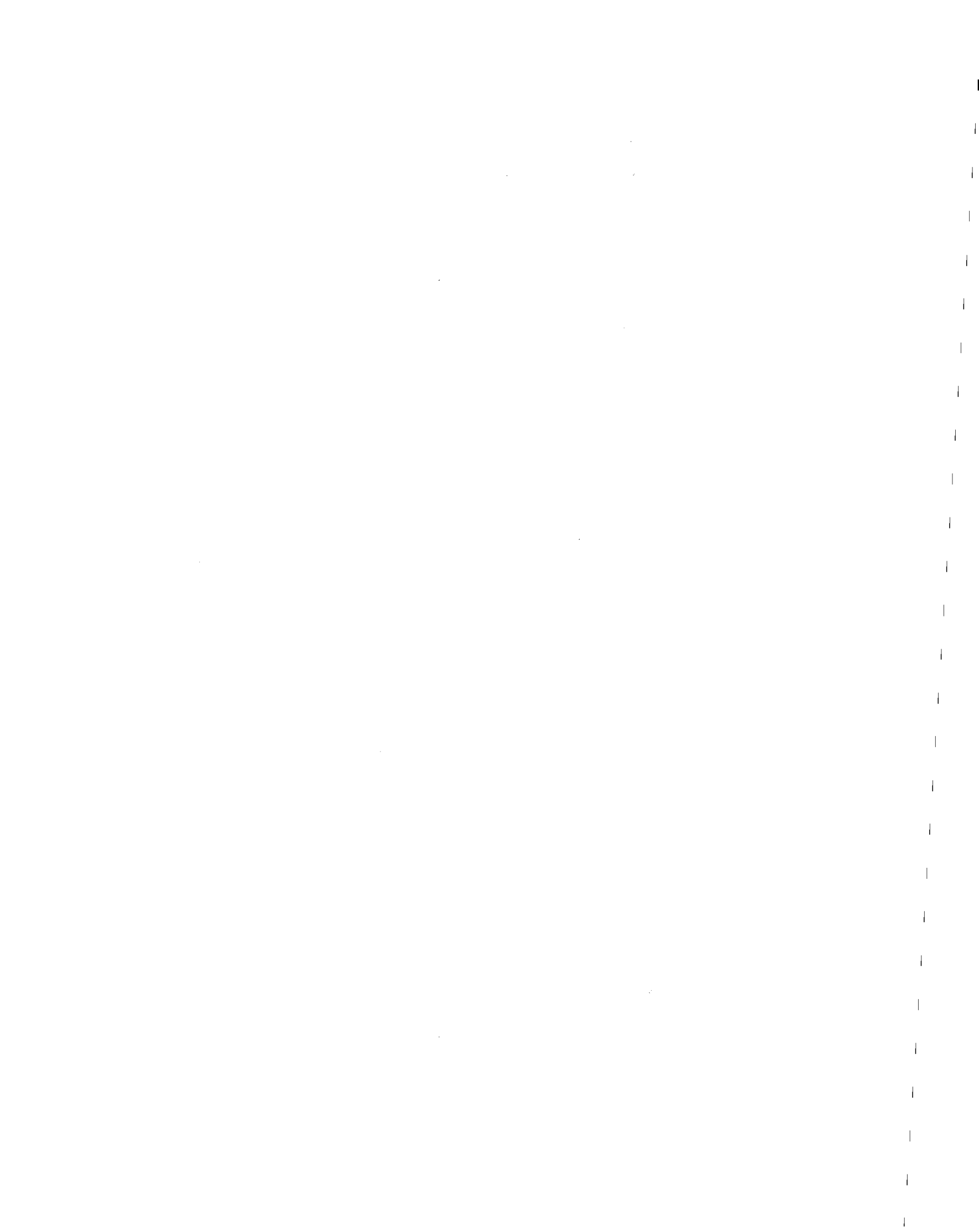
3.4 Selected Software (Continued)

<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Shaping the Earth's Surface"	Focus Media 839 Stewart Ave. Garden City, NY 11530 (516) 794-8900 (800) 645-8989	7-12	Apple II Family (Laser 128)	This is a four part series which can be used for review, as a tutorial, learning game or combination of the three: "Weathering," "Agents of Erosion," "Systems of Erosion and Deposition," and "Forces That Raise the Surface." "Forces That Raise the Surface" includes earth movements, major landforms, volcanoes, and plate tectonics.
"Volcanoes"	Ward's Natural Science Establishment, Inc. 5100 West Henrietta Rd. P.O. Box 92912 Rochester, NY 14692-9012 (800) 962-2660 (716) 359-2502	Advanced high school (9-12), college	Apple II/IIe, 48K, Disk Minimum DOS required: 3.3	In addition, a related, 3 part program, "Your Universe," contains information about the earth's structure, volcanoes, earthquakes, and continental drift. 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.

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<u>Program Name</u>	<u>Available From: *</u>	<u>Grades</u>	<u>Computer</u>	<u>Program Information</u>
"Volcanoes" - part of <u>Earth Science</u> series	Prentice-Hall Sylvan Ave. Englewood Cliffs, NJ 07632 (800) 848-9500 (201) 592-2540	6-12	Apple Series, IBM PC, PC Jr., Tandy 1000, 2 disk drives.	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.
"Volcanoes Deluxe" "Volcanoes" Apple II series	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: <u>Science and Children</u> , May 1987.

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3.5 Software Evaluation

Software can be difficult to evaluate. Some of it is so technologically dazzling that it is easy to be impressed by the graphics and blinded to the educational soundness of the program itself. It's important to keep in mind the purpose of the software for your program as well as the level and needs of your students. In addition, look at its ease of use, the clarity of instructions, graphic details, evidence of field testing, and any existing reviews. Preview of software prior to purchase is also desirable.

The following are some additional questions to guide you in your selection of the best software for your program.

For what purpose do you intend to use the software?

Is it to supplement the lessons?

Introduce a unit? Conclude a unit?

Do you want the students to have a review of the material or to learn something new?

Do you want students to visually see something you could not demonstrate in class?

How will students use the software?

Will students be using the software independently or under your guidance?

Will they be using it singly, or in small groups?

Will they be using it with a text, or reading textual information from the screen?

Will they be using it to do reports or projects?

Will the software facilitate learning?

Is the software developmentally appropriate for the students? Does the software consider students' prior knowledge?

Does it provide appropriate feedback?

Is the feedback immediate or delayed?

What is the level of feedback complexity?

3.6 Selected List of Resource Organizations

<u>Organization:</u>	<u>Source For:</u>
American National Red Cross Disaster Services 18th and E Street N.W. Washington, D.C. 20006	Variety of disaster materials
Arkansas Office of Emergency Services P.O. Box 758 Conway, AR 72032 (501) 329-5601	"Ready Teddy" tape, "Rumble, Tumble Ready" buttons; (K-3) Braille translations of FEMA earthquake booklets
Bay Area Regional Earthquake Preparedness Project (BAREPP) MetroCenter 101 8th Street Suite 152 Oakland, CA 94607 (415) 540-2713	<u>Earthquake Planning and Preparedness Activities for Childcare Providers; Identification and Reduction of Nonstructural Earthquake Hazards in California Schools</u> and a variety of other earthquake preparedness and curriculum materials
California Earthquake Education Project Lawrence Hall of Science University of California Berkeley, CA 94720 (415) 327-6017	CALEEP materials including "Earthquake Hazards Around the Home" coloring book
Center for Earthquake Research and Information Memphis State University Memphis, TN 38152 (901) 678-2007	Reprints of articles related to seismographs, the Earth- quake Education Project and New Madrid Seismic Zone

Center for Earthquake Studies
Southeast Missouri State
University
One University Plaza
Cape Girardeau, MO 63701-4799
(314) 651-2019

Earthquake Education Center
Charleston Southern University
9200 University Blvd.
P.O. Box 10087
Charleston, SC 29411
(803) 863-7531

Emergency Management Division
City of Irvine
One Civic Center Plaza
Irvine, CA 92713
(714) 724-7149

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

New Madrid Earthquake by
Fuller (reprint);
"How to Build and Use
Your Earthquake Liquefaction
Model;"
The Effects of Earthquakes in the
Central United States by Nuttli
(reprint)

"Emergency 'Q' Tips" 1 & 2;
Information about earthquakes
in South Carolina

Officer Ollie's Earthquake Show -
videotape; Zoo Friends Earthquake
Safety Tips; videotapes of school
preparedness workshops

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

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

Geological Survey of Canada
601 Booth Street
Ottawa, Ontario
Canada K1A 0E8
(613) 995-5745

Lafferty & Associates, Inc.
4529 Angeles Crest Hiway
Suite 215, P.O. Box 1026
La Canada, CA 91011
(818) 952-5483

Math/Science Nucleus
3710 Yale Way
Fremont, CA 94538
(510) 490-6284
FAX: (510) 490-0256

Ministry of Education
620 Superior Street
Victoria, B.C.
Canada V8V 2M4
(604) 356-7821

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)

References on Earthquakes,
Tectonics, Maps and Earthquake
occurrences

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

Plate Tectonic Cycle
teacher manual (K-6);
materials including maps,
shaker tables, videos

Seismic Upgrading for
School Buildings; School
Earthquake Safety Guidebook

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

National Research Council of
Canada
Institute for Research in Construction
Building M-22, Montreal Road
Ottawa, Ontario
Canada K1A 0R6
(613) 993-2607

New England States Earthquake
Consortium
501 Islington St., Suite 7
Portsmouth, NH 03801
(603) 430-9876

Quake Safe
700 State Dr.
Los Angeles, CA 90037
(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

Earthquake Education Materials
for Grades K-12; Fact Sheets;
Earthquake Engineering Publications

Earthquake Building Codes;
Guidelines for Building

New England Earthquake Fact
Sheets; Speakers Bureau;
Information Resource

Newsletter; programs for
children

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

Pre-School Earthquake
Preparedness Guide

University of Missouri-Columbia
College of Education
Southwestern Bell
Science Education Center
108 Townsend
Columbia, MO 65211-0211
(314) 882-4363

Videotape about the New
Madrid fault zone;
resources appropriate
for earth science teachers
(Grades 7-12).

University of British Columbia
Centre for Human Settlements
2206 East Mall
Vancouver, B.C., Canada V6T 1W5
(604) 228-5254

Catalog of Emergency
Preparedness and Earthquake
Information

University of California at
Los Angeles (UCLA) Extension
10995 Le Conte Avenue, Suite 639
Los Angeles, CA 90024-2883
(213) 825-4191

Videotapes; Certificate Program
and Classes in School Earthquake
Preparedness

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

References on earthquakes;
catalogs, maps of earthquake
occurrences

U.S. Geological Survey
Western Region Library
345 Middlefield Road
Mail Stop 955
Menlo Park, CA 94025-3591
(415) 329-5081

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grade earth science educators.
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maps, computer software.



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