



Search:



Browse

[Advanced Search](#)

Search Our Database!

[Search](#) nearly 1,000 Lesson Plans submitted by the Intel ACE teachers!

Submit Your Lesson Plans Here!

Why not share you tried-and-true lessons plans with other edU members? Teachers can always use new ideas to keep existing curriculum fresh. Go ahead, [submit a lesson plan](#).

Lesson Title:

Shake, Rattle, & Roll (Disaster Preparation)

Subject Area:

Science & Math

Grade Level:

k-6

Lesson Summary:

1. Students will investigate causes and effects of earthquakes 2. The student teams will build a model of a stable structure for a simulated seismic activity. 3. The teams will choose a geographical location and analyze its ability to deal and withstand seismic activity. 4. Students will present their findings to the class detailing any concerns for the location and modifications that may need to be made. 5. Students will e-mail individuals that have personally experienced earthquakes and ask questions of them.

Objective/Content Standard/Benchmark:

1. Students will utilize research skills. 2. Students will construct models using scale and structural concepts. a. Students will take into account effects of EQ's on structures 3. Students will gather, analyze, and graphically represent data. 4. Students will collectively problem-solve answers to concerns regarding their chosen geographical location. 5. Students will cooperatively prepare, using multimedia, a presentation to be unveiled to the class. 6. Students will use any necessary technology to assist in their research and completion of their project.

Approximate Time Needed:

4-6 weeks

Prerequisite Skills:

This lesson will be taught in the Spring Semester of school thus: 1. Students will be given a background understanding of searching on the Internet through the use of tutorials such as: <http://users.cwnet.com/jedman/page14.html> 2. Students will be given a background understanding of basic Keyboarding skills in MS Word as well as a tutorial on creating charts in MS Excel. 3. Students will be given a background understanding in creating basic presentations in MS PowerPoint. 4. Having participated and being involved in Tribes (a classroom community building program), students will have an excellent understanding of the requirements when working in groups and collaborating together.

Materials and Resources Required:

Technology:

1. Microsoft Suite of Products including MS Word, PowerPoint, Excel, & Publisher 2. Three to Five computers accessible to the student teams

Printed Materials:

Printed overheads, Grading Rubrics

Supplies:

Pencil, Paper, floppy diskettes,

Others:


Procedures:

Students will work in teams of four or five for this project Part 1: The students will utilize research methods to investigate the causes and effects of earthquakes. They will use tradebooks and Internet technology. A. Students will gather information from the Internet using Internet Explorer and a predetermined set of Internet favorites.
<http://www.geo.ed.ac.uk/quakes/moreinfo.html> <http://quake.wr.usgs.gov/hazprep/index.html>
http://wwwneic.cr.usgs.gov/neis/general/handouts/general_seismicity.html
<http://www.abag.ca.gov/bayarea/eqmaps/eqmaps.html>
<http://www.crystal.ucsb.edu/ics/understanding/>
<http://www.scecdc.scec.org/measureeq1.html> <http://www.scecdc.scec.org/eqmyth.html> - common myths B. Information they gather will be recorded in an electronic journal kept in MS Word. C. Students may choose to e-mail questions to a geologist/seismologist to gain information about earthquakes using: <http://walrus.wr.usgs.gov/docs/ask-a-ge.html> Part 2: In teams, students will design and build a model of a structure that should withstand a simulated earthquake. (see PowerPoint overhead) A. Requirements for the structure are as follows: 1. There should be minimal outside help - group work only 2. Groups may build more than one structure to be tested 3. The structures must be freestanding 4. The structures base must be no larger than 18" x 18" 5. There is no restriction on the height of the structure 6. The structure must weight no more than 30 pounds 7. The building materials used are open to the group's choice Note: The structures will be tested in a homemade electrical device designed to simulate an earthquake. Any additional questions about the device may be addressed to me at plsclueter@uswest.net B. The teams will draw their original design sketches using MS Draw 98 accompanied with a summary justifying the decisions they made regarding their building design. This program will allow students to provide 3-dimensional sketches. C. As the teams build their model they will be required to keep a log of what they worked on and why they chose the building materials, size, etc. of

the structure they are designing. Part 3: The teams will choose a geographical location (anywhere in the world) and research its geography, topography and climate using Encarta 98 and Map Quest (<http://www.mapquest.com/>) as a base source of information. A. The students will e-mail the various government agencies requesting information about their particular locations. Additionally, the students will be given the opportunity to communicate with individuals who have personally experienced earthquakes in various parts of the world. The following site is an example of students who have written and will communicate about their experiences in the most recent Kobe, Japan and San Francisco earthquake: <http://ccs.cla.kobe-u.ac.jp/Asia/Visitor/Furm/index.html> <http://www.sfmuseum.org/conflag/06index.html> Part 4: The student will create a map of their chosen location detailing the features that are beneficial and/or detrimental to its ability to withstand an earthquake. Students may download a world map from this location and use the given legend to assist them in their detailing. <http://www.athena.ivv.nasa.gov/curric/land/wrldmap.gif> Part 5: Having completed their research, students will present their findings to the class using MS PowerPoint. For each of their sites, The students will generate a graph in MS Excel, (see sample on last page of lesson) downloading it into their PowerPoint presentation, detailing the prior seismic activity of their particular region (if applicable). Students may wish to use the following site to assist them in tracking prior earthquake history around the world: <http://www.geo.ed.ac.uk/quakes/schools.html> Part 6: Finally, The student teams will make their recommendations in written form, using MS Word. This should include any modifications that would need to be made to the location to enable it to better withstand seismic activity. In their recommendations, they may choose to include charts and graphs detailing the potential damage and estimated death toll that would result from a serious seismic event (5.0 or better on the Richter Scale).

Modifications for Differentiated Instruction:

For the special needs student:



Those students of mine who have special needs will have the assistance of their resource teacher to aid them in researching on the web and reading and determining what information is important to keep and what may be discarded. Additionally, with the exception of the initial prep research regarding EQ causes and effects, all students will be working in groups of at least four to five individuals. The project work will be divided up among group's members so that each person is paired with another to complete a section of the project. No one will be solely responsible for a segment of the project. In addition, the Microsoft software, with it's tutorials and assistance menus, offer all students the opportunity to understand to gain a better working knowledge of their products and how to apply it to their given project.

For the gifted student:

Those students who may find themselves looking for additional challenges within this unit, may take time to investigate and work through the following website:
http://www.geo.ed.ac.uk/scratch/quake_all.html This particular website lets you practice plotting EQ data on a world map using lines of longitude and latitude that are given to each student.

Student Assessment:

1. Informal observation of research methods used by each group and the degree of depth to their research. 2. Each group's structure(s) will be rated on a 4 point rubric as follows: Level 4 = Little or no damage has occurred/structure is completely intact and still remains on foundation (4 pts.) Level 3 = Slight damage to the structure - base and/or foundation has remained intact - rebuilding would be minimal. (3 pts.) Level 2 = Structure's base has shifted off foundation and building has serious damage - rebuilding would take more work but would be possible. (2 pts.) Level 1 = Structure has received severe damage - base has shifted completely off its foundation. Little has been left of existing structure. Rebuilding would require totaling the original structure and starting from scratch. (1 pts.) Note: Levels will be assigned as a result of class discussion and collective agreements from the class. 3. Informal observations of group work 4. The map of the geographical location will be assessed by the degree of depth with which each group included the necessary information. Additionally, the map and the information provided should offer an adequate understanding of the seismic concerns for that given location. 5. PowerPoint presentation - the amount of informative materials that were included in their presentation. The effectiveness of the groups oral presentation (have they adequately presented information to the class?, and were they able to answer class questions effectively?). The assessment will be drawn from the class as a function of everyone offering 3 positive comments and 3 areas each group may wish to improve on. 6. Informal observations of each group members journal/log entries.

Lesson Evaluation:

1. Feedback gathered from students. 2. Feedback gathered from peers invited to view the class PowerPoint presentations 3. Level of student involvement and motivation throughout the project. 4. Response from students in their journal and work logs

Zip File Name:

[276lesson.zip](#)

[Back to select search](#)

[Books](#) • [Reading Room](#) • [Your Stories](#) • [Get Published](#) • [Partners](#)
[Search](#) • [Browse](#) • [Teachers Suggest](#) • [Test Prep](#)
[Computer Books](#) • [Foreign Language](#) • [Teacher Training](#) • [Member Schools](#) • [Lesson Plans](#)