Does the Earth Have *the Shakes*?

Purpose:

CTo identify seismically active zones on the earth's crust.

Materials: (for each group of two or three)

Cpencil

Cblank map of the world (supplied)

•computer, Internet access (optional)

Science Processes:

Cmap skills
Cextrapolating
Cinferring
Canalyzing
Chypothesizing
•use of the Internet (optional)

Safety Information:

No safety concerns are anticipated.

National Science Standards:

Teaching Standards B, C, D; Assessment Standards A, E; Content Standard D.

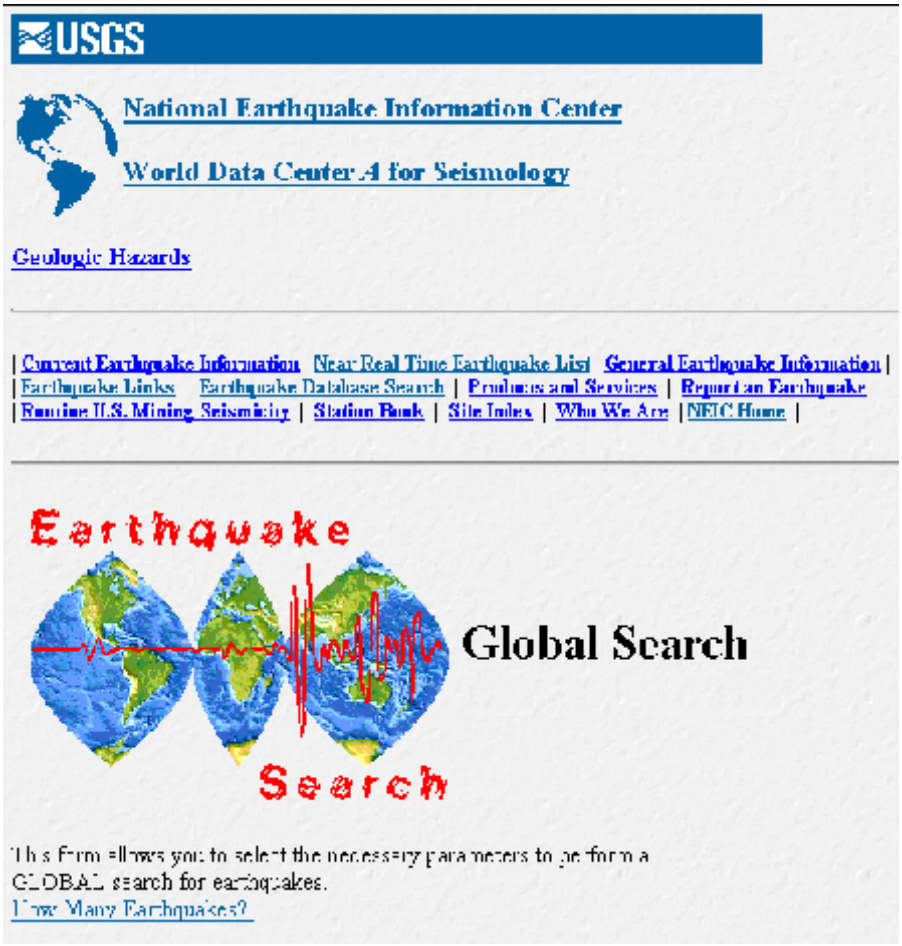
Related NASA Resources:

Today's Earthquake Activity Website:
http://www.athena.ivv.nasa.gov/curric///land/todayqk.html

On the Move: Continental Drift and Plate Tectonics Website:
http://kids.earth.nasa.gov/archive/pangaea/index.html

Advance Preparation:

A certain level of geographic aptitude will greatly enhance students' ease with this activity. It is recommended that students be familiarized or re-introduced to the latitude/longitude coordinate system before beginning this lab. Many students will have learned this method of locating points on the globe in social studies classes, but be prepared for many *never* having been taught it.



NEIC Web Page

A table showing forty recent epicenters is included in this document, however, it is highly suggested that students obtain current earthquake information from Internet sources. An excellent site is maintained by the United States Geological Survey: the National Earthquake Information Center. The NEIC web site is located at http://wwwneic.cr.usgs.gov/neis/epic/epic_global.html. It contains a searchable database with parameters such as *start date, end date, magnitude minimum, magnitude maximum*, etc. Students may be split into groups, and each group may be given a different month or range of magnitudes to search. In this way, groups may plot different events, which will likely lead to similar results.

When using the NEIC Web page, students should select their output type as *80 character display*, so that the coordinates will be printable and viewable onscreen.

Note: The student work sheet refers to a "code number." This refers to an identifying number that students can include on their maps. After printing, students may simply add chronological numerals to their lists.

For classroom without Internet access, a reproducible table of earthquakes follows.

Recent Global Earthquakes

Code	Location	Latitude	Longitude	Code	Location	Latitude	Longitude
1	Nicaragua	12°N	87°W	12	Baja California	29°N	114°W
2	Alaska	59°N	143°W	13	Chile	33°S	70°W
3	South California	33°N	116°W	14	Alaska	60°N	143°W
4	Iran	33°N	59°E	15	Taiwan	24°N	122°E
5	China	41°N	81°E	16	Sicily	38°N	14°E
6	Fox Islands	52°N	170°W	17	Spain	37°N	3°W
7	Mid-Atlantic Ridge	15°N	38°E	18	Greece	40°N	22°E
8	Alaska	59°N	153°W	19	Philippines	14°N	119°E
9	Mexico	16°N	96°W	20	New Guinea	6°S	146°E
10	Argentina	31°S	68°W	21	Aegean Sea	40°N	24°E
11	Japan	37°N	139°E	22	Chile coast	32°S	71°W
23	Southern Greece	38°N	22°E	32	Fiji	2°S	177°W
24	Turkey	40°N	29°E	33	Iceland	65°N	17°W
25	Italy	43°N	13°E	34	Japan	40°N	142°E
26	Oregon Coast	45°N	125°W	35	Guatemala	13°N	91°W
27	Alaska	66°N	150°W	36	Panama	5°N	82°W
28	California-Mexico	33°N	117°W	37	N. India	30°N	78°E
29	Indonesia	8°S	124°E	38	N. Calif. coast	41°N	126°W
30	Australia	19°S	134°E	39	Java	7°S	107°E
31	Bangladesh	25°N	91°E	40	Greenland Sea	73°N	5°E

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Reading Level:

Flesch-Kincaid Grade Level 8

Procedure Notes:

Encourage students to work together when attempting to locate their earthquake epicenters. When analyzing the outcome, invite creative answers which are also scientifically sound.

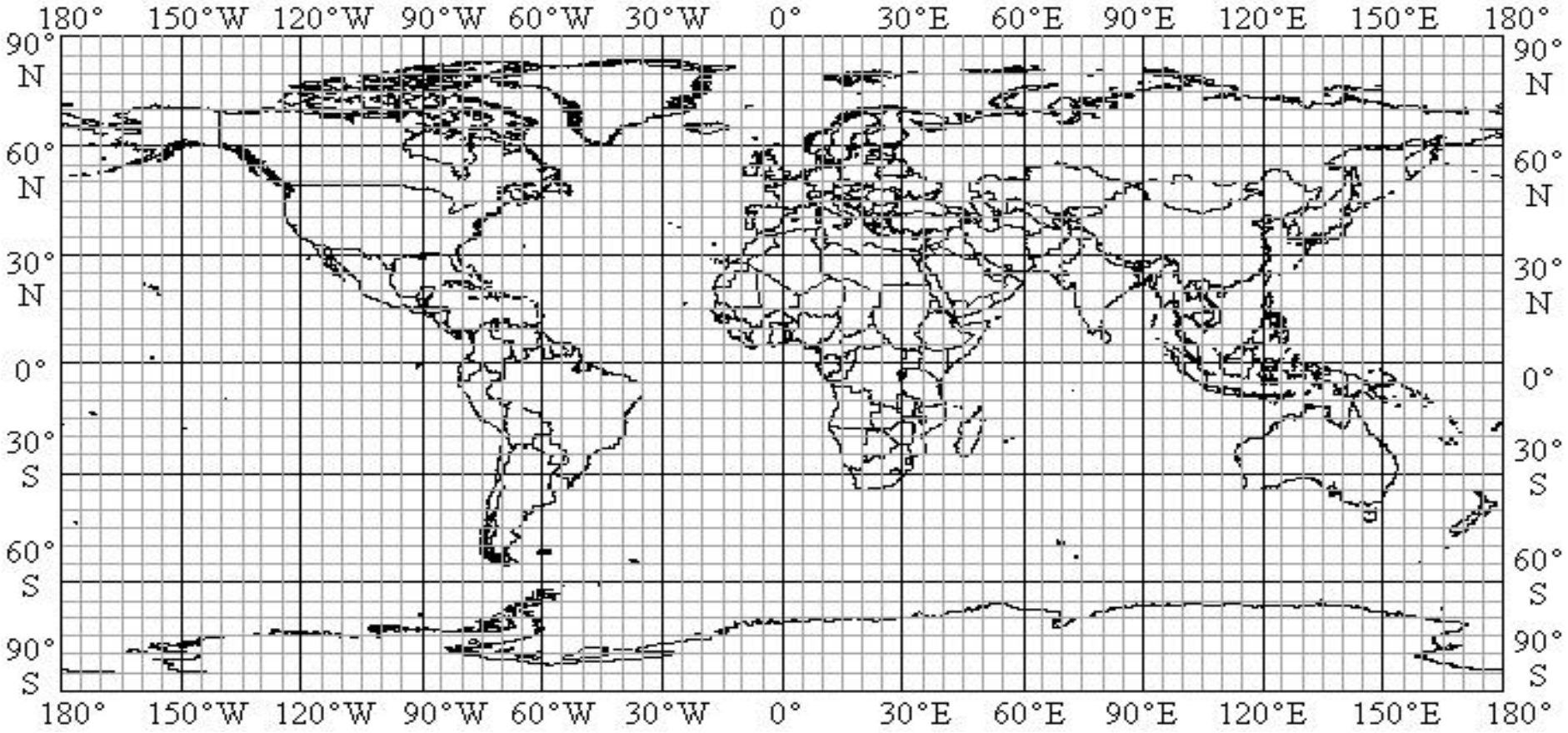
Some students may want to use White-Out or Liquid Paper in order to better view the dots which may lie on the (relatively dark) land masses. A black and white version of the student map is included on the next page. It may reproduce more favorably, depending on your school's facilities.

Answers to Questions:

1. Students should observe that the earthquakes appear to occur in "bands" or "zones," mainly at, but not confined to, the edges of continents.
2. Places which border the Pacific Ocean, the middle east, the mid-Atlantic Ocean.
3. b)the middle of continents; because most continents show no earthquake activity inland.
4. Answers will vary.

Conclusion:

Earthquakes appear to occur most often in distinct zones. The next activity in this series, "Meet the Goddess Pele" will offer reinforcement of the pattern shown on students' world maps.



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