

PLOTTING VOLCANOES AND EARTHQUAKES

MATERIALS

- Four different colored pencils
 - List of earthquakes and volcanoes (included in this curriculum)
 - World map (included in this curriculum—or use another of your choice)
 - Map showing plate boundaries
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1. Use one of the colored pencils and plot all of the older earthquakes on the world map.
 2. Use a different colored pencil and plot all of the recent earthquakes on the world map.
 3. Use a third colored pencil and plot all of the volcanoes on the world map.
 4. Be sure to include the ones written below the table.
 5. Use a fourth colored pencil and a map showing plate boundaries to draw the outlines of the tectonic plates on the world map. Include the seven major plates and five minor plates.
 6. Label each of the plates.
 7. Add arrows to show the direction the plates are drifting.
 8. Be sure to add a key to your map indicating what the different colors represent.



Another long day down at the
Bureau of Earthquake Prediction

List of Earthquakes and Volcanoes by Latitude and Longitude

Older Earthquakes		Recent Earthquakes		Volcanoes	
Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
77 N	0 W	42 N	144 E	17 N	62 W
20 N	40 W	46 N	143 E	33 N	131 E
55 S	40 W	84 N	4 W	8 S	123 E
35 N	30 W	22 S	175 W	21 S	56 E
10 N	45 E	22 S	113 W	8 S	113 E
15 N	55 W	59 S	26 W	5 S	151 E
45 N	125 W	35 N	36 W	3 N	125 E
30 S	75 W	18 N	120 E	19 N	99 W
15 N	120 E	37 N	121 W	20 N	104 W
50 S	160 E	17 N	94 W	10 N	123 E
30 N	45 E	26 S	69 W	15 N	91 W
5 S	120 E	20 N	96 E	14 N	91 W
60 N	29 W	1 N	126 E	2 N	128 E
0 N	20 W	35 N	135 E	1 S	78 W
40 S	90 W	23 S	179 W	16 N	146 E
35 N	0 W	1 S	69 E	50 N	155 E
10 S	70 E	35 N	102 W	4 S	152 E
15 N	75 W	7 S	128 E	0 S	78 W
20 N	105 W	5 S	154 E	56 N	161 E
60 N	180 E	40 N	38 E	19 N	155 W
10 S	135 E	48 N	149 E	56 N	161 E
50 S	110 E	39 N	112 W	2 S	29 E
30 N	75 E	38 S	178 E	39 N	15 E
45 N	40 W	39 S	174 E	38 N	15 E
30 S	20 W	51 N	177 E	9 S	123 E
45 S	135 W	45 S	167 E	54 N	160 E
30 N	30 E	12 N	144 E	4 S	145 E
50 N	170 W	5 S	154 E	39 S	72 W
5 N	75 W	80 N	2 W	36 N	139 E
45 N	130 E	48 N	117 W	0 S	79 W
30 S	165 E	11 S	165 E	20 N	156 W
20 S	75 E	20 N	71 W	33 N	140 E
55 N	150 E	42 N	144 E	56 N	160 W

36N 89W (New Madrid Missouri February 7, 1812 M8.0)

118N 34W (Northridge, CA January 17, 1994 M6.7)

37N 121W (Loma Prieta, CA - South of San Francisco October 17, 1989 M6.9)

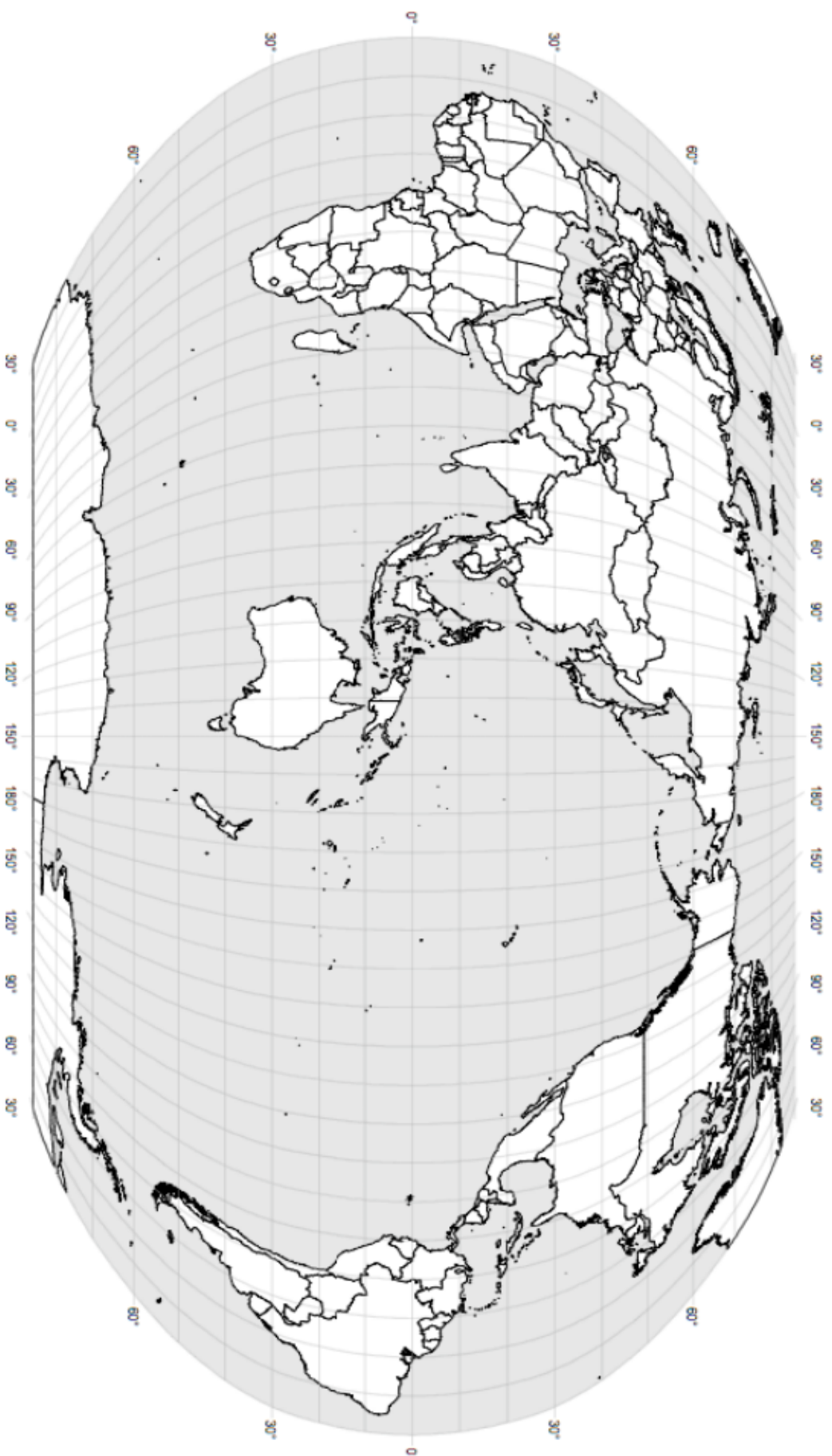
3N 95E (Sumatra Earthquake and Tsunami December 26, 2004 M9.3)

46N 122W (Mount Saint Helens – last erupted May 1980)

15N 120E (Mount Pinatubo – last erupted in June 1991)

4N 75W (Nevado del Ruiz, Chile – last erupted September 1985 destroying the village of Armero)

22N 159W (Kilauea, Hawaii – currently active)



Robinson Projection



0 5000 Kilometers

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TEACHER NOTES

Students will need to know how to plot points on a map using longitude and latitude before doing this activity. Since the map has the Pacific Ocean in the center, you may want to add (or have students do it) “W” for west and “E” for east next to the longitude numbers at the top and bottom of the map. This map was used, I’m sure, because it would put the Ring of Fire front and center. If there is a different map you’d prefer to use, feel free to do so.

This list of earthquakes and volcanoes has been around a while. The “recent earthquakes” are now pretty old. The ones listed under the table are separate, I assume, because they were among the most severe. Feel free to compile a list with more recent data if you like. There are several websites that list this information.

There are a lot of items listed on the table, a total of 70 earthquakes and 37 volcanoes (counting the ones under the table). When I used this, **I would pick out which ones I wanted students to plot.** Usually, I’d tell them to plot every third earthquake (I’d have to tell them which ones those were) in each column and every other volcano along with the four of each under the table. That made a total of 26 earthquakes and 20 volcanoes. Or you could plot them yourself and decide which ones to use.

An option for this would be to find a list of active, dormant, and extinct volcanos around the world. Students could use different colors to indicate each type. You could also divide the earthquakes up by magnitude. Students could then use different colors to indicate the different magnitude ranges. You could choose not to differentiate between older and recent earthquakes. You could also eliminate showing and labeling the plate boundaries. I added that because I felt it was easier for students to draw the correlation between seismic activity and the plate boundaries. Some students will notice the Hawaiian volcanoes aren’t along any boundary. This leads into a discussion of hot spots and plate movement.

When duplicating these pages, be careful not to run the map and the table back-to-back. This will prevent the students from having to continually flip the page over. If I was a student, that would drive me nuts.