

Plotting Earthquake Epicenters

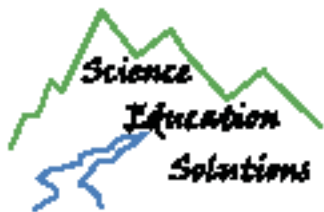
an activity for seismic discovery

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Plotting Activity adapted from:

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Plotting Earthquake Epicenters: Where in the World? Student Answer Sheet

Determining Latitude and Longitude of Major Cities

Using the United States Map record the latitude and longitude for each of the US cities.

City Name	Latitude	Longitude
1. Los Angeles	_____	_____
2. Tucson	_____	_____
3. Denver	_____	_____
4. Chicago	_____	_____
5. Seattle	_____	_____
6. New York	_____	_____
7. Miami	_____	_____

Plotting Earthquake Depths and Magnitude

Using the following depth scale, plot the following earthquakes by depth on the World Map

Depth (km)	Color
0-70	Blue
70-300	Red
300-700	Green

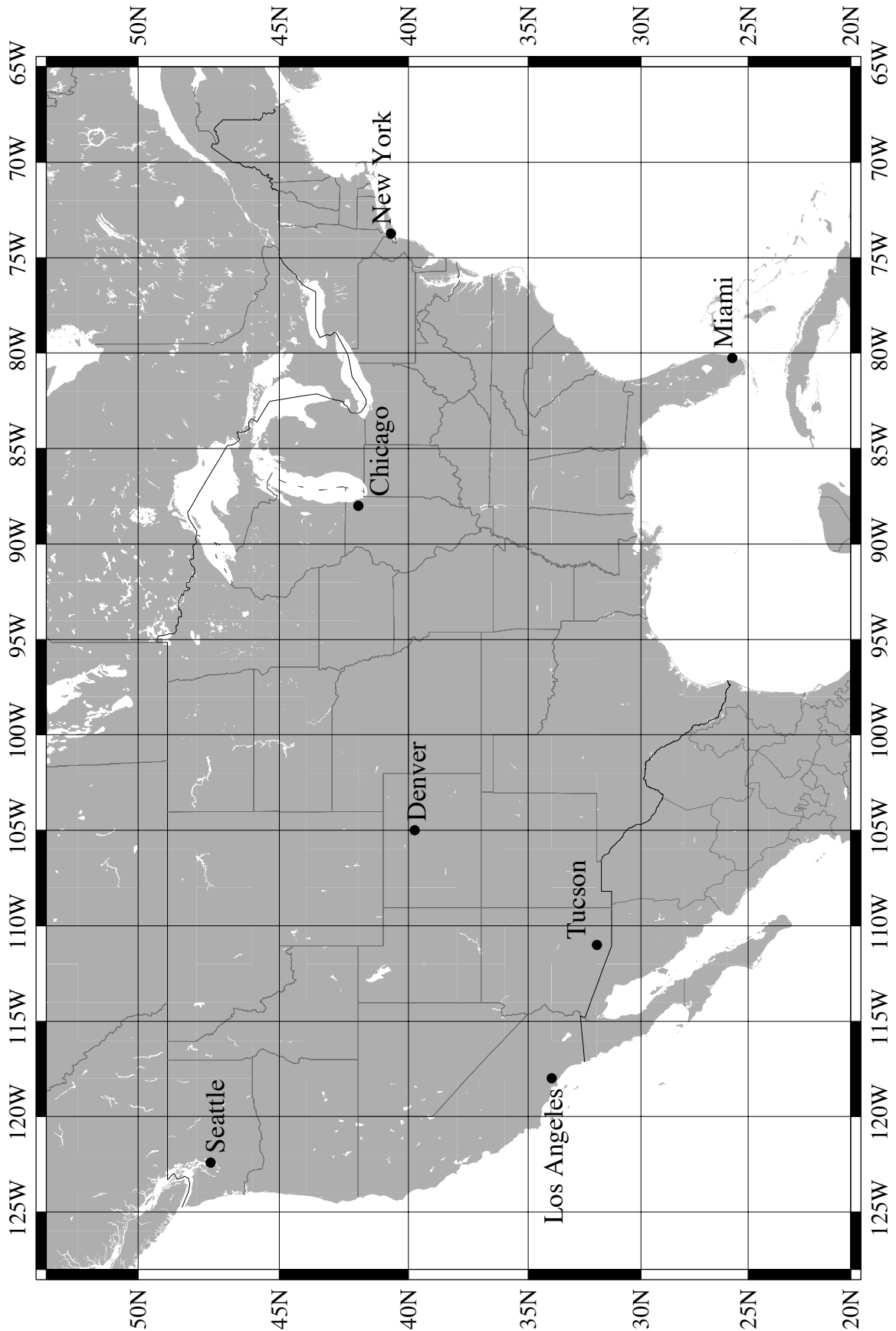
	Latitude	Longitude	Depth (km)
A)	58.22N	158.66W	33.0
B)	16.26S	174.69W	260.6
C)	26.35S	178.05E	605.6

Using the following magnitude scale, plot the following earthquakes by magnitude on the World Map

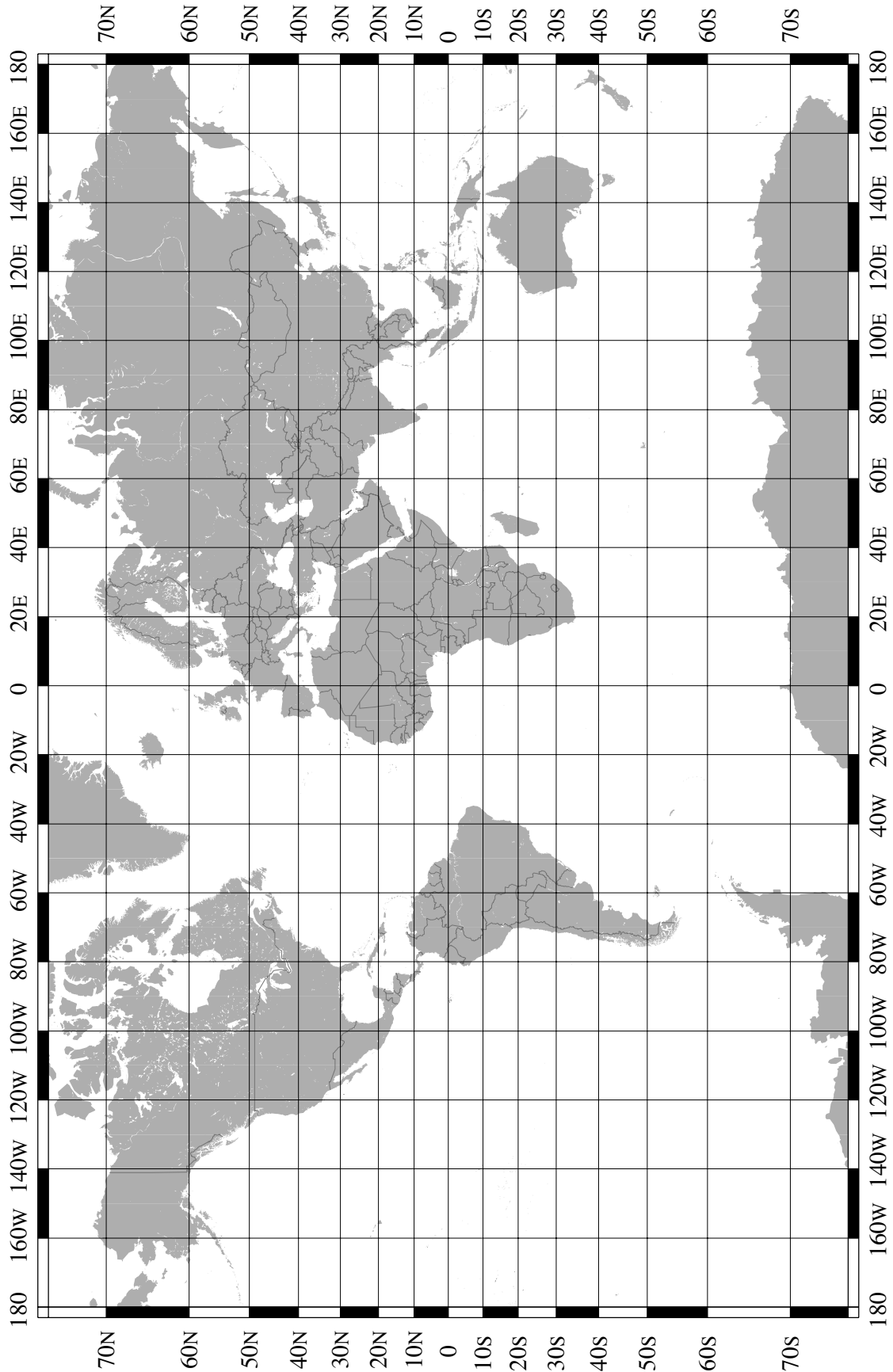
Magnitude	Color
>8	Brown
7-7.9	Orange
6-6.9	Yellow
5-5.9	Purple
<5	Black

	Latitude	Longitude	Magnitude
D)	46.74N	150.65E	6.8
E)	37.28N	32.59W	5.2
F)	16.14S	73.31W	8.1

Plotting Earthquake Epicenters: Where in the World? US Plotting Map



Plotting Earthquake Epicenters: Where in the World? World Plotting Map



Plotting Earthquake Magnitudes

Code Magnitudes

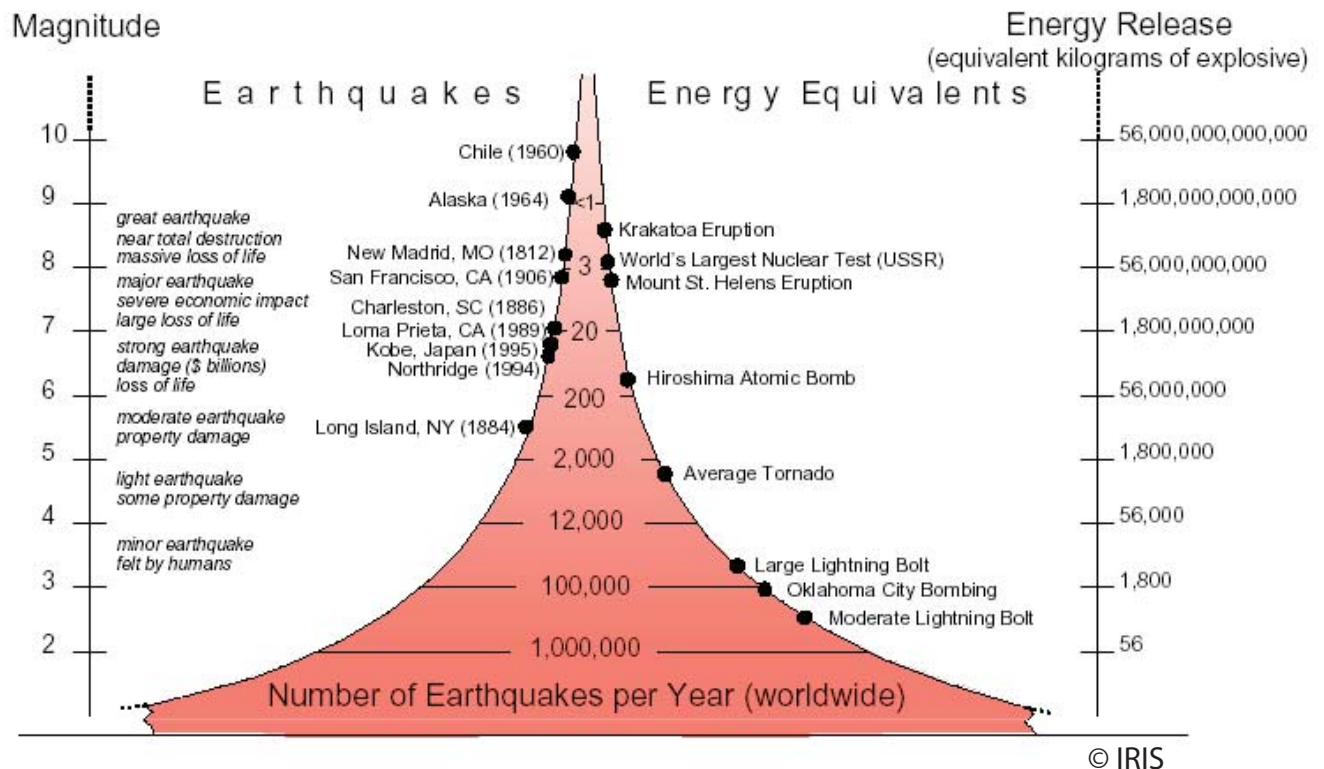
> 8

7 - 7.9

6 - 6.9

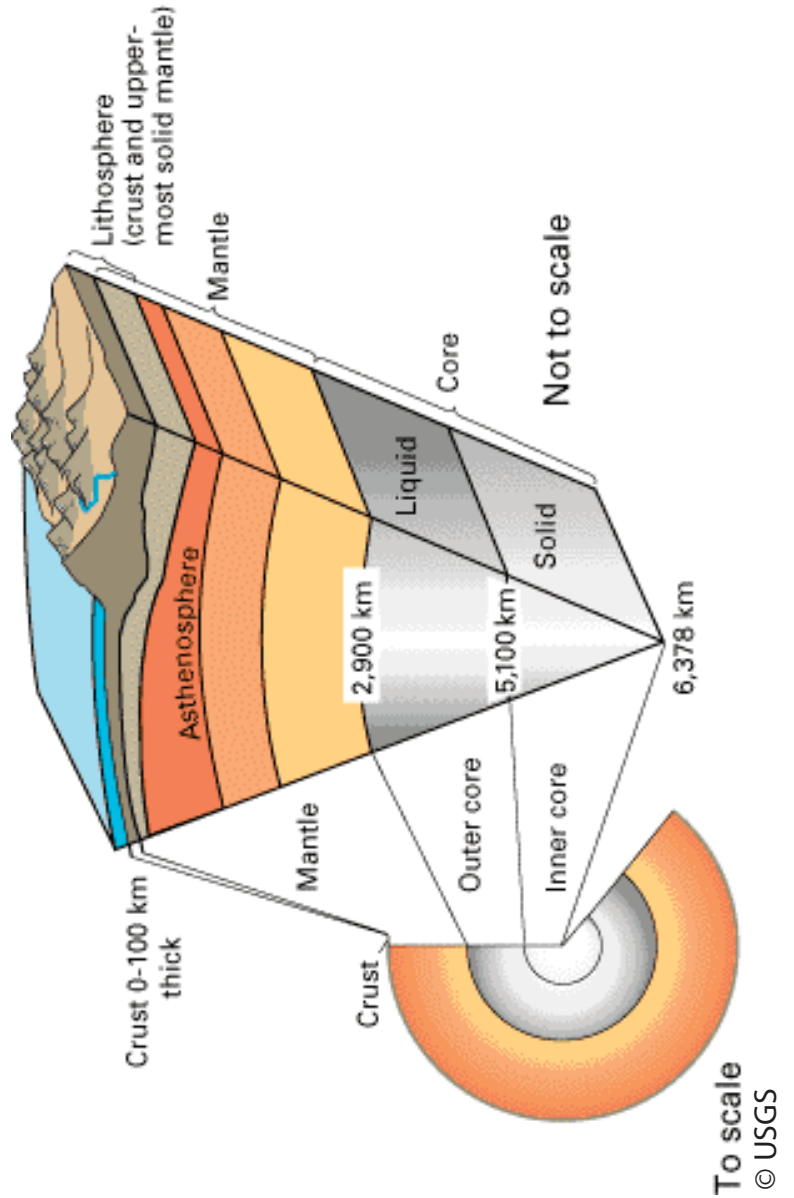
5 - 5.9

< 5



Plotting Earthquake Depths

code	Earthquake Depth	
	0 - 70 km	Shallow
	70 - 300 km	Intermediate
	300 - 700 km	Deep



Plotting Earthquake Epicenters: Occurrence and Magnitude Information

Average Annual Occurrence of Earthquakes

Descriptor	Magnitude	Annual Average
Great	8 and higher	1
Major	7 - 7.9	13
Strong	6 - 6.9	120
Moderate	5 - 5.9	800
	4 - 4.9	6,200
	3 - 3.9	49,000
Micro	2 - 3	1,000 per day
(generally not felt by humans)	1 - 2	8,000 per day

Magnitude vs Ground Motion and Energy

Change in Magnitude	Change in Ground Motion	Change in Energy
1.0	10 times	~ 32 times
0.5	3.2 times	~ 5.5 times
0.3	2.0 times	~ 3.0 times
0.1	1.3 times	~ 1.4 times

Thus, a magnitude 7.2 earthquake produces 100 times more ground motion and releases about 1000 times more energy than a magnitude 5.2 earthquake!