

Name _____ Date _____

Virtual Earthquakes Lab

In this exercise you will become a Virtual Seismologist and determine the epicenter and magnitude of one of four earthquakes that have occurred across the country over the years. Be sure to answer all the questions in the sections provided and in sentences. This will count as a lab grade. **FOLLOW ALL THE PROCEDURES AND ANSWER ALL QUESTIONS!!!!**

1. Go to <http://www.sciencecourseware.com/virtualearthquake/>
2. When opened, click on the Execute Virtual Earthquake button. Read all directions.
3. Once opened, read the information and answer the questions in section 1 of your question sheet.
4. After you have answered the questions, choose one of the four regions to generate the seismograms for that particular area, and then click the *Submit Choice* button.
5. Read this page titled *Determining the Earthquake Epicenter* and when you are finished, click the button on the bottom labeled *View Seismograms*.
6. Look at the seismograms and determine S-P Interval for each of the three seismic stations. Record your results in the locations provided. Once you have determined S-P Intervals, click on the *Convert S-P Interval* button.
7. If your information is correct, you will see a page labeled *Determining Earthquake distance*. Read this section and answer the questions in Section 2 of your question sheet.
8. Once you have read the sections above, read the graph and fill in the epicenter distance for each of your and S-P Intervals. Click the *Find Epicenter* button at the bottom.
9. If your information is correct, read this page and click on the *Computer Richter Magnitude*. If information is incorrect, follow the directions to fix your information.
10. This should open the page labeled Richter Magnitude. Read this page and answer the questions in section 3 of your questions page. After you answer questions click on the button labeled *Go to Next Page*.
11. This should open the page labeled The Richter Nomogram. Read this page and answer the questions in section 4 of your questions page. After you answer questions click on the button labeled *Go to Next Page*.
12. Fill in the S Wave amplitude in the spaces provided on this page and click on the button labeled *Submit to Nomogram*.
13. Look at the nomogram and determine the magnitude of your earthquake. Record in the space provided and click the *Confirm Magnitude* button.
14. Read the top section of this page and answer Section 5 on your question page.
15. Fill in your name, your institution (North Rose-Wolcott High School) and your city and state. Click the *Get Certificate* button at the bottom of the page.
16. Print out the Certificate page and attach it to your lab papers.
17. Congratulations! You are now a certified seismologist!

Questions:

SECTION 1

1. Why does an earthquake occur?
2. Where do most earthquakes take place?
3. What is a Seismic Wave?
4. At what rates do P waves and S waves travel?
5. How would you locate an earthquake's epicenter?

SECTION 2

6. What does the upper curve, the center curve, and the lower curve show?
7. If it takes the S wave 70 seconds to travel 300 kilometers, how long does it take the P wave to travel this same distance?

SECTION 3

8. What is the well-known scale we use to compare the strength of earthquakes? Who invented it and when?
9. What is the magnitude of an earthquake?
10. Earthquakes greater than what number on the scale are uncommon?

SECTION 4

11. What is a nomogram used for?

SECTION 5

12. What year did this Earthquake occur?

13. What is the location of this earthquake?