

Earthquake Model Investigations

Name _____

Part 1 Pre-Lab Worksheet

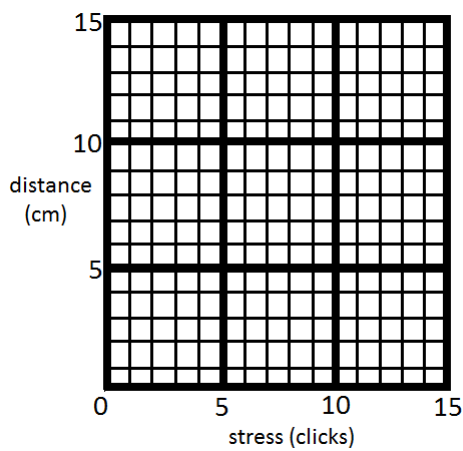
Watch as your teacher demonstrates how the Earthquake model works. In this pre-lab, you will predict what you think will be the relationship between the stress (number of clicks) and the size of the earthquake (distance moved in cm).

In this model, what represents the magnitude of the earthquake? _____

In the model, what represents the time between earthquakes? _____

You will study 6 different data sets. Make of simple graph of each set. Add trend lines if appropriate.

1. **Pre-Lab table #1** What will your graph look like if the amount of stress (# of clicks) is always the same but the size of the earthquake (distance moved) differs?

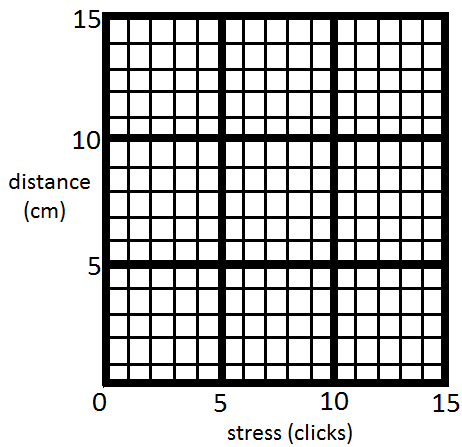


distance (cm)	stress (clicks)
7	0
7	2
7	3
7	4
7	6
7	8
7	10
7	13

1 a What would this data set tell us about our ability to predict the timing of an earthquake?

1 b. What would this data set tell us about our ability to predict the magnitude of an earthquake?

2. **Pre-Lab table #2** What will your graph look like if the amount of stress stays the same but the size of the earthquake differs?

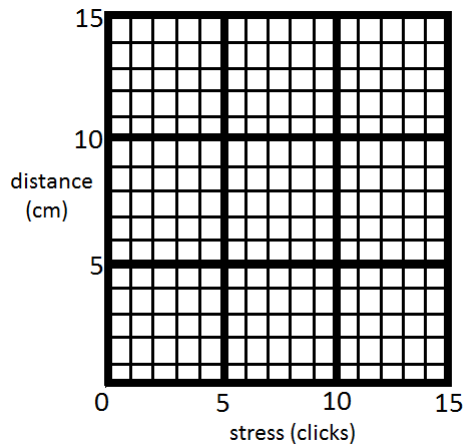


distance (cm)	stress (clicks)
8	7
3	7
7	7
13	7
2	7
5	7
12	7
13	7

2 a. What would this data set tell us about our ability to predict the timing of an earthquake?

2 b. What would this data set tell us about our ability to predict the magnitude of an earthquake?

3. **Pre-Lab table #3** What will your graph look like if the stress and the size of the earthquake are perfectly correlated (one changes the same way that the other changes)

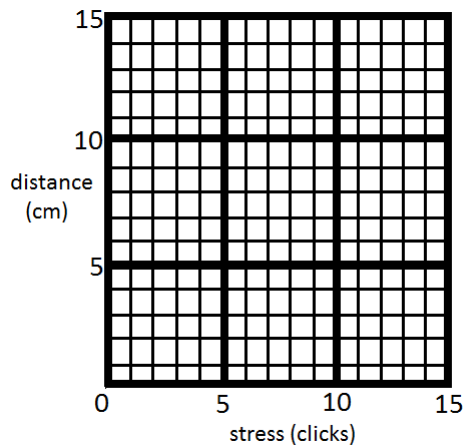


distance (cm)	stress (clicks)
0	0
1	1
3	3
4	4
6	6
8	8
10	10
13	13

3 a. What would this data set tell us about our ability to predict the timing of an earthquake?

3 b. What would this data set tell us about our ability to predict the magnitude of an earthquake?

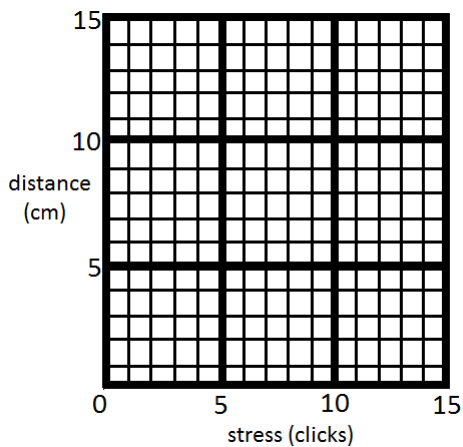
4. **Pre-Lab table #4** What will your graph look like if there is a good (but not perfect) correlation between stress and the size of the earthquake?



distance (cm)	stress (clicks)
0	0
1	2
2	3
4	4
6	5
8	8
10	9
14	13

- 4 a. What would this data set tell us about our ability to predict the timing of an earthquake?
 4 b. What would this data set tell us about our ability to predict the magnitude of an earthquake?

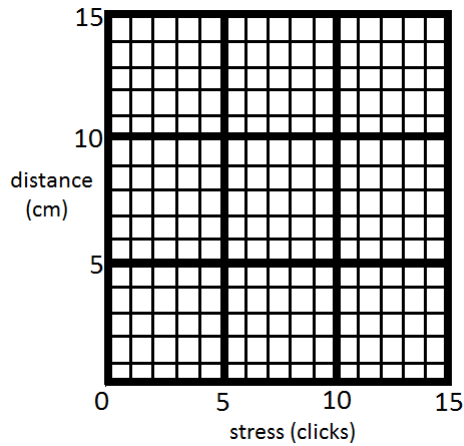
5. **Pre-Lab table #5** What will your graph look like if there is no relationship between the number of clicks and the distance moved?



distance (cm)	stress (clicks)
0	0
1	12
12	3
6	14
8	6
4	7
14	13
10	1

- 5 a. What would this data set tell us about our ability to predict the timing of an earthquake?
 5 b. What would this data set tell us about our ability to predict the magnitude of an earthquake?

6. **Pre-Lab table #6** What will your graph look like if the number of clicks and the distance moved is always about the same?



distance (cm)	stress (clicks)
9	6
10	6.5
9.5	7
9	6
10	6.5
9.5	7
9.5	6
10	6

6 a . What would this data set tell us about our ability to predict the timing of an earthquake?

6 b. What would this data set tell us about our ability to predict the magnitude of an earthquake?

Pre-Lab Hypothesis

Make a hypothesis about what you expect your data to show. It does not have to be any of the above suggestions. Fill in the graph with the kind of data you expect to find based upon your hypothesis. The actual numbers do not matter, but the shape of the graph does. If your data suggests a line, include the line.

What does this graph imply about our ability to predict the timing and the magnitude of an earthquake?

