

Unit
3Handout
87

Lesson 7: Investigating Faults with Models

Purpose: Investigate the effects of applying a force to a model of a fault. Relate the interaction of forces at boundaries to the occurrence of earthquakes.

Guiding Questions:

- How does force relate to plate movement?
- How are earthquakes explained by plate movement?

Instructions: Obtain a fault box and prepared masking tape. Ensure that it is setup according to the instructions on page 99.

1. Hypothesize what you believe will happen with the amount of force needed to move the block as you increase the number of Velcro strips.

Example hypothesis: An increase in Velcro strips will increase the amount of force needed to move the block.

2. Conduct your activity as instructed on pages 100-101, begin with step 7. What happens to the tape as you pull on the block? (Try this with different amounts of Velcro, too!)

The tape crinkles and wrinkles as the block is moved.

3. What happens to the houses that are on top of the moving plate? (Again, try this with different amounts of Velcro!)

The house shift position. The houses move more when more Velcro pieces are used.

4. This part is just for information before you move on to steps 8-14. You will collect your data in the form of Newtons. A Newton (N) is a measurement of force. Specifically, it measures how much force is needed to accelerate 1kg of mass at 1m/s^2 . For example, Mr. Ower has a mass of 80kg. If someone wants to accelerate me at a constant rate of 2m/s^2 , it would take 160N of force to do so.

5. Record your collected data in the table on the back of this page. No outliers are permitted in your table. This means if you data set contains 1, 1, 1, 9, 1, you would need to retest the 9 and not include it in your data.

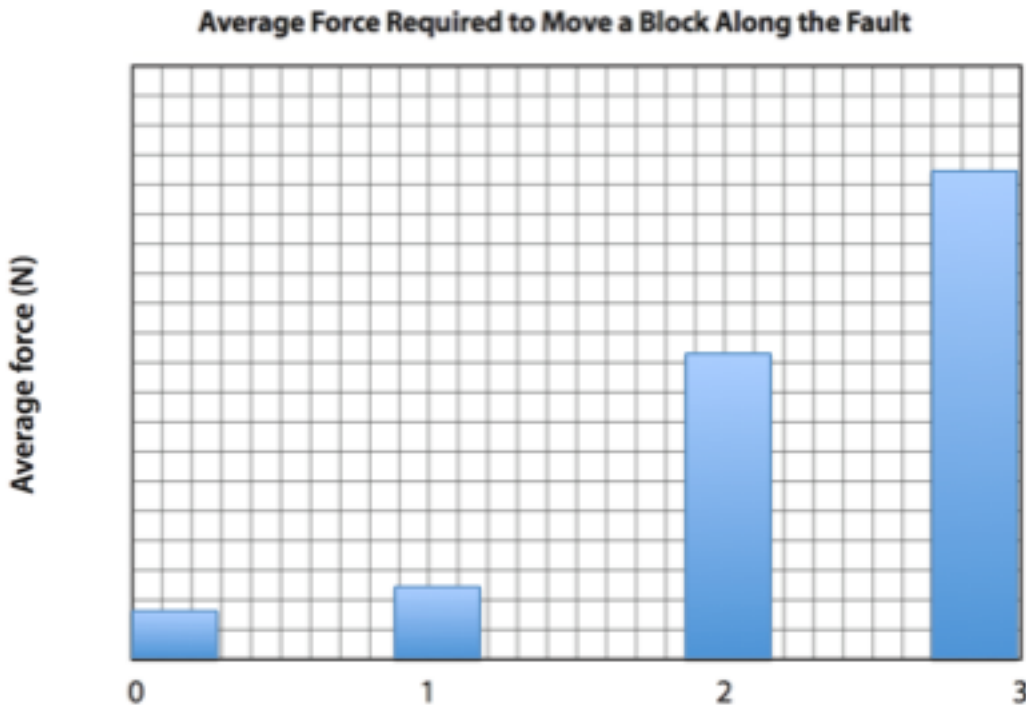
The data below is sample data. It is not actual data from the activity.

Table 1 Force to Move a Block Along the Fault

Frictional Resistance (number of Velcro® strips)	Force (N) Needed to Move the Block			
	Trial 1	Trial 2	Trial 3	Average
0	3 N	4 N	3N	3.33N
1	6 N	6 N	7N	6.33 N
2	25 N	25 N	23 N	24.33 N
3	35 N	37 N	40 N	37 N

6. Having calculated your data, you will need to graph it on the following page. Which type of graph will work best: line graph, bar graph, scatter plot, etc.? Why? (Hint: think about what each type of graph shows.)

A bar graph works best because we want to compare certain data points.



7. Using the graph above, write a statement that describes the relationship between the frictional resistance and the average force needed to move the block.

The average force used to move a block increases as frictional resistance increases.