

PRACTICE

Activity 2: The Magnetic Interaction

Name _____

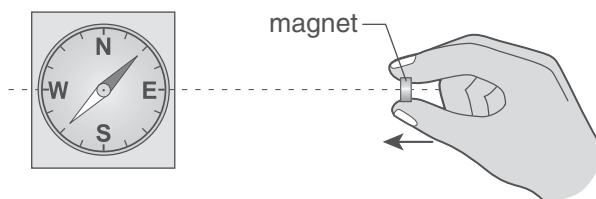
Date _____

Class _____

Multiple Choice

- Which of the following pieces of evidence supports the idea that a magnet does *not* attract all metals?
 - An iron nail is attracted towards a magnet.
 - A steel paper clip is attracted towards a magnet.
 - A glass rod is not attracted towards a magnet.
 - An aluminum wire is not attracted towards a magnet.

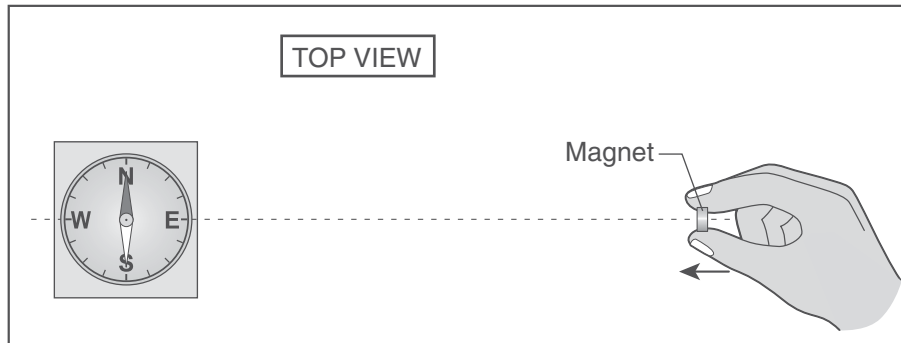
- A student holds a magnet near a compass and observes that the compass needle turns 45° towards the magnet. Suppose the student kept the magnet in the same position but turned it over, so the other side faced the compass. What would most likely happen to the compass needle?
 - The compass needle would behave the same way. It would turn about 45° towards the magnet.
 - The compass needle would behave in the opposite way. It would turn about 45° away from the magnet.
 - The compass needle would not turn at all. It would point at 0° (towards the N).
 - The question cannot be answered without more information.



(Questions 3-8) A team of students wants to perform an experiment to answer the question:

Experiment: *Does the distance a magnet is held from a compass affect how much the compass needle turns?*

To do the experiment, they hold the magnet as shown in the figure below and observe the number of degrees the compass needle turns.



They make a data table in which they record the distance between the compass and magnet and the number of degrees the compass needle turns. They make measurements for several different values of the distance. Their table is shown below.

Table: Distance between Magnet and Compass and the Number of Degrees Needle Turned	
Distance between Magnet and Compass (cm)	Number of Degrees (°)
5	70
10	54
15	40
20	22
25	14
30	8

3. The students want to re-write their experiment question in a relationship form. Complete the following question:

If the distance between the _____ and compass increases, what happens to the _____ the compass needle turns?

4. The *manipulated variable* in this experiment is _____.

5. The *responding variable* in this experiment is _____.

6. What variables are *controlled* in this experiment?

7. Write the conclusion for this experiment. That is, answer the experiment question in Question 3.

8. Justify your conclusion by writing your reason(s). (You should use *How To Evaluate an Experiment Conclusion* as a guide.)
