PRACTICE

Activity 5: Electromagnets and Buzzers

Name Date Class

Multiple Choice

In *How to Answer Multiple-Choice Questions*, one strategy is to cross out any incorrect choices. However, sometimes you may be asked a question about finding which statement is *not* true (or false). If so, mark either "T" for true or "F" for false beside the choice. When the question asks for the statement that is *not* true, you know that the choice you marked "F" is incorrrect because it is a true statement.

1. Which of the following statements is *not* true?

a) Electrically charged objects always attract objects that are not charged.

b) Electrically charged objects can repel other charged objects.

c) Electrically charged objects do not have to be touching to interact with other electrically charged objects.

d) An uncharged object that loses some electrons will become positively charged.

e) An uncharged object can have different numbers of positive and negative charges.

2. Which is *not* required for an electric-circuit interaction?

a) a source of electric current like a battery

b) an electrical device like a light bulb

c) an electrical switch

d) a complete loop with conducting materials and wires

e) wires (or some other conductors) contacting each side of the battery

3. Which of the following statements is *not* true about a magnetic interaction?

a) A magnet-magnet interaction can be one where the magnets attract or repel.

b) Not all metals interact with a magnet.

c) You must have two magnets to have a magnetic interaction.

d) If the size of a magnet made of one type of material increases, the strength of the magnet increases.

e) Magnets do not have to touch to interact.

4. How can you make an electromagnet?

a) Electrically charge a *magnet* by rubbing it with a piece of wool.

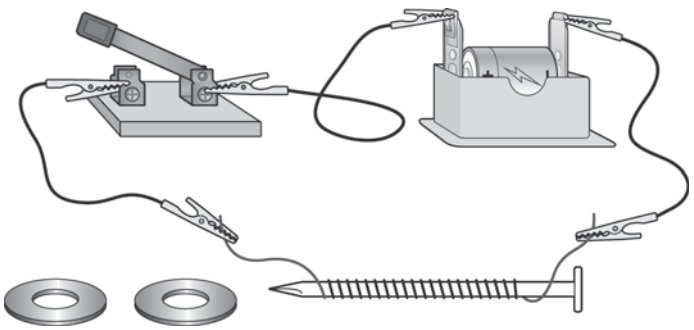
b) Electrically charge a *magnetic material* by rubbing it with a piece of wool.

c) Connect a *magnet* in a circuit to a source of electricity (like a battery).

d) Connect a *magnetic material* in a circuit to a source of electricity (like a battery).

e) Wrap a coil of wire around a *magnetic material*, then connect the coil in a circuit to a source of electricity (like a battery).

5. In this circuit, which of the following changes would *not affect* the strength of the electromagnet?



a) Add more coils around the nail.

b) Add more washers near the nail.

c) Remove the nail from the coil.

d) Add more batteries in the series circuit.

e) Open the switch in the circuit.

6. What is the evidence for an electric-charge interaction between a charged object and an uncharged object?

a) The charge on the charged object can be seen.

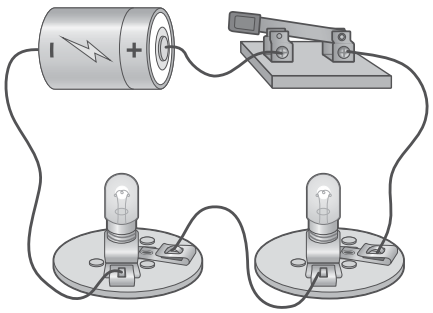
b) The two objects move toward each other.

c) The two objects move away from each other.

d) The two objects move either toward or away from each other, depending on which way the charged object faces the uncharged object.

e) There is no evidence. Electrically charged objects do not interact with objects that are not charged, so neither object will move.

7. Refer to the circuit shown in this picture. Which of the following changes would make the electrical current in the circuit *increase*?



a) Add more batteries in the series circuit.

b) Add more bulbs in the series circuit.

c) Unscrew one of the bulbs in the circuit.

d) Add a buzzer in the series circuit.

e) Open the switch in the circuit.