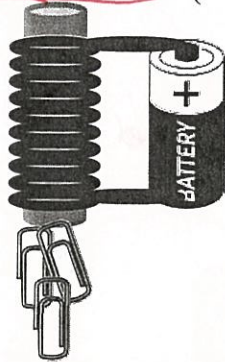




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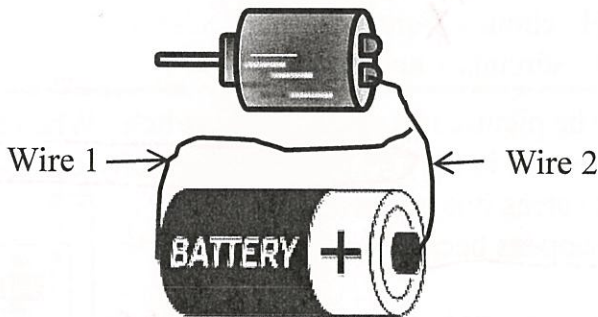
1. An electromagnet is a device that uses an electric current to magnetize an object. Students build an electromagnet with a metal rod, a battery, and insulated wire, to see how many paperclips it can pick up. The students repeat the investigation three times. (5.2.E)



Why do the students repeat the investigation three times?

- A. to test different variables *Not changing anything*
- B. to make a different hypothesis = *comes before experiment*
- C. to test the validity of the results
- D. to make the experiment more fun *Not scientific*

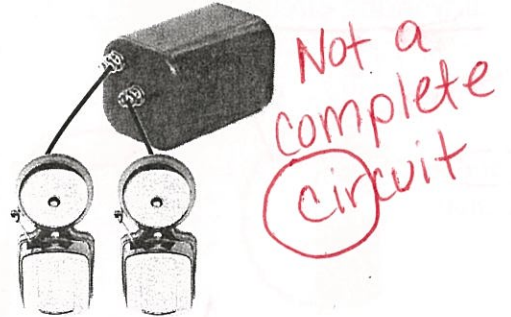
2.



What change needs to be made to the electric circuit to make the motor spin?

- F. ~~Nothing~~ needs to be changed.
- G. Wire 1 needs to connect to the motor. ✓
- H. Another battery needs to be added. *still not complete*
- J. ~~Straighten the wire~~ so the electricity will flow more easily. *can move through curved wire*

3. Two bells and a battery are used to build a circuit.



What conclusion can be drawn from the diagram of the circuit? (5.2.F)

- A. The circuit is complete and the bells ~~will ring~~.
- B. The bells will not ring because the circuit is incomplete.
- C. The bells will ~~ring~~ louder because there are two.
- D. The bells ~~will ring~~ because they are connected to a large battery.

4. Open and closed circuits are used all around us. Which answer choice best explains what happens when you turn on a light switch?

- F. The switch closes the circuit allowing electricity to flow through and turn on the light.
- G. The ~~switch~~ opens the circuit allowing electricity to flow through and turn on the light.
- H. The switch provides the energy needed to turn on the light. *Battery*
- J. The switch makes the light burn brighter. *need more energy*

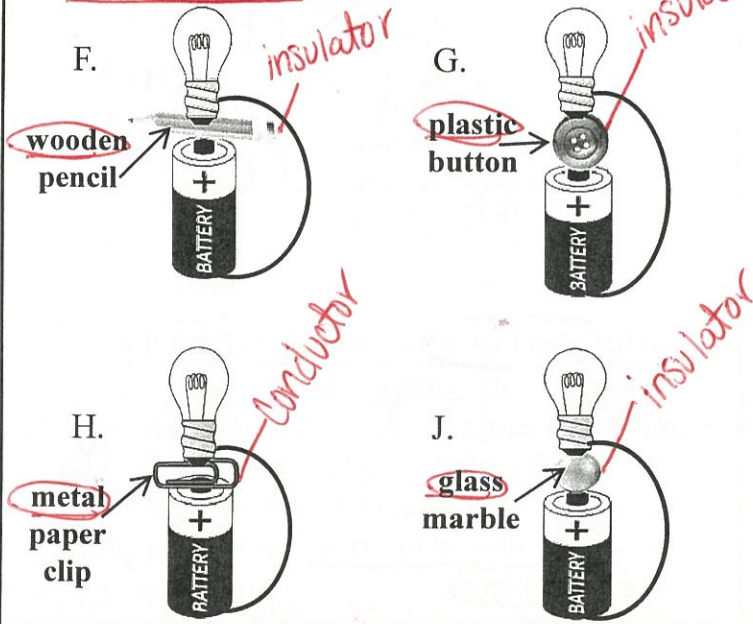
5. All of the following are ways to conserve *save* electrical energy EXCEPT—

- How to NOT save energy?*
- A. Turn off the lights when you leave the room. ✓
 - B. Line dry your clothes outside. ✓
 - C. Open the shades instead of turning on lights. ✓
 - D. Keep the television on while you sleep. ✗

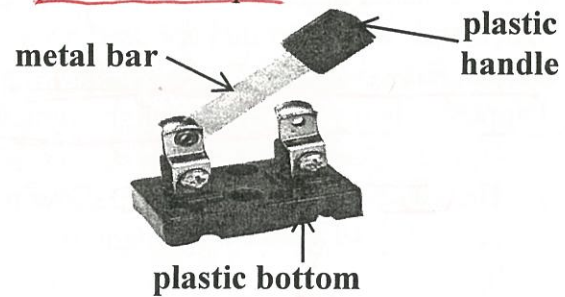
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6. Shown below are four circuits. Which circuit is a working circuit?



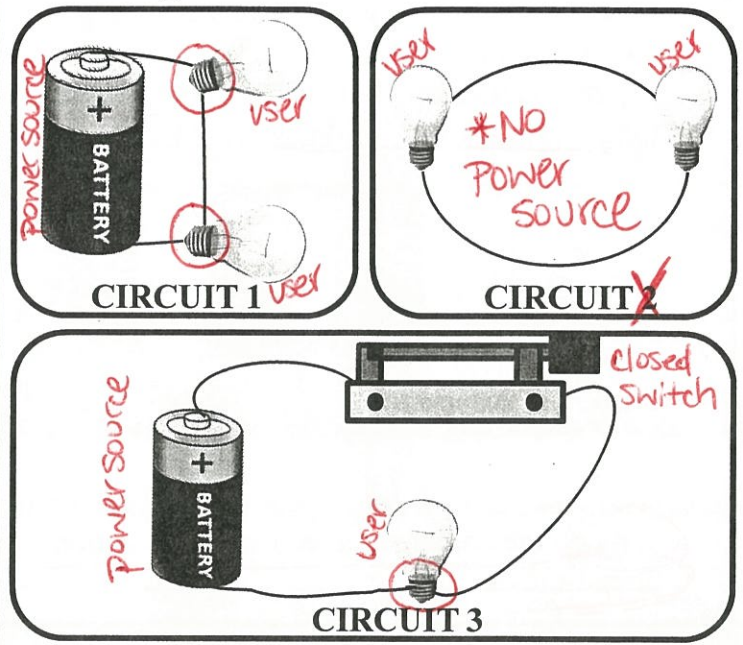
7. Switches are used in circuits to control the flow of electrical energy. Below is a picture of a knife switch that is open.



The knife switch can be connected to a battery and a buzzer to produce sound. Which statement best explains why the knife switch has a metal bar? (5.2.F)

- A. Closing the knife switch will complete the circuit because metal is a good conductor of electricity.
- B. Closing the knife switch will complete the circuit because metal is a good insulator of electricity.
- C. The metal bar will make the buzzer louder.
- D. The metal bar creates sound.

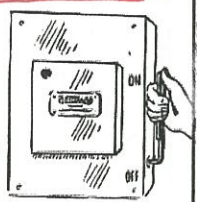
8. Students create three different circuits in an investigation.



Which circuits will light the bulbs?

- F. circuit 3 only
- G. circuit 2 only
- H. circuits 2 and 3
- J. circuits 1 and 3

9. The picture is a main power switch. When the lever is in the ON position electricity can travel to areas it is connected to. This happens because ----



- A. The ON position creates an open circuit.
- B. The ON position creates a closed circuit.
- C. The lever provides energy for the circuit. *Not power source*
- D. The lever is a conductor for the circuit.

10. Which of the following can electricity produce?

- F. sound radio
- G. light lamp
- H. heat toaster
- J. all of the above