

For each question, fill in the blank or **CIRCLE** the correct answer.

In a **Series Circuit**, electrical components are connected one after another. There is only one path for the flow of electrons.

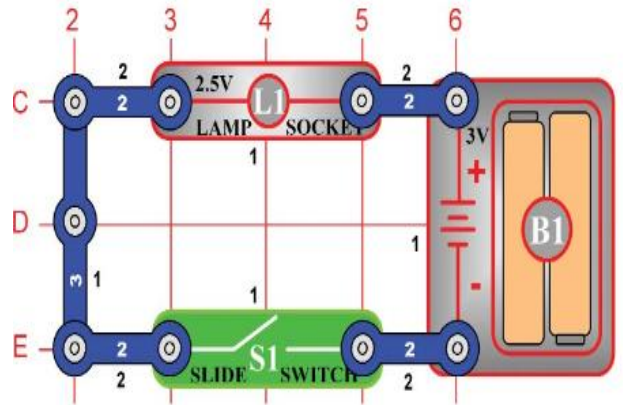
**Build Project 1: Electric Light and Switch**

1. This is an example of a \_\_\_\_\_ circuit.

**SERIES OR PARELLEL**

2. When the circuit is open, the light is \_\_\_\_\_.

**ON OR OFF**



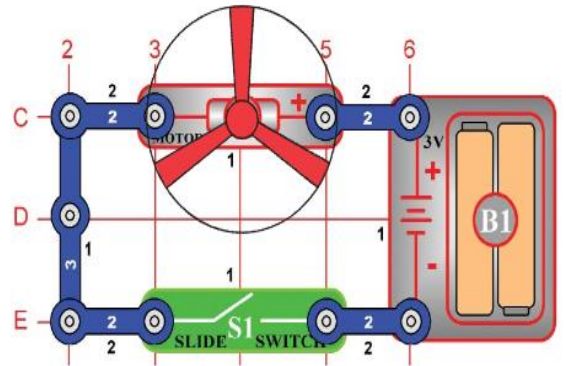
**Build Project 2: DC Motor and Switch**

Never touch the fan while it is moving

3. Describe the energy transformation that is occurring when the circuit is closed.

**Electrical** to \_\_\_\_\_ and \_\_\_\_\_.

On each side of the base of the motor, there is a + or a - symbol. This indicates the polarity of the motor. If the polarity is changed, the motor will spin in the opposite direction.



4. What direction is the fan spinning? **CLOCKWISE OR COUNTERCLOCKWISE**

5. Hold a post-it note near the fan. Is the paper pulled toward or pushed away from the fan?

**PULLED TOWARD OR PUSHED AWAY**

**Build Project 11: Flying Saucer**

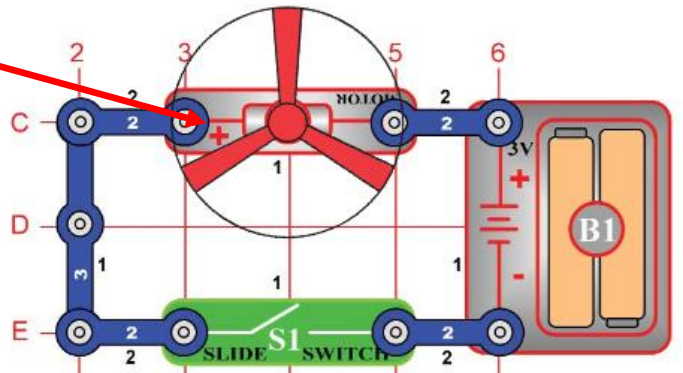
Note the change in the position of the motor for this project.

6. What direction is the fan spinning?

**CLOCKWISE OR COUNTERCLOCKWISE**

7. Hold a post-it note near the fan. Is the paper pulled toward or pushed away from the fan?

**PULLED TOWARD OR PUSHED AWAY**



8. When you turn the switch (S1) off, what happens to the fan? \_\_\_\_\_

## Build Project 5: Lamp and Fan in Series

9. Explain why this is a series circuit. \_\_\_\_\_

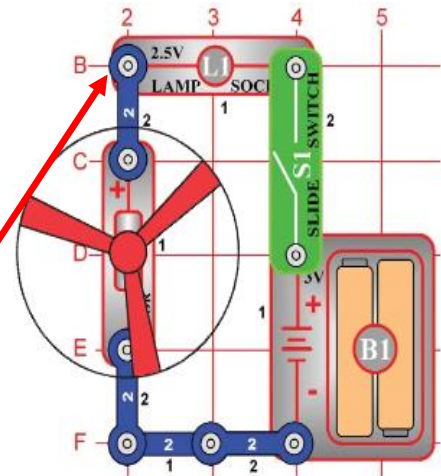
\_\_\_\_\_

10. The light is \_\_\_\_\_ than when it was lit in Project 1.

**BRIGHTER OR DIMMER**

11. What would happen if you removed the snap that connects the lamp with the motor?  
\_\_\_\_\_

12. Why does this happen? \_\_\_\_\_



In a **Parallel Circuit**, there is more than one continuous path for the electrons to flow. It is a closed circuit in which the current divides into two or more paths before recombining to complete the circuit.

## Build Project 6 – Fan and Lamp in Parallel

13. Why is this an example of a parallel circuit?  
\_\_\_\_\_

\_\_\_\_\_

14. Using your finger, trace the possible paths for the electrons. Compare the brightness of the bulb in this circuit with its brightness in Project 5. In this project, the light is \_\_\_\_\_.

**BRIGHTER OR DIMMER**

15. Remove the snap connecting the lamp. Describe what happens to the motor and the lamp when the piece is disconnected and explain why.  
\_\_\_\_\_

\_\_\_\_\_

