

Build a Shake Flashlight Worksheet

Observations

Draw a diagram of the shake flashlight, labeling the following major components: Capacitor, diodes, LED, magnets, resistor, switch, wire coil.

Discussion Questions

- 1. Describe the difference in the LED when the flashlight is shaken slowly versus rapidly. Explain in terms of Faraday's law.
- 2. Why are diodes used in this circuit?
- 3. What would happen if the capacitor were removed from the circuit and the diodes were connected directly to the LED and the switch?
- 4. Shaking the flashlight produces ______ energy, which is converted into ______ energy in the coils as the magnet falls through.
 The energy of the current flowing through the wire coils is stored as ______ energy in the capacitor. When the switch is closed, the stored energy in the capacitor is converted to ______ energy in the LED.
 5. Explain how each of the following changes would affect the flashlight performance *a*. Adding more coils to the wire:
 - *b*. Using a stronger magnet:
 - *c*.Shaking the flashlight faster:

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