# ANALYSIS OF A LED SHAKE FLASHLIGHT

In this activity, you will perform a **Technological Analysis** of a LED Shake Flashlight. This means that you will think and answer questions about:

- **Why we need this object**
- **How the object is made**
- **How the object works**

1. What is the overall function of the shake flashlight?

   To create light through the principle of electromagnetic induction

2. Name and describe the electrical function of the components listed in the table below.

| Component | Name | Function |
|---|---|---|
| 2 | Switch push button | open & close the circuit |
| 7 | or printed circuit Circuit board | holds the circuit in neat & orderly fashion |
| 13 | coil | Size & wire of the coil determine how much power is generated current flows through coil |
| 14 | magnet | to pass through & the coil to charge coil ~~capacitor~~ |

3. a) What is an insulator? inhibits the transmission of energy (electric current)

   b) Name two parts of the shake flashlight that act as insulators.

   ~~4~~ 12 and 6

4. a) What is a conductor? lets the electrical energy transmit through the component

b) Name two parts of the shake flashlight that act as conductors.

13 and 7

5. a) What is the function of components 10 and 16? To repel the big magnet

b) Which constraint is applied to this component? Compression

c) What material properties would these components require?

hardness, resilience, stiffness

6. a) Circle the correct characteristics of the link between components 1 and 3.

| | | |
|---|---|---|
| Direct | or | Indirect |
| Rigid | or | Flexible |
| Removable | or | Non-removable |
| Complete | or | Partial |

b) Circle the correct characteristics of the link between components 11 and 12.

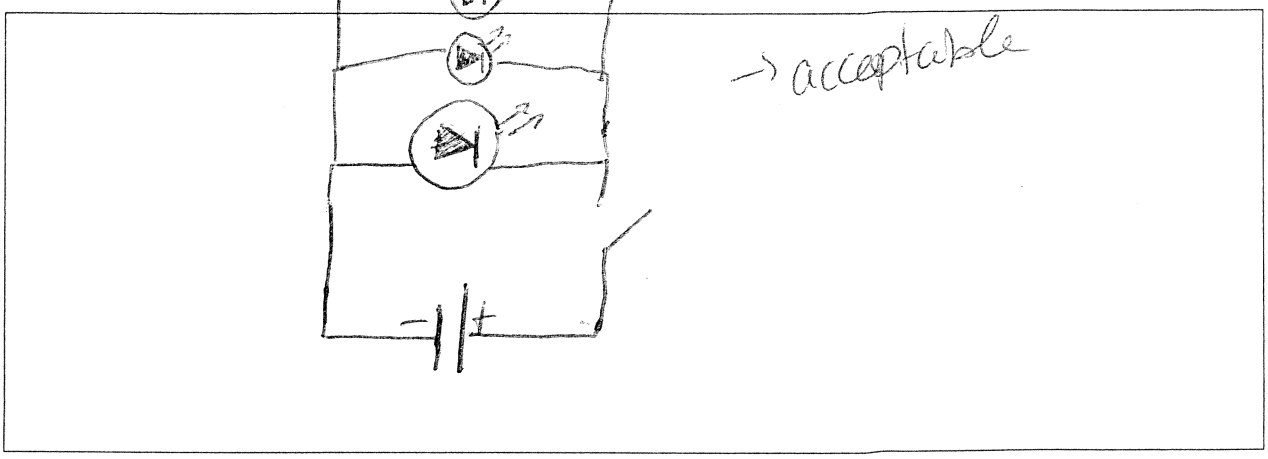
| | | |
|---|---|---|
| Direct | or | Indirect |
| Rigid | or | Flexible |
| Removable | or | Non-removable |
| Complete | or | Partial |

7. a) Which component is the guiding control for component 14? 12 or 13

b) What type of guiding control is it? translational guide

8. Draw the circuit diagram for the LED shake flashlight.

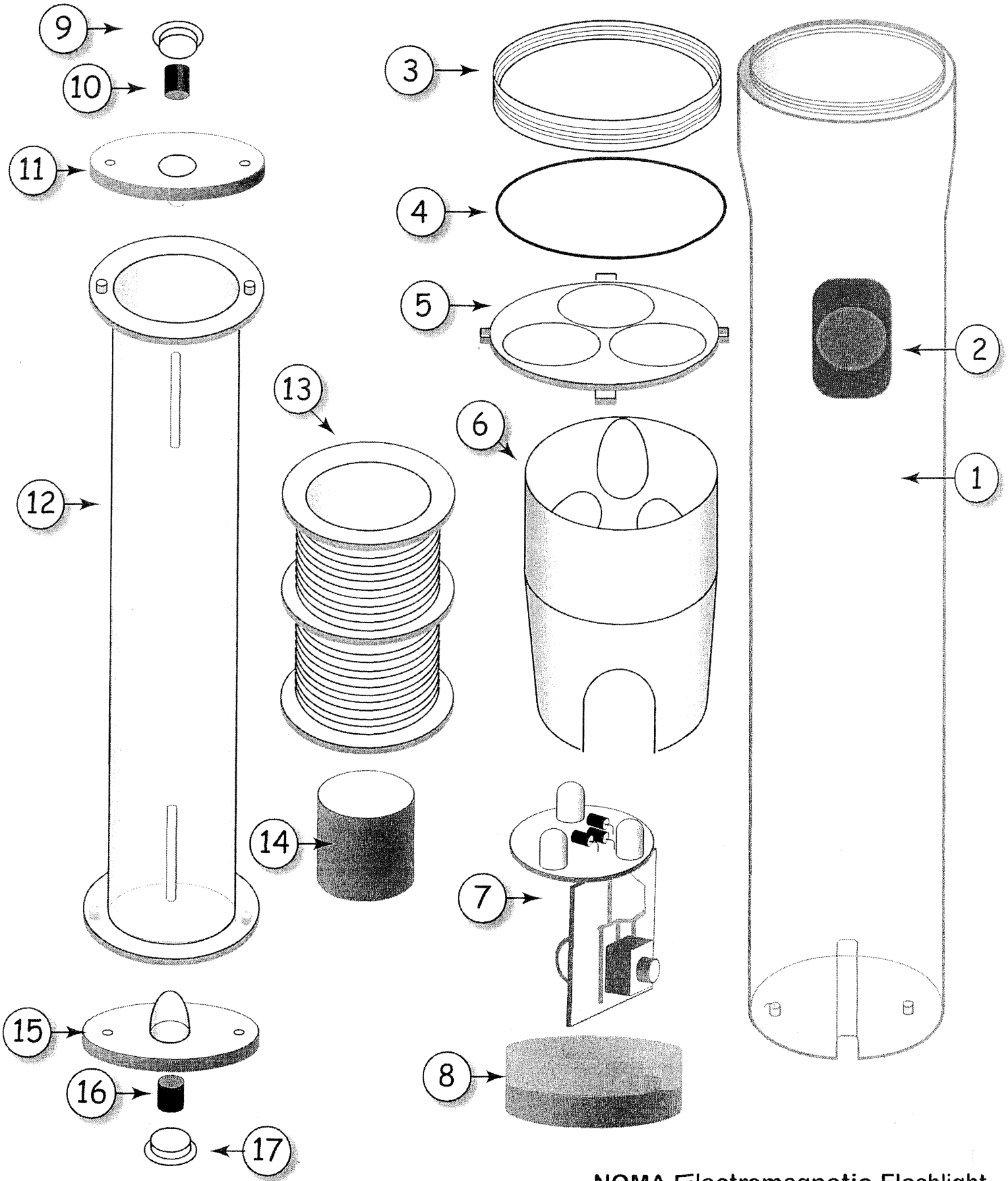
Note: The symbol for an LED is 




9. Explain how the LED shake flashlight works using scientific and technological concepts.

When you are explaining how something works, make sure that you:

- Identify the scientific and technological principles you need to use in your explanation.
- Explain the application of each of these principles in the object.
- Describe the final result.




**NOMA Electromagnetic Flashlight**

Canadian Tire product # 65-2050-4

*Richard Esdale*