

Oklahoma Key Business Systems

Lesson 7



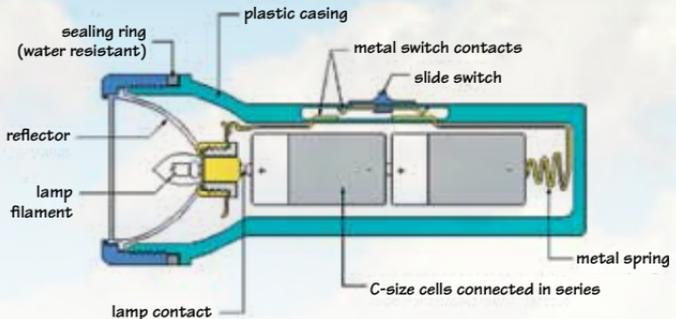
Flashlight Engineering

Electrical engineers apply their knowledge and skills to develop and improve products or techniques. Do you like to take things apart or build things?

Essential Question: What can you learn about how things work by taking them apart? How does this relate to what engineers do?

Engage:

1. Carefully take a flashlight apart and inspect it. Write down or draw the parts you see.



Example:

2. How do the parts you see connect to make the light turn on?

When the flashlight parts connect together to turn the light on it's called a **SERIES CIRCUIT**. A circuit allows electric current to flow from the positive side of the battery through the light bulb, through the switch, and back into the battery at the negative end. All **SERIES CIRCUITS** are constructed in this way.

Explore:

3. Now that you have an understanding of how a series circuit works, try to build your own using the materials below
 - a. A battery (AA, C, D, or 9 volt batteries work well)
 - b. Wire (you can use paper clips, or bread ties as wire; Ask an adult to help you with this part)
 - c. Flashlight bulb (purchased at local hardware store)
 - d. A switch (thumbtacks and paper clips make good switches)
 - e. Tape (useful for holding the wire on the battery and bulb)
4. Make a sketch of what your series circuit looks like; be sure to label its parts.

Explain:

5. Look at the drawing of your series circuit and the drawing of the manufactured flashlight. How are they different? How are they similar?

Expand:

6. See if you can use items from around your house to construct your own flashlight. You can do an Internet search for "homemade flashlight" or "how to build a flashlight" to get some ideas.
7. Ask an adult to help you if you are having trouble getting the flashlight to work.
8. Calculate how much it would cost to make one of your flashlights with the parts you used to construct it. How much do you think you could sell it for? Why? (Give some reasons)

Evaluate:

What did you learn about flashlights and how they work?

What did you learn about how things work by taking them apart?

How does this relate to what engineers do?