

# CREATIVE CIRCUITS

*Introduction to electricity concepts.  
Information package*



S.D. #33 - Chilliwack



## **Electricity:**

The flow of electrons through a conductor. Power, Light, Energy.

## **Electrons:**

Charged particles

## **Electronics:**

Puts Electricity to use, application of electricity to do work.

## **Conductors:**

A material that has many free electrons permitting the electrons to move through the material easily

- Copper
- Aluminum
- Silver

## **Insulators:**

A material that has few if any free electrons, and resists the flow of electrons.

- Plastic
- Rubber
- Wood

## **Electrical Circuits:**

An electrical circuit is any arrangement that permits an electrical current to flow. A circuit can be as simple as a battery connected to a light or as complicated as a computer.

## **Basic Circuit:**

A basic circuit consists of a source of electrical current (a battery), a light/lamp and two connection wires.

The part of the circuit that performs the work is called the LOAD.

## 4 Main parts of a basic circuit:

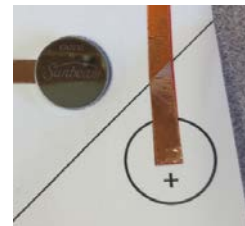
1. **Power Source:** In the activities we are doing the source is one of 3 things

- 9V Battery
- CR 2032 Watch battery
- Battery pack - with 4 AA Batteries



2. **Control - Switch:** In the activities we are doing the switch is one of 4 things

- The embedded switch on the battery pack
- Folded paper edge
- Binder Clip
- Simply lifting the battery away from the circuit.

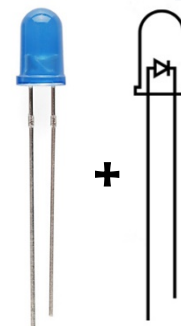


3. **Path:** In these activities the path will be one of 3 things.

- Copper conductive foil
- Conductive playdough
- Graphite or Conductive ink



4. **Output - Load:** In all of our circuits the load will be an LED, or Light Emitting Diode. The long leg is the Positive side and the shorter leg is the Negative side.



## Material Sources & Resources:

- LED - 5MM - 2.0 - 3.0 Volt Amazon
- Copper Foil ¼" width Amazon
- Aluminum Ducting tape Home Depot
- CR 2032 Watch Batteries (3pack Dollarama
- Popsicle Sticks (large size) Dollarama
- Binder Clips Staples
- Battery Packs - Squishy Circuits Robotix Education

## Picture Book Connections:

- The little red lighthouse & the Great grey bridge  
- Hildegarde Swift & Lynd Ward
- Raven Brings the light  
- Roy Henry Vickers & Robert Budd
- Night Light  
- Nicholas Blechman
- Raven - A trickster Tale from the Pacific Northwest  
- Gerald McDermott

