# Service Learning Project

# SLICE

## Prototype Fabrication Experience

### Interactive Toy Modification

# Interactive Toy for Special Need Students

# Electronic Circuit

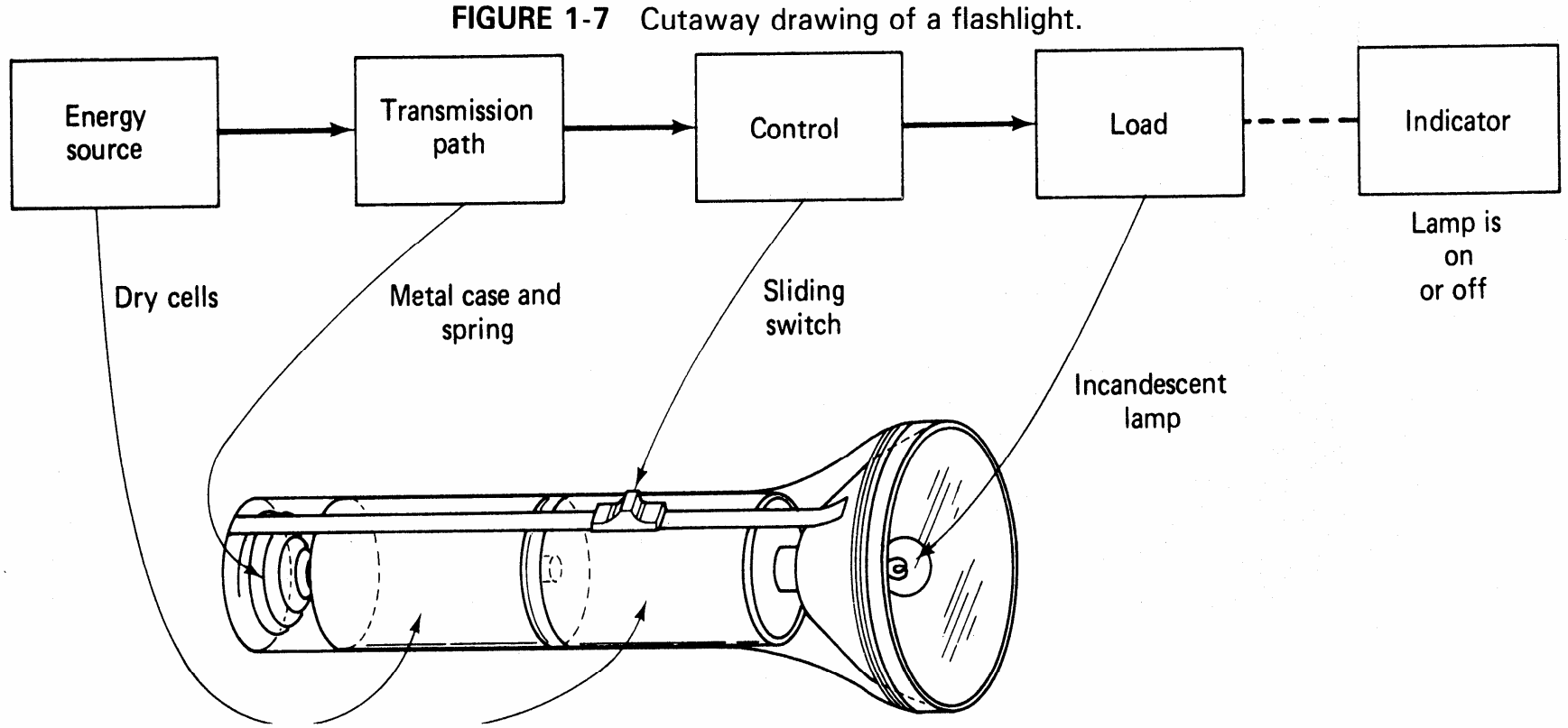
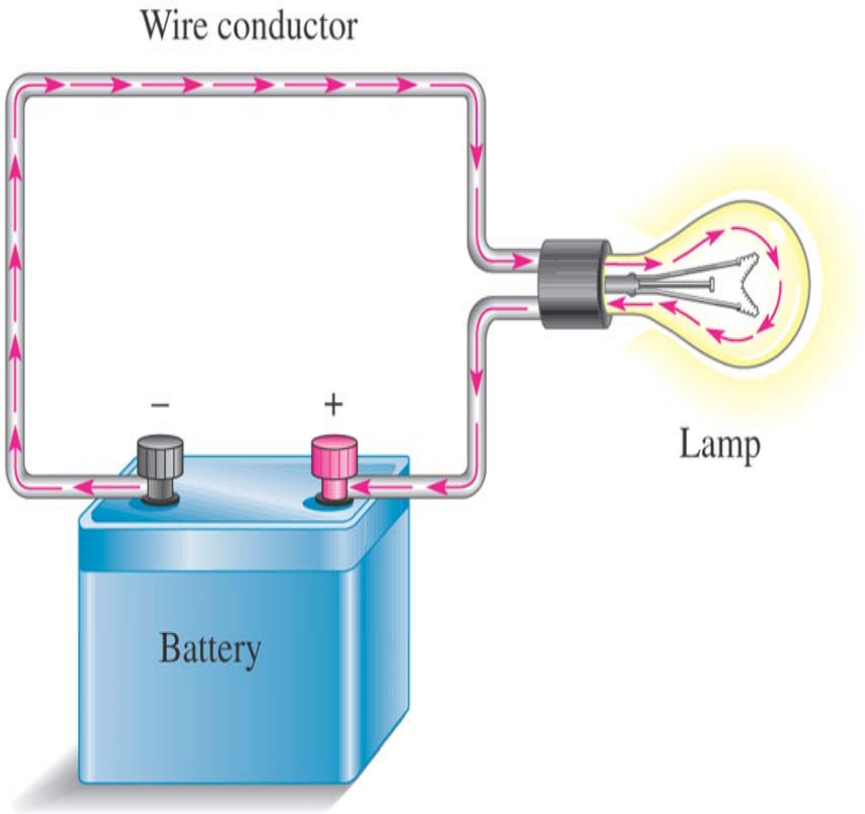



**FIGURE 1-7** Cutaway drawing of a flashlight.

# Electronic Circuit

- Power source
- Current Path
- Load
- Control
- Indicator



# Schematic Diagram

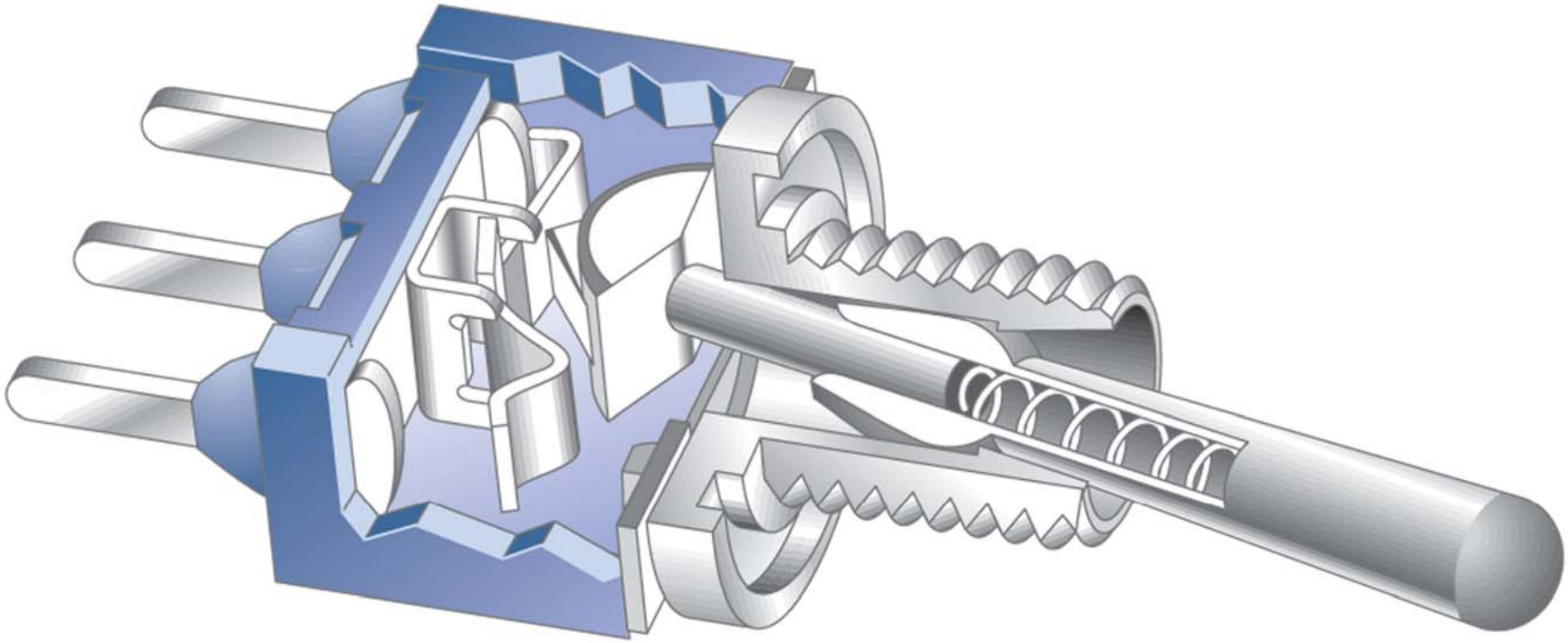
# Switches Push Button

NOPB
switch

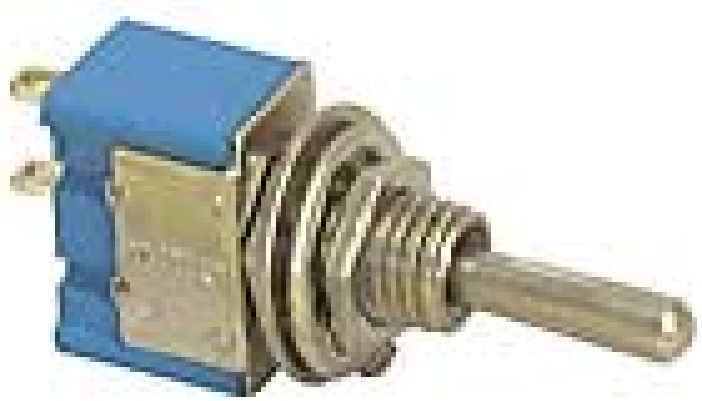
# Switches Push Button

NCPB
switch

# Construction view of a typical toggle switch

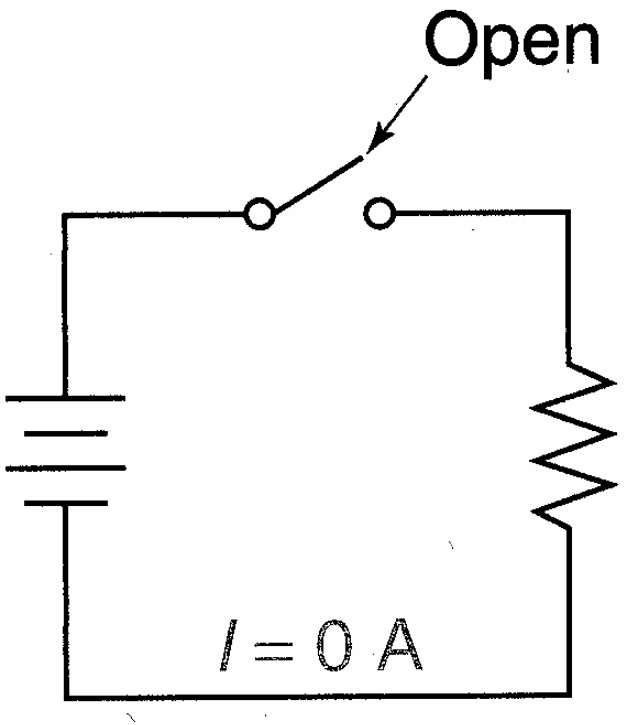


# Switches Toggle



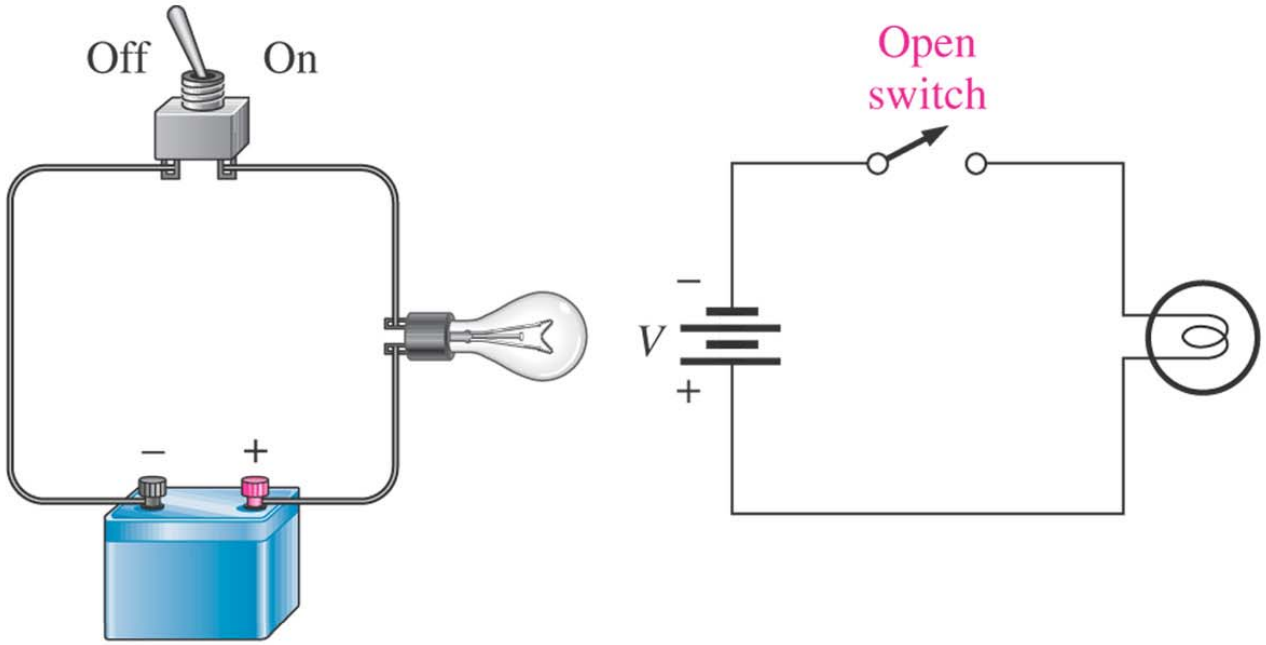
SPST
switch

# Open Circuit



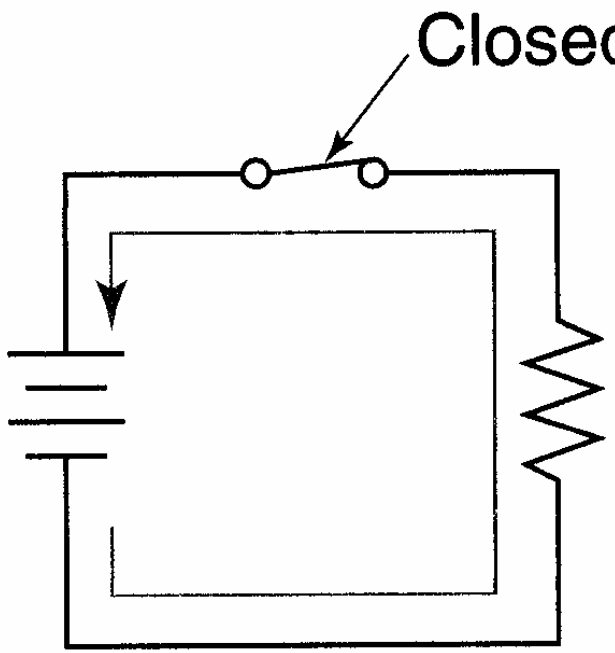

An open switch breaks the conduction path and blocks current.

# Open Circuit



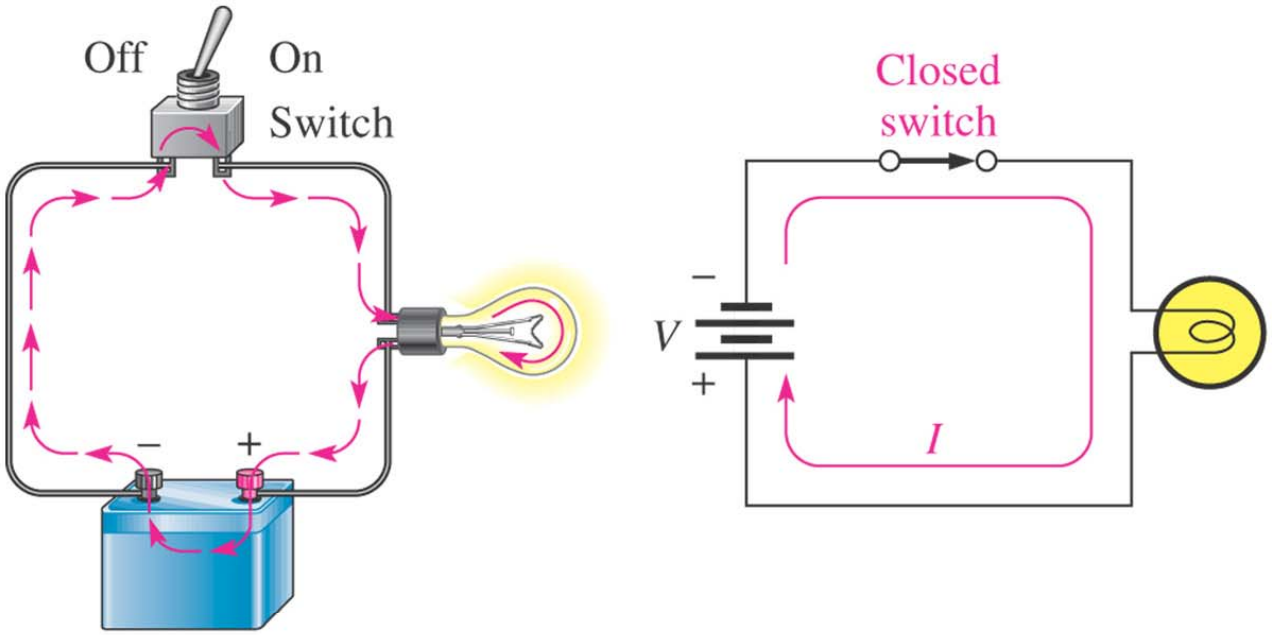

(b) There is no current in an *open* circuit because the path is broken (switch is OFF or in the *open* position).

# Closed Circuit



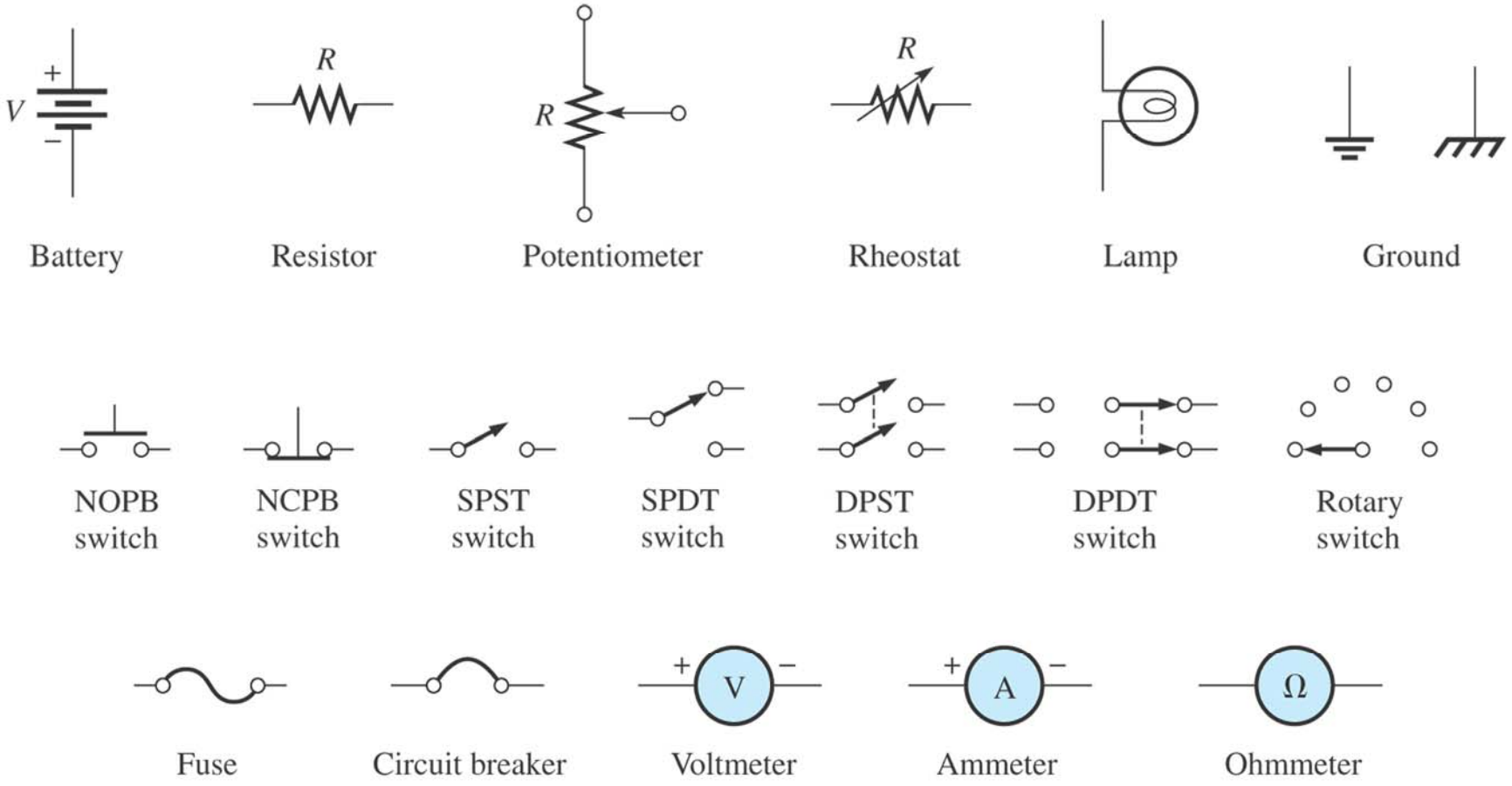

A closed switch provides a path for current.

# Closed Circuit




(a) There is current in a *closed* circuit because there is a complete current path (switch is ON or in the *closed* position). Current is almost always indicated by a red arrow in this text.

# A few Schematic Symbols



# Ability **Switch** for **Special Need Students**

# Switches Push Button

NOPB
switch

# Phono Plug

# Phono Jack

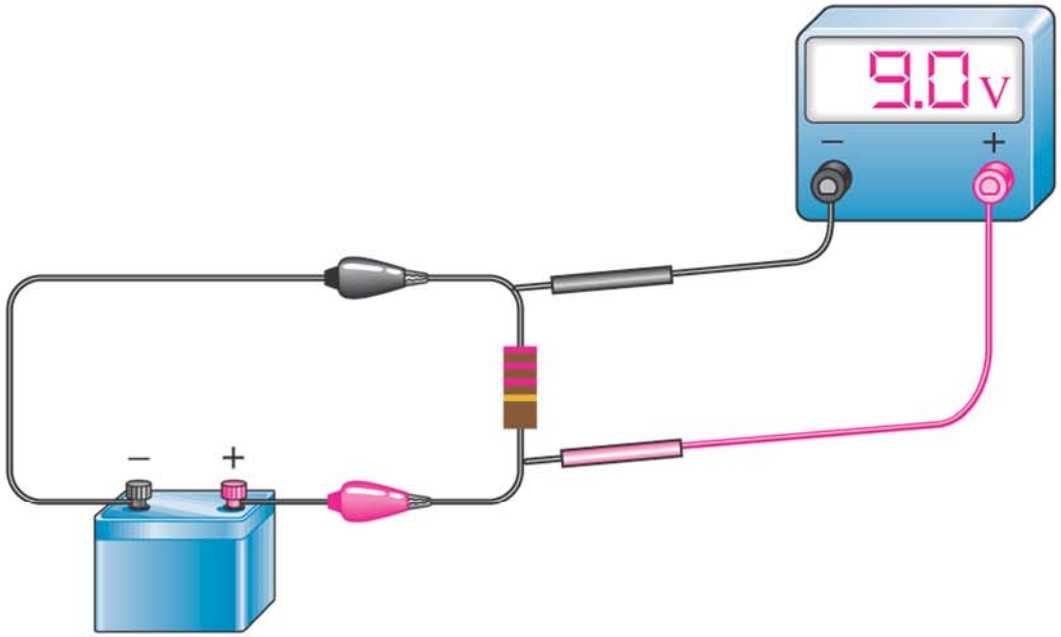
# Phono Jack

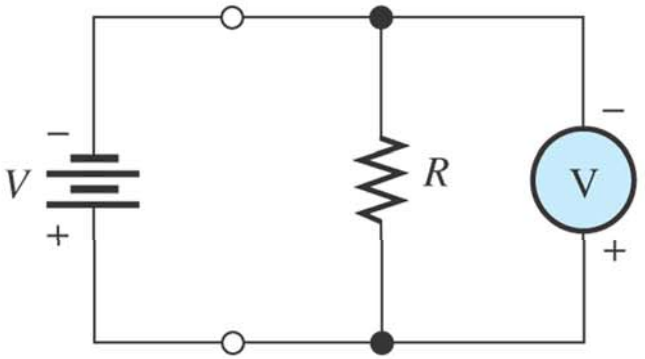
# Typical portable multimeters


(a)

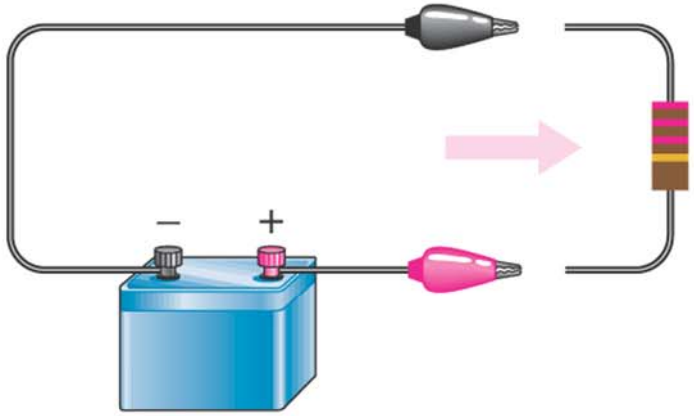

(b)

# Example of a voltmeter connection to measure voltage in a simple circuit.

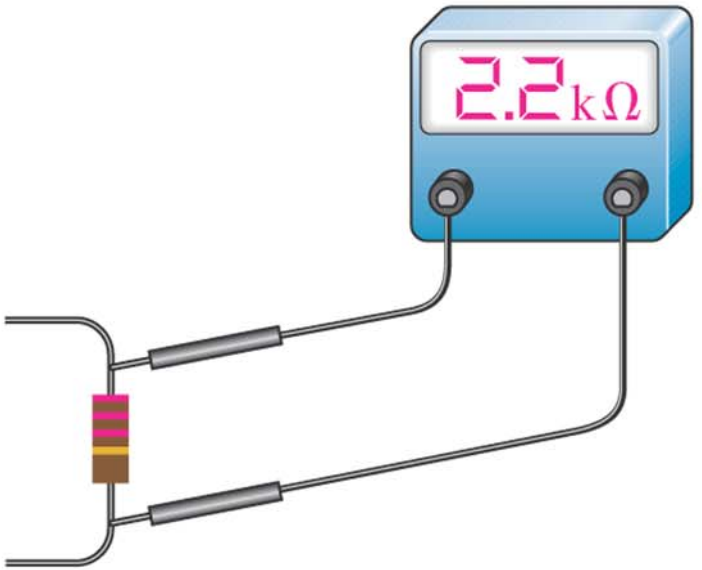


# Example of using an ohmmeter to measure resistance.




(a) Disconnect the resistor from the circuit to avoid damage to the meter and/or incorrect measurement.




(b) Measure the resistance. (Polarity is not important.)

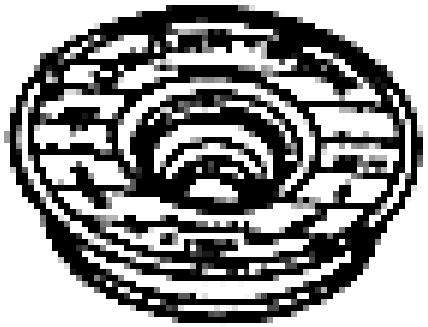
# Build a **Interactive Toy** for **Special Need Students**

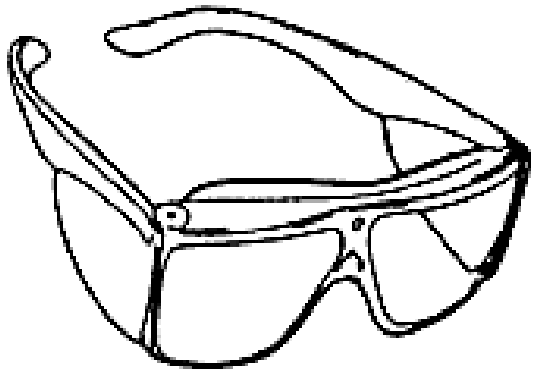
# Sesame Street: Double Fun Giggle Ball - Bert & Ernie

# Soldering Iron with Iron Holder

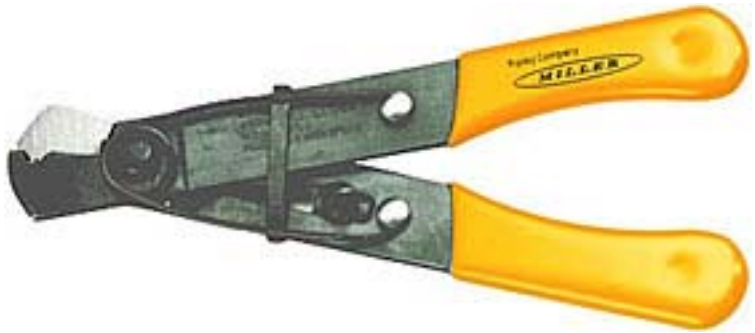
## $ 35.00

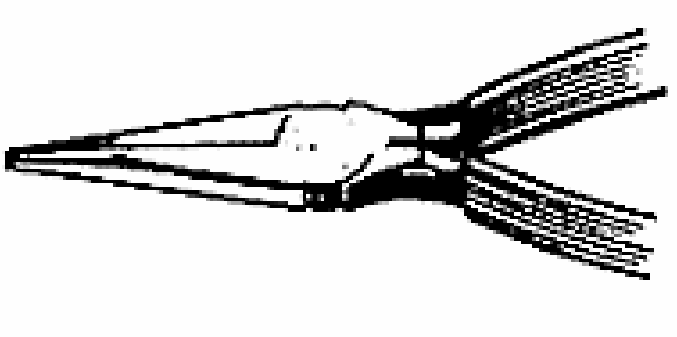
# Solder, Safety Glasses, Tip Cleaner, and Solder Wick

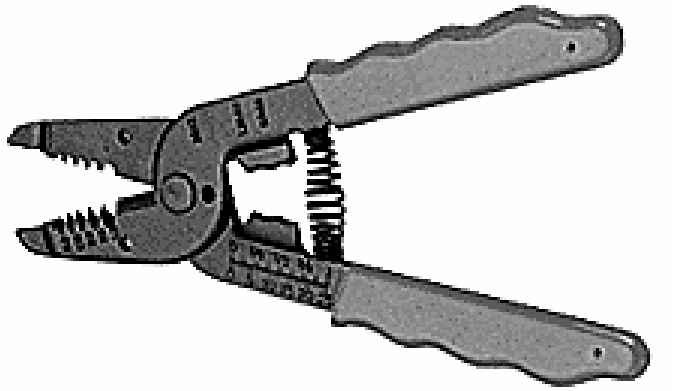




# Wire Stripper, Long Noise Pliers, Cutters, and 7 in One Tool

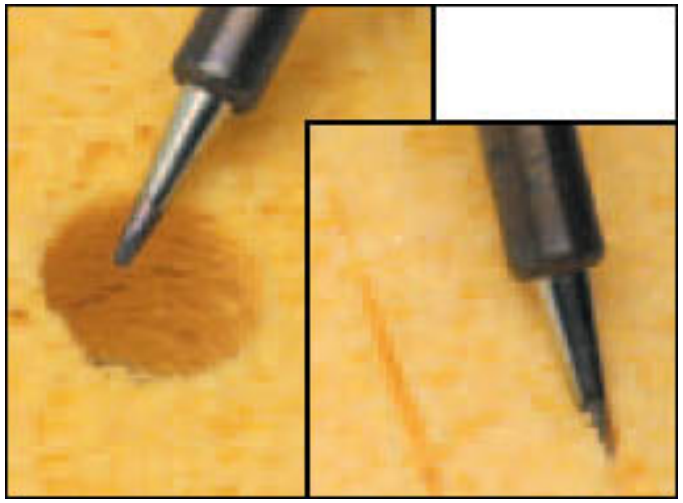


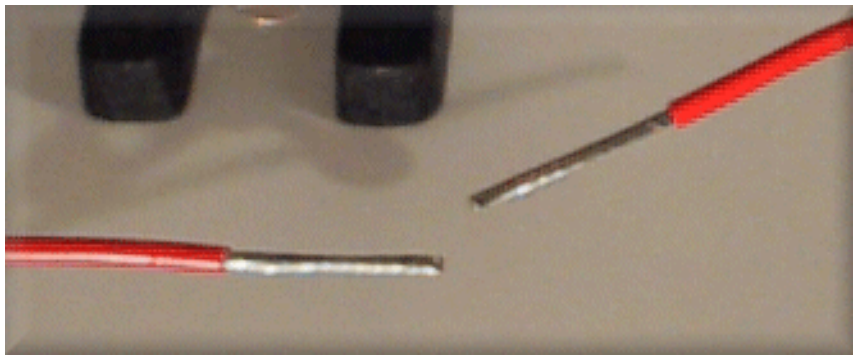


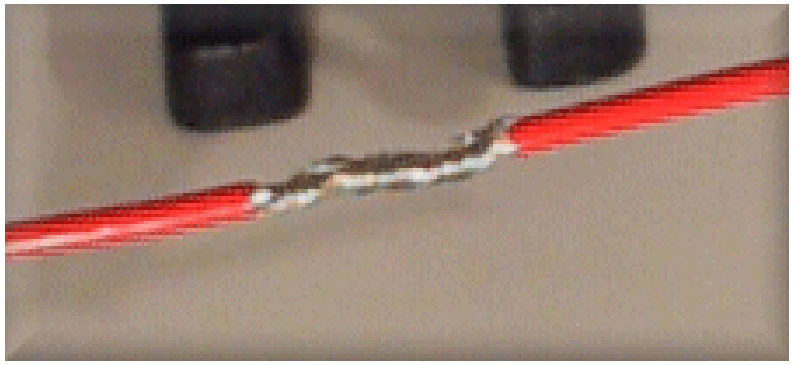
# How to Solder

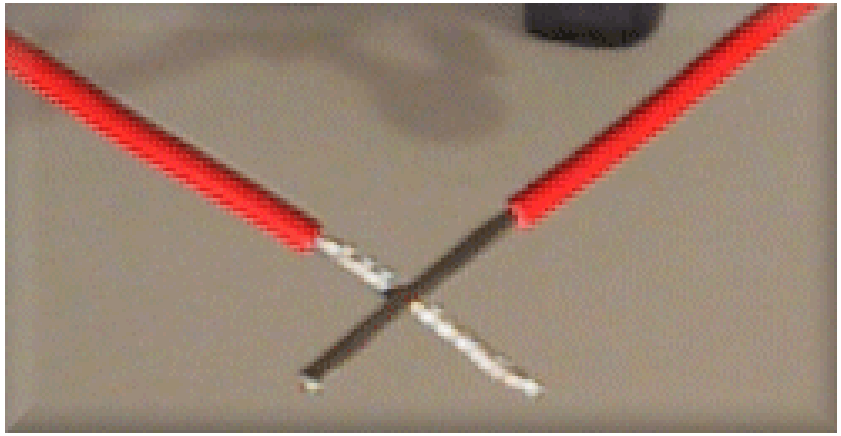

# How to Solder

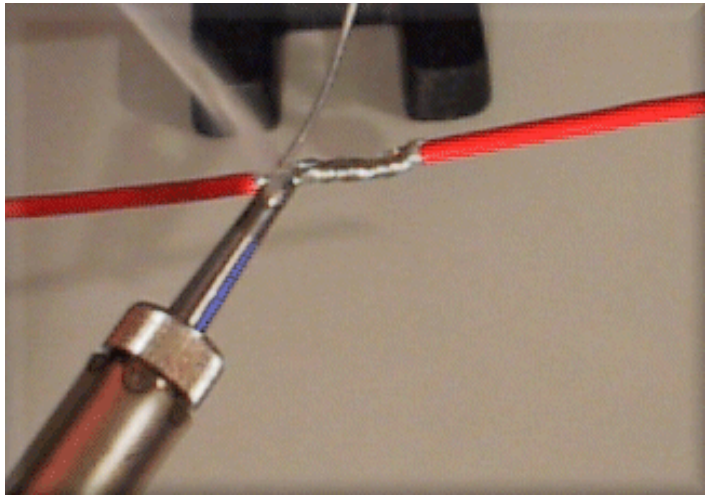



# How to Solder



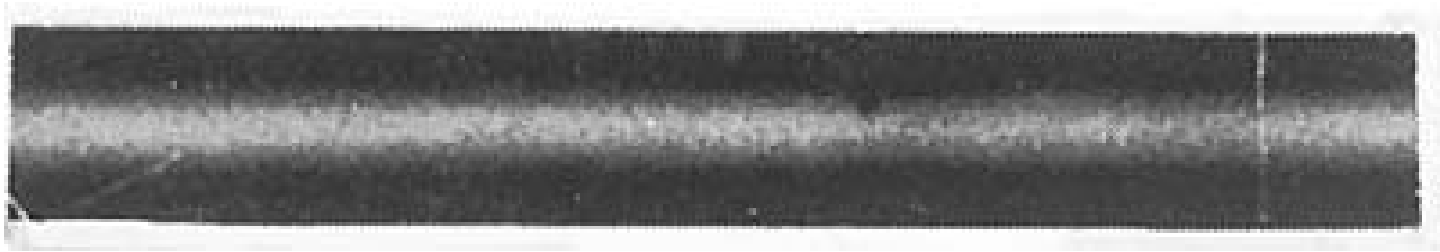






# Heat Shrink Vinyl Sleeve

- With heat will shrink 50 %



# How to Solder

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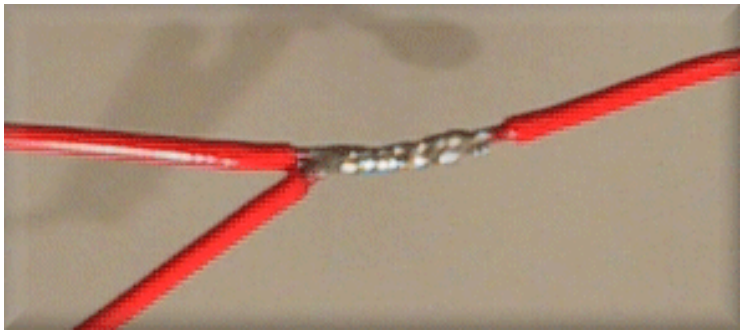

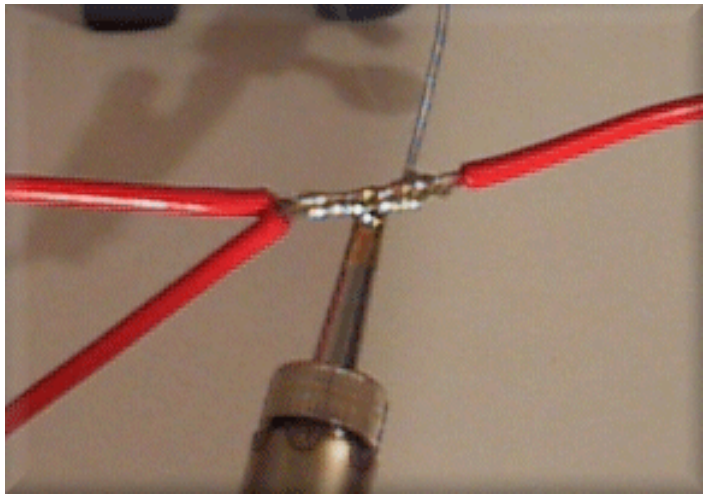

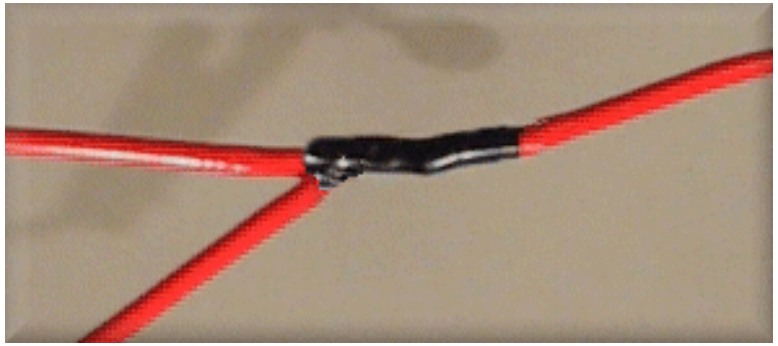

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