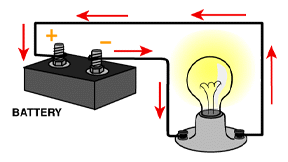
Common Electrical Circuits

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# “Loop” Circuits

For electricity to flow a “loop” path must be established in the conductor (wire). In a simple direct current (DC) circuit this is easy to see as the power source is usually a battery.



Think about how a flashlight works. Can you see the “loop”?

In alternating current (AC) circuits the “loop” is harder to see since the power source is usually a power station located many miles from the load (ex. light bulb). However, the loop still exists.

A picture containing text, screenshot, diagram, line

Description automatically generated

To control the flow of electricity (current) we install switches and other devices to interrupt the loop.

# Directions:

Symbol Key  
Silver Screw  
Brass Screw

Each device is assumed to be in a box. All wire connections must be made in a box. Determine which box will be the “source” of power. Draw in the wires and label with colors. Only one wire may be placed under a screw. Show connections made with wire nuts with a solid dot. White wires connect to silver screws, black (or red) wires connect to the brass screws.

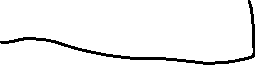
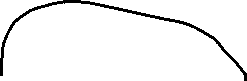
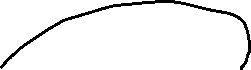
# Example: Two Duplex Receptacles

Power source will be the left box.



Duplex  
Receptacle

Duplex  
Receptacle



Can you identify the “loop” in this circuit?

# Three Duplex Receptacles

Power source will be the center box.

Duplex  
Receptacle

Duplex  
Receptacle

Duplex  
Receptacle

# Switched Lamp #1

Source of power will be the lamp box.

Switch

Lamp

# Switched Lamp #2

Source of power will be the switch box.

Switch

Lamp

# Switched Lamp with Duplex Receptacle #1

Source of power will be the Duplex Receptacle.

Switch

Lamp

Duplex  
Receptacle

# Switched Lamp with Duplex Receptacle #2

Source of power will be the Lamp box.

Switch

Lamp

Duplex  
Receptacle

# 3 Way Switch #1

Power source will be the left switch. This is a typical configuration found in hallway lighting.

# 3 Way Switch #2

3 way  
Switch

3 way  
Switch

Lamp

Power source will be the left switch (middle box). This is a typical scenario found with exterior lighting with switches at the doors.

3 way  
Switch

3 way  
Switch

Lamp