

Simple Circuit Experiments:

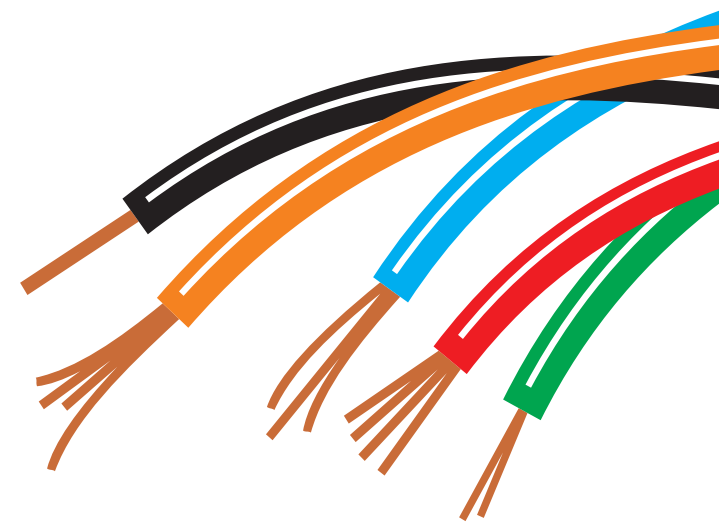
Making simple circuits

Understanding how a switch functions

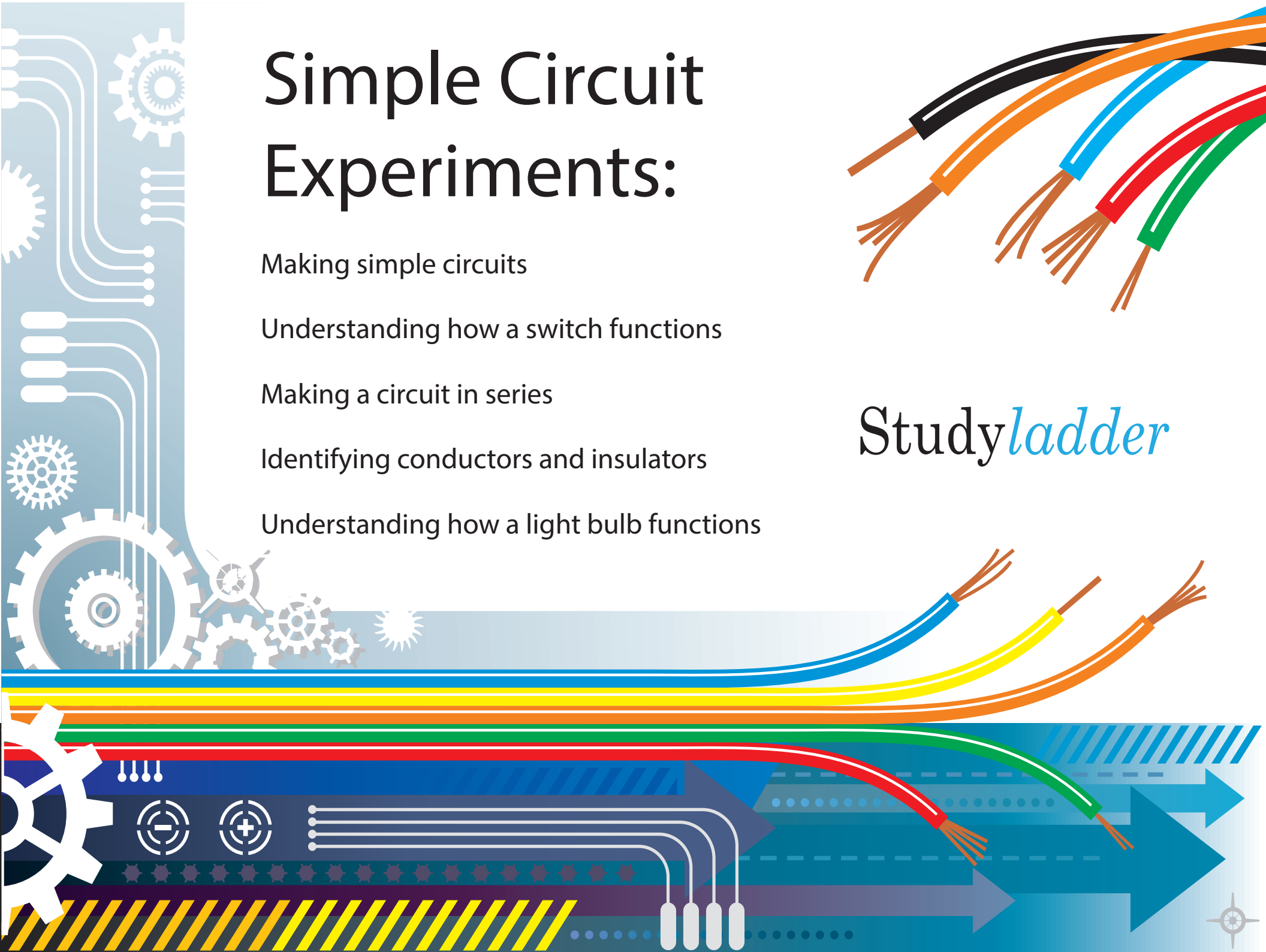
Making a circuit in series






Identifying conductors and insulators

Understanding how a light bulb functions



Study*ladder*



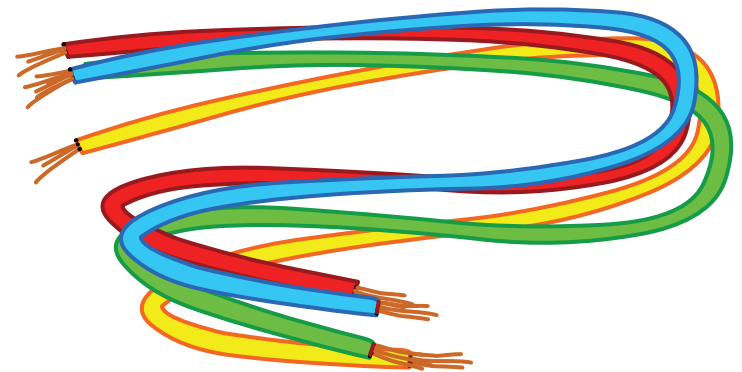
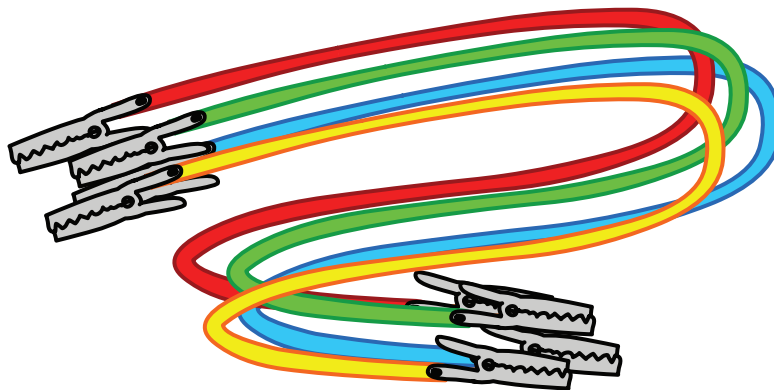
Simple Circuits		Name: _____	Date: _____
Aim: To find out how a simple circuit can be connected.			
Equipment I used:		Draw:	
			
What I did:		What happened:	
			
I discovered that...			
			
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Experiment 1

Aim: To find out how a simple circuit can be connected using a dry cell and a low voltage light bulb.



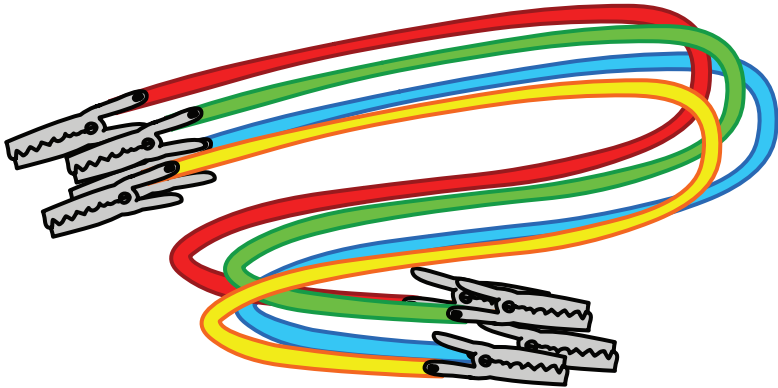
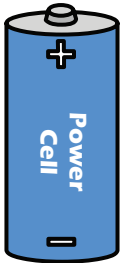
Use low voltage (1.5V) lamp bulbs for this experiment. You can find them at electronic stores.



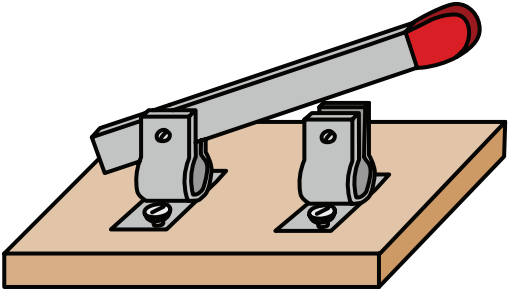
Some insulated wires have alligator clips on the ends to make attaching easier. You can use ones without if you like. Clothes pegs are a good alternative to alligator clips or you can use sticky tape.

Experiment 2



Aim: To find out how switches work in a simple circuit.



Conductors		Name: _____	Date: _____
Aim: To find out what materials conduct electrical current.			
Equipment I used:	Draw the circuit:		
Materials I tested:	What happened:		
I discovered that...			
<p>Materials that stop the flow of energy are called _____</p>			
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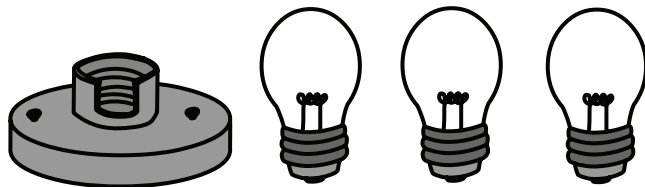
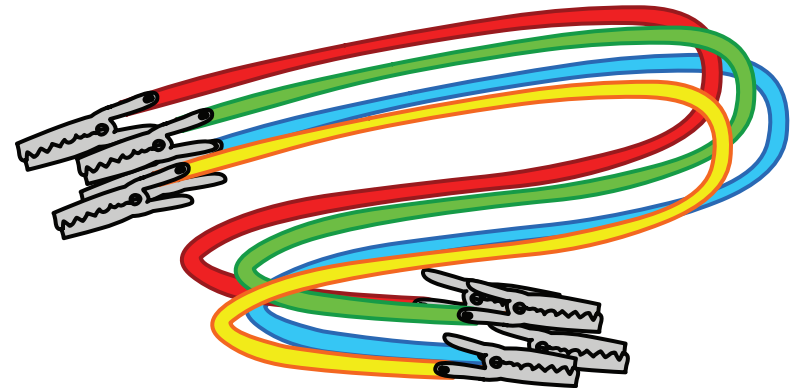
This is a knife switch. The blade slides down between the metal holder to activate the switch. There are other types of switches available.

Series Circuits		Name:	Date:
Aim: To find out what happens when two or more lamps are placed in series in a circuit.			
Equipment I used:	Draw the circuit:		
			
What I did:	What happened:		
I discovered that...			
			
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Experiment 3

Aim: To find out what happens when two or more lamps are placed in series in a circuit.



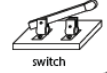


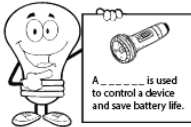
Use insulated wires with alligator clips, if you have them.



You can use lamp holders with the lamp bulbs in this experiment. Attach the wires to the screws in the holder's base.

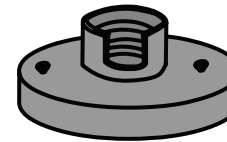


A 1.5V cell is sufficient for this experiment, but you could use a larger one.

Switches		Name: _____	Date: _____
Aim: To find out how a switch works.			
Equipment I used:			
 low voltage lamp	 insulated copper wire	 switch	 cell
 lamp holder			
What I did:	What happened:		
I discovered that...			
 <p>A _____ is used to control a device and save battery life.</p>			
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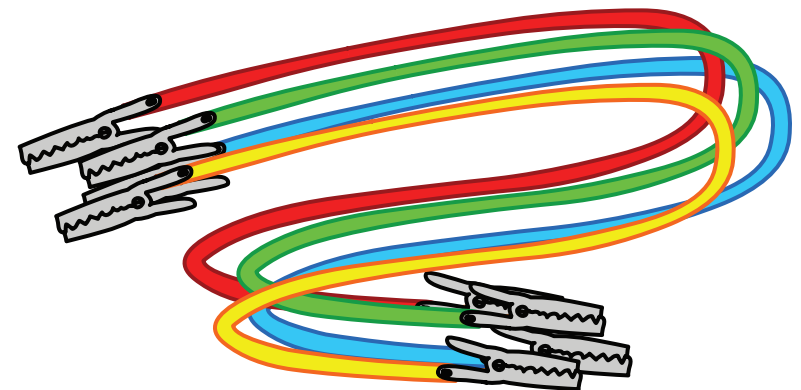
Experiment 4

Aim: To find out what materials conduct electrical current and which ones act as insulators.



- Experiment with different materials:

For example: wooden pencil, plastic ruler, styrofoam cup, a coin, a hair clip, gold ring, glass, an eraser.



Consolidating Understanding

Aim: To predict how an incandescent lamp works and reason why they are not as effective as fluorescent lamps.

- What do you think the inside of an incandescent lamp looks like? (Clue: Think about which parts of the lamp you connected the wires to in Experiment 1.)

Light Bulbs Name: _____ Date: _____

Draw a simple circuit that will light a low voltage light bulb (lamp).

Which parts of the light bulb need to connect to the wires to complete a simple circuit?

Use these symbols on your drawing:

cell wire switch lamp

What do you think happens inside an incandescent light bulb? Draw in the connections.

What happens to the filament in an incandescent lamp when the switch is turned on?

How does a compact fluorescent lamp produce light?

Incandescent bulbs are not as efficient as compact fluorescent lights. Why?

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Research:

- How does a compact fluorescent Lamp (CFL) work?
- Why are compact fluorescent lamps more efficient than incandescent bulbs?

