

- Voltage **B** ~~A~~. 8 amps *
- Resistance **E** ~~B~~. 8 volts
- Power **D** ~~C~~. 8 coulombs
- Charge **C** ~~D~~. 8 watts
- Current **A** ~~E~~. 8 ohms

- Current **F** ~~A~~. A path for electricity to flow. *
- Voltage **E** ~~B~~. A material that allows electricity to flow.
- Resistance **D** ~~C~~. A material that resists electricity.
- Insulator **C** ~~D~~. Slows down electricity
- Conductor **B** ~~E~~. What pushes electricity in a circuit.
- Circuit **A** ~~F~~. The flow of electrons thru wires.

What moves: electrons or protons? *

Why? protons are stude in nucleus held by strong nuclear force *

An object has a charge of -8 C

- Is the object positive or negative?
- Did it gain or lose electrons?
- If you touch it to ground, will it lose electrons to ground or gain electrons from ground?
- What will its charge be after it is grounded? 0C

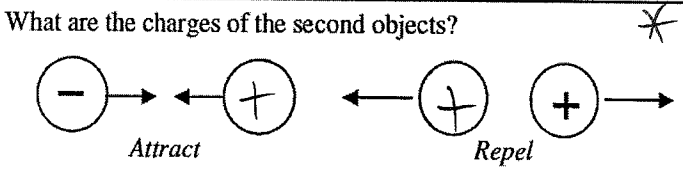
A conductor allows electricity or heat to pass through it. *

Electricity flows through paths called circuits. A closed circuit has no breaks in it, while an open circuit has a break and stops the flow of electricity.

An insulator will not allow electricity to pass.

Electricity is made up of flowing electrons.

Like electric charges attract (repel) Opposite charges (attract) repel.



Draw a circuit of two batteries, a light bulb, a resistor, and a switch, all in series. *

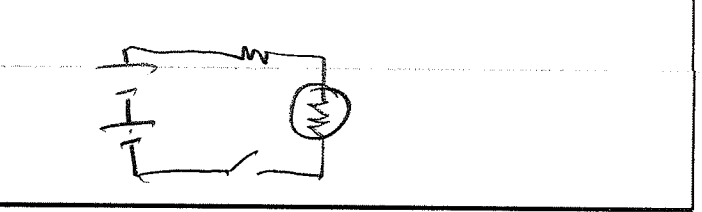
What is electricity? moving electrons *

Will electrons flow between the two objects?

A. -3C -3C No B. 5C 0C Yes -2C -6C Yes

Why does electricity move?

Difference of charge



You have two light bulbs and a battery in a circuit. If you add another battery, do the light bulbs get brighter or dimmer? *

Why? more voltage

You have two light bulbs and a battery in a circuit. If you add another light bulb, do the light bulbs get brighter or dimmer?

Why? more resistance

What is arcing? spark between open space *

When and why does arcing occur?

diff of electric charge + electric force

If a 12 v battery is connected to a 24 Ω resistor, how much current is flowing? *

$I = \frac{V}{R}$

$I = \frac{12\text{V}}{24\Omega} = \textcircled{0.5\text{A}}$

Increases (I) Or Decreases (D)	Increasing resistance <u>D</u> current *
	Decreasing resistance <u>I</u> current
	Increasing voltage <u>I</u> current
	Decreasing voltage <u>D</u> current

$I = \frac{V}{R}$

How much voltage is needed to produce 2 amps through a 4 ohm light bulb?

$I = \frac{V}{R}$ $V = I \cdot R$

$V = 2\text{A} \cdot 4\Omega = \textcircled{8\text{V}}$

How can you tell if two light bulbs are in parallel? *

Unscrew #1 bulb + #2 bulb stays on

How can you tell if two light bulbs are in series?

Unscrew #1 + #2 goes out

Is your house wired in series or in parallel?

Why?

devices are independent

If a light bulb in your house (120 V) draws 0.5 amps, how much power does it use?

$P = V \cdot I$

$120\text{V} \cdot 0.5\text{A} = \textcircled{60\text{W}}$

What is the change of voltage across a wire? 0V
 Why can a bird sit on a wire and not be electrocuted?
0V difference between feet

What happens when you short circuit one light bulb in a two light bulb circuit? one bulb goes out + the other gets brighter
 What happens if you short circuit a battery?
Battery gets hot

Fill in the missing information on the following graphics. *

$I_T = 8A$ $R_T = 6\Omega$ $V_T = 9V$

Where do most of the electrons come from that run thru a circuit?
the wire

$V_T = 9V$ *
 $R_T = 18\Omega$
 $I_T = \frac{V}{R} = \frac{9V}{18\Omega} = 0.5A$
 $I_{R3} = 0.5A$
 $V_{R2} = I_{R2} \cdot R_2 = 0.5A \cdot 5\Omega = 2.5V$

Series or parallel? parallel

Series or parallel? parallel

$V_T = 18V$ $I_2 = \frac{2V}{2\Omega} = 3A$
 $V_{DF} = 18V$ $I_3 = \frac{9V}{1\Omega} = 9A$
 $V_{HG} = 0V$
 $V_{at F} = 0V$
 $I_1 = \frac{9V}{2\Omega} = 4.5A$

The three magnets are repelling each other. Fill in the missing information.

N
S
S
N
N
S

The two magnets are attracting each other. Fill in the missing information.

S
N
N
S

Someone asks you how what a circuit is and how it works. Tell them.
a complete loop of wire connected to the different poles of an electrical source

What will a magnet attract?
Ferrous materials + opposite pole magnets

What will a magnet repel?
similar poles

A house is wired with this type of circuit? Explain why.
Parallel
Devices are independent from each other.

What does moving electricity cause? magnetism *
 What do moving magnets cause? electricity
 What is an electromagnet? current moving through a wire
 How do you strengthen an electromagnet?
Iron core
multiple coils
more voltage

What is a motor? a generator with work coming from it *
 How does it work? electricity in → work out
 What is a generator?
a motor with work going into it
 How does it work? work in → electricity out