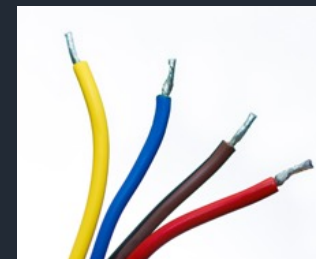
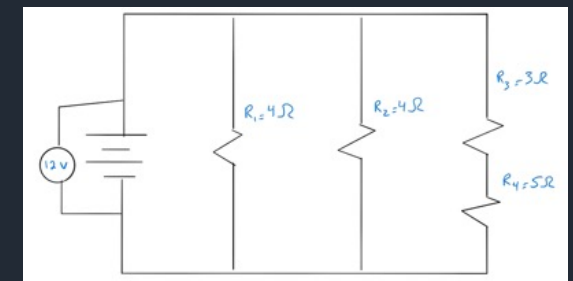


Resistance

- Resistance
- Loads
- Insulators
- Conductors
- Superconductors
- Ohm's Law
- Power
- Calculating Total Resistance



Preview File

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- Some slides appear blank because they have been removed
- Student versions have portions of the text removed which is given in the teacher version and appear as _____ which the students are to fill in
- Other slides may have on them, this represents writing that has been removed on this sample

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Key Term – Resistance (R)

- When the electrons pass into a device (load) they bump into substances within the object (ions, other electrons, etc.)
- These bumps interfere with the electron flow because they get in the way
- _____
- Similar to how a ball moves through a pinball machine



Loads

- _____

- E.g. Watch, flashlight, light, computer, etc.



Resistance

- _____
- _____
- Light bulb filaments are very good resistors
- They slow down the electrons that pass through them which allows them to remove more energy from the electrons, making them glow



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Resistance

Explain why being a poor resistor would make copper and aluminum good materials for electrical wires?



Copper

Aluminum



What Determines the Resistance of a Wire?

1) _____

- 2) The length - A longer wire has a greater resistance.
- 3) The diameter - A wire with a larger diameter has a lower resistance.
- 4) The temperature - A hotter wire has a greater resistance.

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Superconductors - Applications

Due to their zero-resistance conductivity, superconductors have many practical applications including:

- _____
- _____
- _____
- _____
- _____
- _____
- _____



Ohm's Law

- Free electrons tend to move through conductors with some degree of friction, or opposition to motion
- _____
- The symbol for resistance is Ω or ohm

Ohm's Law

- As resistance increases, current decreases
- The higher the resistance, the more the electrons will slow down as they pass through
- As the electrons slow down, their energy can be taken to do work (e.g. Light up, move a motor, etc.)
- _____
 - _____



Check Your Understanding

What is the voltage drop across a 100 watt light bulb if the resistance is $150\ \Omega$ and the current is 0.8A ?

$$V = I \times R$$

Power

- What gives lights their brightness is the power
- _____
- _____
 - _____
- Remember, $V = I \times R$ and if we increase the resistance, we decrease the current as V stays the same
- If current decreases, power decreases
- Less power means your load can't do its job as well

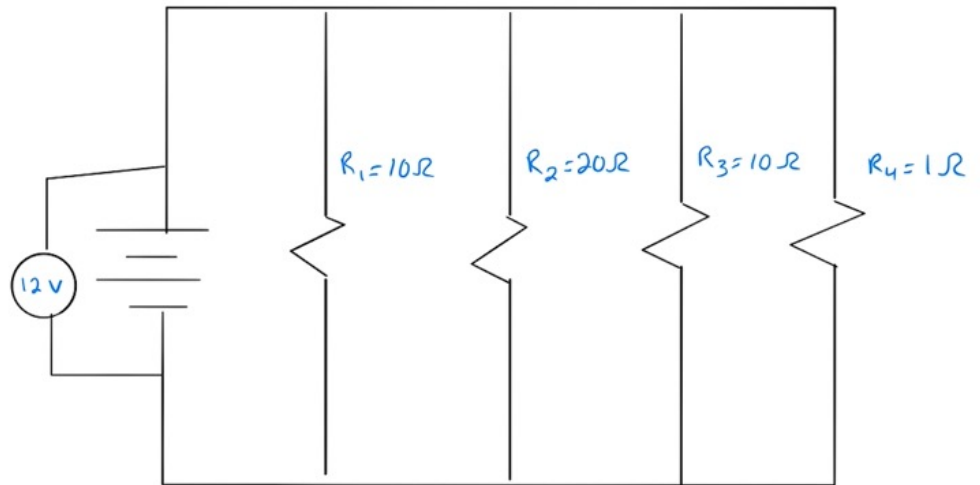
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Calculating Resistance in a Circuit

Total resistance (R_T) is calculated differently depending on the type of circuit.

Check Your Understanding

Find R_T and I_T using the circuit below.



Check Your Understanding

THIS QUESTION HAS BEEN REMOVED FROM THIS SAMPLE