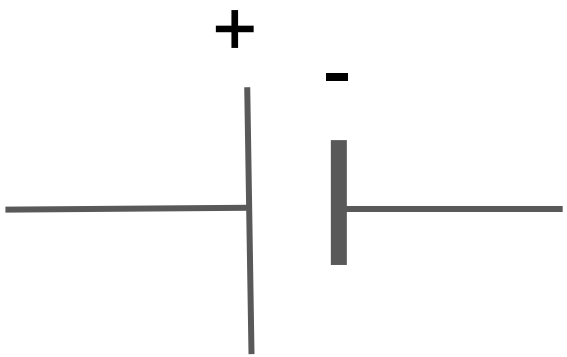
AQA Physics GCSE

4.2.1 - Current, Potential Difference and Resistance

Flashcards

Draw the circuit symbol for a cell.

Draw the circuit symbol for a cell.



Draw the circuit symbol for a battery.

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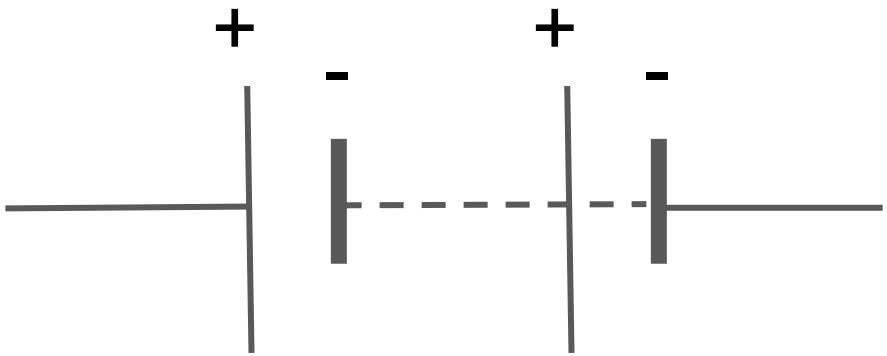
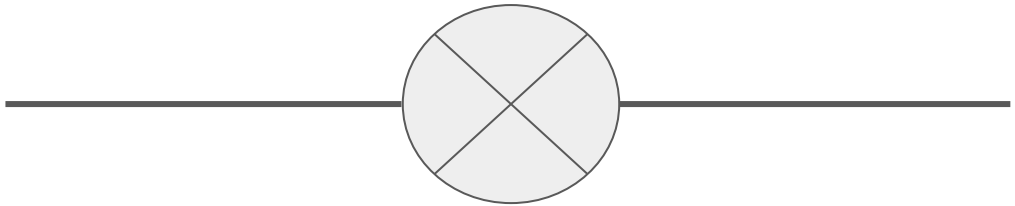


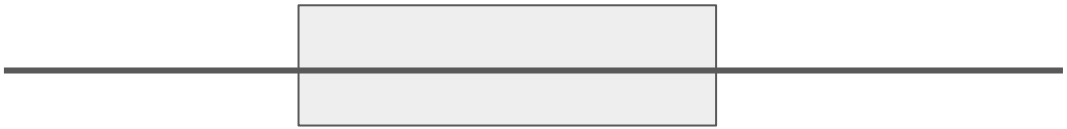
Draw the circuit symbol for a lamp.

Draw the circuit symbol for a lamp.



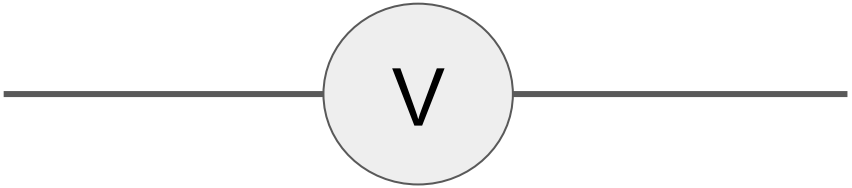
Draw the circuit symbol for a fuse.

Draw the circuit symbol for a fuse.



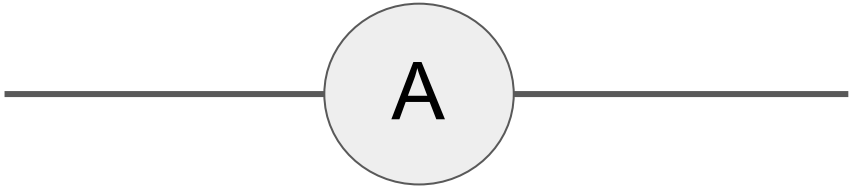
Draw the circuit symbol for a voltmeter.

Draw the circuit symbol for a voltmeter.



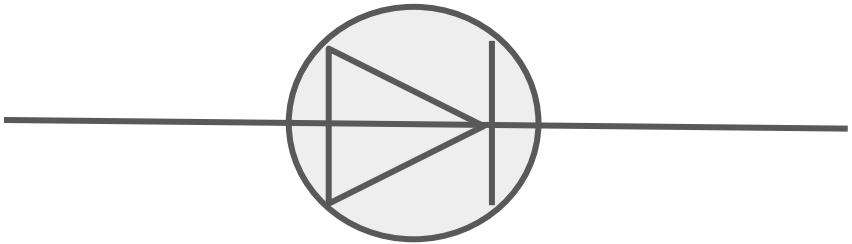
Draw the circuit symbol for an ammeter.

Draw the circuit symbol for an ammeter.



Draw the circuit symbol for a diode.

Draw the circuit symbol for a diode.

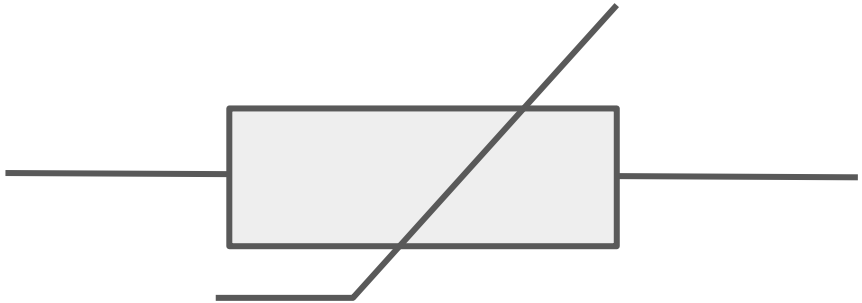


Draw the circuit symbol for a resistor.

Draw the circuit symbol for a resistor.

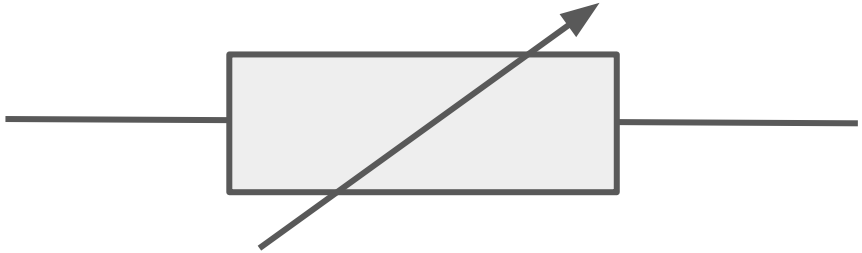
Draw the circuit symbol for a thermistor.

Draw the circuit symbol for a thermistor.



Draw the circuit symbol for a variable resistor.

Draw the circuit symbol for a variable resistor.



Draw the circuit symbol for an LDR.

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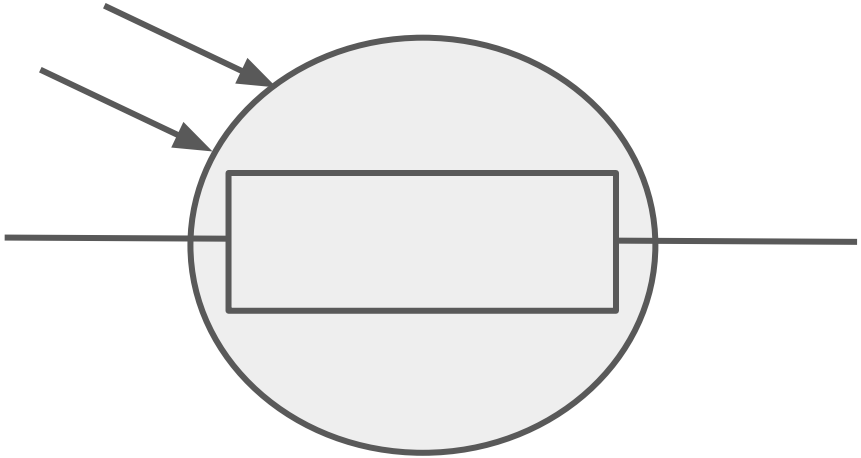
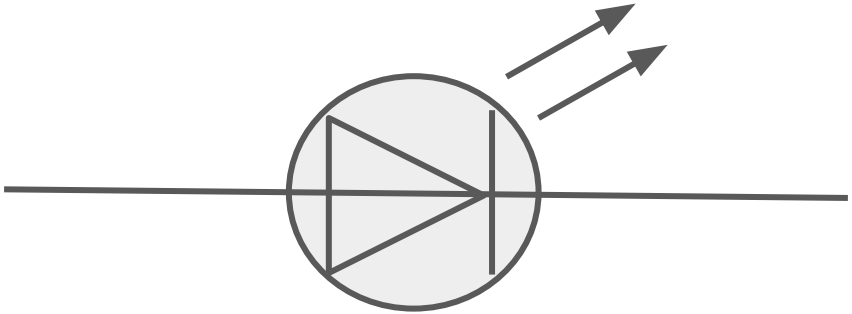


Draw the circuit symbol for an LED.

Draw the circuit symbol for an LED.



What is electric current?

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The flow of electrical charge.

State the equation linking charge, current and time. Give the units for the quantities involved.

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$$Q = I\,t$$

Charge (Coulombs), Current (Amperes), Time (Seconds)

What can be said about the value of current at any point in a single closed loop?

What can be said about the value of current at any point in a single closed loop?

Current is the same at all points in a closed loop.

What two factors does the current in a circuit depend on?

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1. Potential Difference (V)
2. Resistance (R)

What equation should be used to calculate potential difference if current and resistance are known? State the units for all 3 quantities.

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$$V = I R$$

Potential Difference (V), Current (A), Resistance (Ω)

What is an ‘Ohmic Conductor’? State the condition required.

What is an ‘Ohmic Conductor’? State the condition required.

- A conductor for which current and potential difference are directly proportional
- Resistance remains constant as current changes
- Temperature must be constant

List **four** components for which resistance is not constant as current changes.

List **four** components for which resistance is not constant as current changes.

1. Lamps
2. Diodes
3. Thermistors
4. Light Dependant Resistors (LDRs)

What happens to the resistance of a filament lamp as the temperature increases? Why?

What happens to the resistance of a filament lamp as the temperature increases? Why?

- Resistance increases
- Ions in metal have more energy, so vibrate more, causing more collisions with electrons as they flow through the metal, creating greater resistance to current flow

What is different about current flow through a diode?

What is different about current flow through a diode?

- The current only flows in one direction
- Resistance is very high in the other direction, preventing current flow

State what happens to the resistance of a thermistor as temperature increases.

State what happens to the resistance of a thermistor as temperature increases.

The thermistor's resistance decreases.

Give **two** examples of when a thermistor may be used.

Give **two** examples of when a thermistor may be used.

1. In a thermostat to turn a heater on below a certain temperature
2. In a freezer to turn on a cooler when the temperature becomes too high

State what happens to the resistance of a LDR as light intensity decreases.

State what happens to the resistance of a LDR as light intensity decreases.

The LDR’s resistance increases.

Give an application for a LDR.

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- Street lights often use LDRs
- When light levels become too low, the light gains sufficient current to turn on