

Potential difference, resistance and current

Task 1: Potential difference

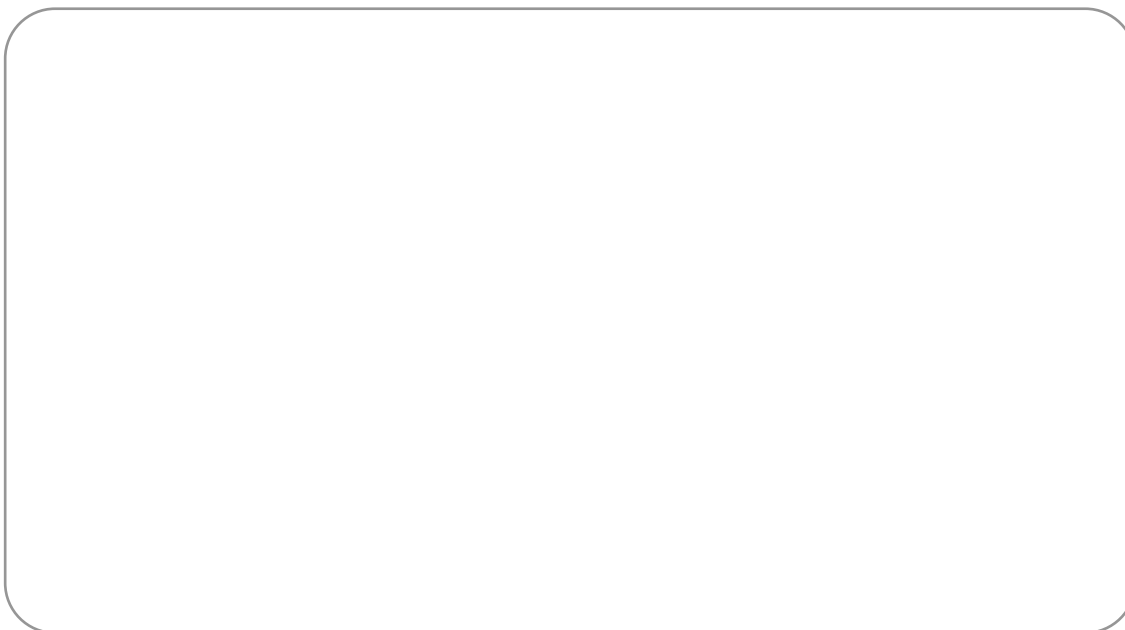
1 a Circle the name of the piece of equipment used to measure potential difference.

voltmeter/ammeter

b Draw the circuit symbol.



2 Draw a circuit with one cell, one bulb, and one switch.



Add to the diagram another component that would allow the potential difference across the bulb to be measured.

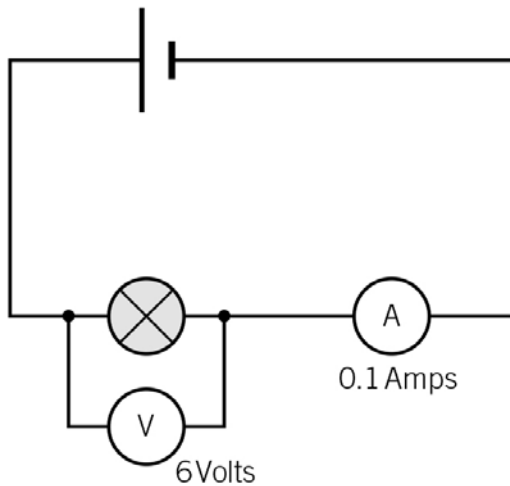
3 What does potential difference tell you about the energy in a circuit?

Task 2: Resistance

1 Calculate the resistances of the components in the following circuits.

Part **a** has been done for you as an example.

a

**Known values (from the circuit diagram):**

Potential difference = 6 V

Current = 0.1 A

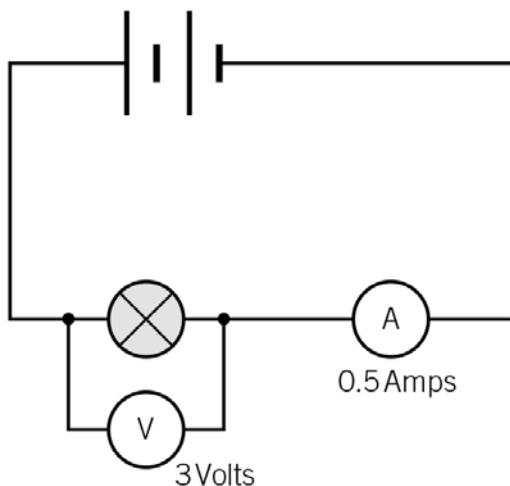
Formula:

resistance = potential difference \div current

Substitute known values into the formula:

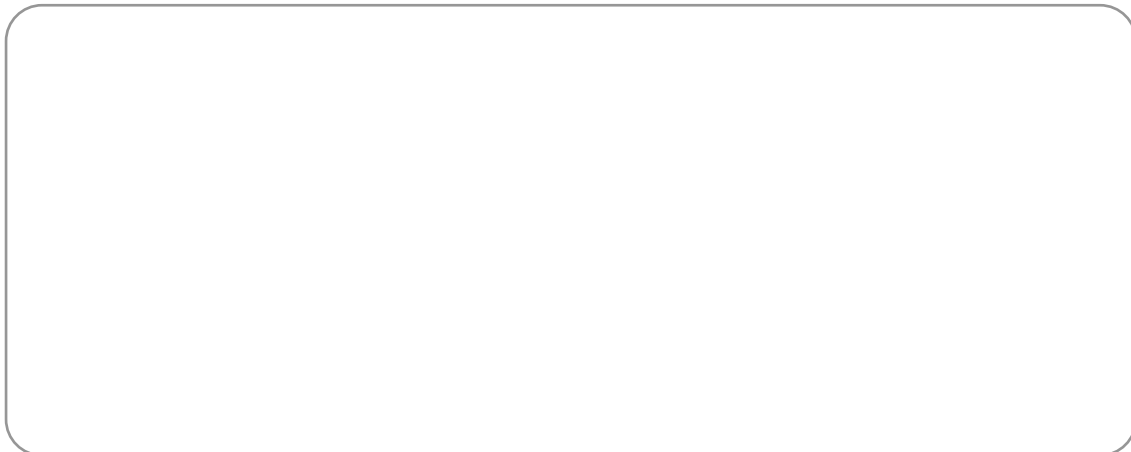
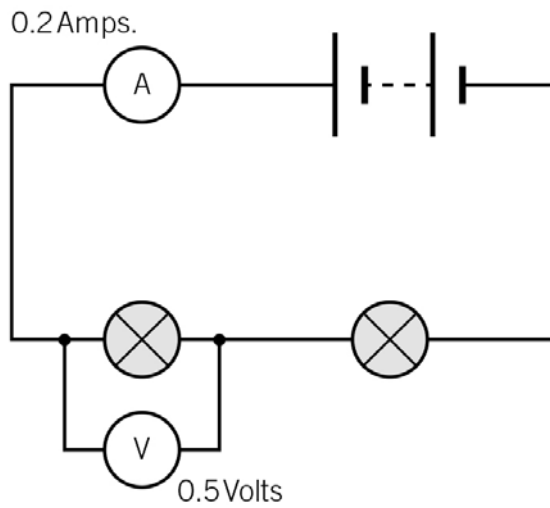
resistance = 6 V \div 0.1 A
= 60 Ω

b





c



2

2 Part 1 Checkpoint Revision (Route A)

Activate
for AQA

2 a Complete the description about conductors and insulators.

An insulator has a very _____ resistance but a conductor has a very _____ resistance.

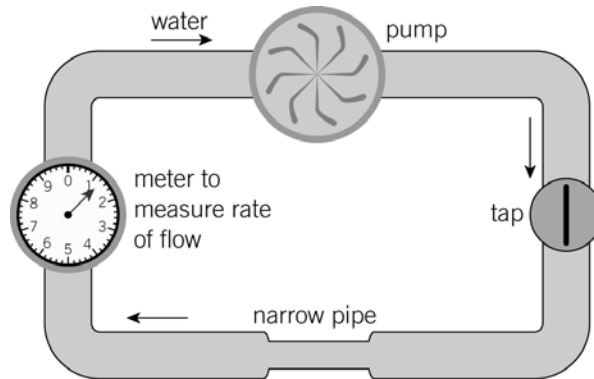
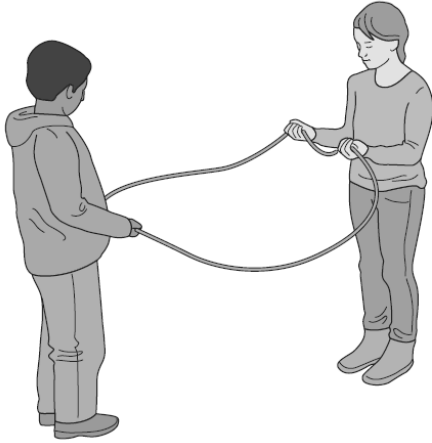
b How well do insulators and conductors allow electricity to flow?

3 Complete the sentence below.

Components with _____ reduce the _____ flowing in a circuit because the moving electrons collide with the atoms in the components and transfer energy to the surroundings by _____.

Task 3: Models of electricity

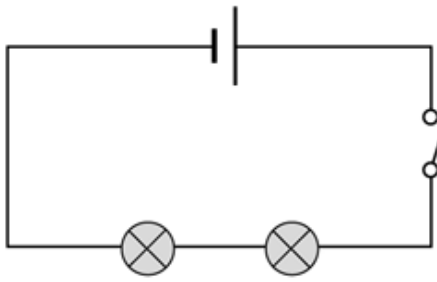
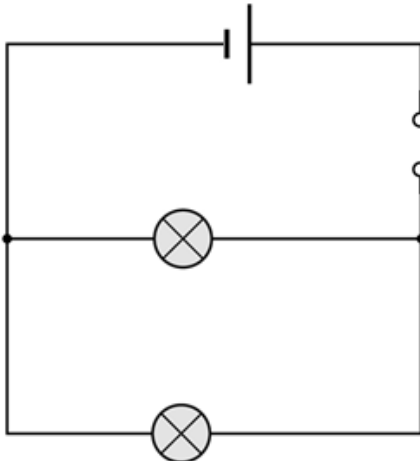
Complete the following table to compare the rope model and water model of electrical circuits. Use the diagrams to help you.



Part of circuit	Part of rope model	Part of water model
cell/battery		
flow of charge		
components (e.g., bulbs)		
switch	not included	

Task 4: Series and parallel circuits

Complete the table to compare potential difference and current in series and parallel circuits.

	Series circuit	Parallel circuit
		
Describe the potential difference.		
Describe the current.		

Task 5: Current

1 State what current is.

2 What is the name and symbol of the piece of equipment used to measure current?

Name:

Symbol:

3 Draw a circuit with one cell, one bulb, one switch, and the component for measuring current.

4 What happens to the current when more bulbs are added to a series circuit?

5 What happens to the current when more bulbs are added in parallel to a parallel circuit?

Task 6: Charging up

1 What are the two types of electric charge?

2 Complete the following table to state whether the two charges will attract or repel.

Charge 1	Charge 2	Attract or repel?
positive	positive	
negative	positive	
negative	negative	

3 Use the following words to complete the sentences describing what happens to make hair charged when combing with a plastic comb.

charged electrons negatively positively

When a plastic comb is pulled through hair, some _____ are transferred from the hair onto the comb. This means that comb and hair become _____ . The hair loses electrons and becomes _____ charged. The comb gains electrons and becomes _____ charged.

4 Sketch a diagram to illustrate the situation before and after the plastic comb has been charged up by pulling it through hair.

