



9.1 Electricity

Electricity

Building Circuits

How do we use standard symbols to draw and build functioning electrical circuits?

Which Circuit?

What are the differences between series and parallel circuits, and when is each type used?

Static Electricity

How do electrons move between objects to create static charges and electric fields?

Current

What is electric current, and how do we use an ammeter to measure the flow of charge?

Comparing Current in Series and Parallel

How does the flow of current change when it reaches a junction in a parallel circuit?

Potential Difference and Energy Transfer

How does potential difference represent the energy transferred by a battery to the components?

Investigating Potential Difference

How can we use a voltmeter to measure how potential difference is shared between components?

Resistance and Current

What is resistance, and how does it affect the flow of current in conductors and insulators?

Investigating Resistance

How does changing the length of a wire affect the amount of resistance in a circuit?

Electrocution and Safety

Why are short circuits and earthing points important for keeping us safe around electricity?

Magnetism

Magnets

How do magnets interact with each other, and how can we use compasses to map magnetic fields?

Electromagnets

How can we use an electric current to create a temporary magnet, and how can we change its strength?

Using Electromagnets

What are some real-world uses for electromagnets, and how do they help a motor turn?

KEY VOCABULARY

Charge, Circuit, Current, Potential difference, Voltage, Voltmeter, Ammeter, Insulator, Conductor, Resistance, Series, Parallel, Static, Ohms, Magnetic field, Electromagnet, Motor, Repeatable,

This module continues your learning journey previous learning at primary school and prepares you for this topic at GCSE.

You will develop a much greater understanding of how circuits work, with a more in-depth understanding of charge, current and potential difference.

You will continue to develop your practical skills, such as using ammeters and voltmeters.

The topic finishes by re-capping and extending some of the work on forces from Year 7 by focussing on the construction and uses of magnets and electromagnets.

LEARNING JOURNEY

PHYSICS

ENERGY CRISIS!



Energy Stores

You will build on what you learned at KS3, identifying energy stores and transfers.

Energy Transfers and Work Done

You will learn that energy can never be created or destroyed, but transferred usefully or wasted.

Power

You will define power and work in terms of energy, and calculate work done in energy transfers

Energy is at the heart of physics, and the transfers between different energy stores are the basis of many important processes in science.

You will learn to use formulae which relate the various energy stores to each other in terms of Joules of energy, and use practical investigations to verify important facts.

Energy connects to many other areas of science including electricity and electromagnetic waves.

Energy Efficiency

You will learn to calculate the efficiency of energy transfers in different devices.

The National Grid

You will learn about the key features of the National Grid and the reasons for its use.

Non-Renewables

You will learn about the benefits and problems associated with non-renewable energy resources

Renewables

You will learn about the benefits and problems associated with renewable energy resources

Meeting Demand

You will use data to learn about how electricity demand depends on a range of issues.

VOCABULARY

Energy Store, Dissipate, Renewable, Efficiency, Power

TUDOR HABITS AND VALUES

Show grit and courage as you attempt increasingly complex calculations using various formulae and units to solve challenging questions.

This module continues your learning journey from previous learning in Physics about states of matter and energy.

You will learn about density and why different objects have different densities before practically calculating density.

You will use graphs to understand how temperature and changes of state depend specific heat capacity and specific latent heat.

