



7.1 Energy

Energy Stores and Transfers

Energy Stores

How can we describe and compare the different ways energy is stored in a system?

Energy Conservation

Why does the total amount of energy always stay the same before and after a change?

Useful and Wasted Energy

How can we identify which energy transfers are useful and which are wasted?

Energy Resources

Using fuels

How do we choose the best fuel for a task, and what makes a fuel a "biofuel"?

Energy Stored in Fuels

How can we measure and compare the amount of energy released when burning different fuels?.

Personal Energy

Energy Stored in Food

How can we investigate and compare the energy values found on food labels?

Calculating Power

What is power, and how do we calculate the rate at which energy is transferred?

Cost of Fuels

How do we calculate household energy bills and find ways to reduce them?

Physics is the study of matter and the interactions of matter.

Energy is a key focus which will run through the whole of your Physics lessons during all years.

Energy is found in stores and allows work to be done. It is critical in your understanding of Physics moving forward.

KEY VOCABULARY

Joules, Energy Store, Gravitational potential, Kinetic, Elastic potential, Biofuel, Conservation, Transfer, Watts Conduction, Convection, Radiation, Insulator, Domestic, Hazard, Risk, Error



LEARNING JOURNEY

Year 7 Spring Term

PHYSICS

7.2 FORCES

Push & Pull

How do we identify and measure the size of push and pull forces?

Contact & Non-Contact?

What is the difference between forces that touch an object and those that act from a distance?

Balanced & Unbalanced

How do force arrows help us show if an object's motion is going to change?

Newtons 1st Law

How does the resultant force on an object affect its movement or speed?

Forces can act in contact or at a distance and can be a push, a pull, or a turning force.

Forces are central to an understanding of physics because they connect the ideas of mass, energy, distance and movement.

You will conduct experiments to demonstrate the interaction of forces and begin to calculate values from formulae, which is a vital skill in physics.

Work

How is "work" done when a force moves an object and transfers energy?

Drawing Graphs

How can we use scatter graphs and scales to represent scientific data?

Friction

What causes friction, and when is it useful or harmful in our daily lives?

Investigate Friction:

How can we plan a scientific investigation to see how different surfaces affect friction?

Investigating Water resistance and drag

How do objects move through air and water, and what forces slow them down?

Force and Extension

What happens to a spring when we apply force, and what is a linear relationship?

Investigating extension

How can we test if different materials follow the rules of stretching and squashing?

Moments

What is a moment, and how do forces create a turning effect on a pivot?

KEY VOCABULARY

Gravity, Weight, Resultant Force, Tension, Compression, Tension, Friction, Resistance, Mass, Contact/Non-Contact, Equilibrium, Newton, Upthrust, Moment, Drag, Extension, Newtonmeter, proportional



LEARNING JOURNEY PHYSICS

7.3 MOTION

Speed

How do we use distance and time to calculate how fast an object is moving?

Relative motion

How does our own movement change how we see the speed of other objects passing us?

Investigating speed

How can we choose the best equipment to measure speed with accuracy and precision?

Drawing Distance-Time Graphs

How can we plot a journey on a graph to show changes in speed over time?

Analysing Distance-Time Graphs

What can we learn about a journey by interpreting the slope and shape of a distance-time graph?

Everyone has an understanding of what speed means. In this unit you will learn how physicists describe speed and changes of speed called acceleration. You will use your new skills in calculations and formulae and draw graphs that show a rate of change.

Just as important as speeding up is knowing how to slow down again! You will also learn important factors that affect road safety and how vehicles stop in an emergency.

KEY VOCABULARY

Speed, Relative Motion, Rate, Gradient, Velocity, Accelerate, Decelerate, Stopping / Thinking / Braking Distance, Accuracy, Precision, Repeatability