

Physics

Outcomes	Pressure	Magnetism	Electromagnets	Work	Speed	Heating and cooling	On course for GCSE grade
Basic	I know that pressure in a liquid increases with depth.	I know that a magnet has a North and a South pole, and that two like poles repel and two unlike poles attract.	I know that an electromagnet is a non-permanent magnet that can be turned on and off.	I know that work is done when a force moves an object.	I know that speed is how much distance is covered in how much time.	I know that when there is a temperature difference, energy transfers from the hotter to the cooler object.	1-3
Adequate	I can recall the formula $\text{Pressure} = \text{Force}/\text{Area}$, and can describe what causes atmospheric pressure.	I can draw a diagram of the magnetic field lines around a bar magnet, and know that the field lines flow from North to South.	I know that an electromagnet uses the principle that a current through a wire causes a magnetic field.	I can recall the formula $\text{work done} = \text{force} \times \text{distance}$, and know that the unit of work is the Joule.	I know that if the resultant force on an object is non-zero, it slows down, speeds up or changes direction.	I know that the thermal energy of an object depends upon its mass and temperature.	3-5
Secure	I can use the formula for pressure to calculate pressures in solids, liquids and gases in simple situations.	I can use the idea of field lines to show how the direction or strength of the field around a magnet varies.	I can use a diagram to explain how an electromagnet can be made and how to change its strength.	I know that machines make work easier by reducing the force needed and increasing the distance travelled.	I can recall and use the equation $\text{speed} = \text{distance}/\text{time}$ in simple situations.	I can explain how thermal energy is transferred through different pathways; by particles in conduction and convection, and by radiation.	4-6
Advanced	I can explain why objects sink or float depending upon their weight and the upthrust acting on them.	I can describe how the strength of a magnetic field varies with distance from the magnet.	I can explain the choice of electromagnets or permanent magnets for a device in terms of their properties.	I can draw a diagram to explain how a lever makes a job easier.	I understand that different observers judge speeds differently if they are in motion too.	I can explain how a method of heat insulation works in terms of conduction, convection and radiation.	6-8
Excelling	Given unfamiliar situations I can use the formula for pressure to calculate fluid pressure or stress on a surface.	I can predict the pattern of field lines and the force around two magnets placed near each other.	I can suggest how bells, circuit breakers and loudspeakers work, from diagrams.	I can compare and contrast the advantages of different levers in terms of the forces needed and distances moved.	I can suggest how the motion of two objects moving at different speeds in the same direction would appear to each other.	I can compare and contrast the three different pathways through which heat moves.	7-9