

Outcomes	Pressure	Magnetism /Electromagnets	Work	Speed	Heating and cooling	Universe
Emerging	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.	I can draw a picture of our solar system including the Sun, Moon and planets.
Developing	I can recall the formula Pressure = Force/Area, and can describe what causes atmospheric pressure.	I can draw a diagram of the magnetic field lines around a bar magnet & 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 work done = force x 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.	I can use a model of our solar system to explain day length and seasons.
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/strength of the field around a magnet varies. I can use a diagram to explain how an electromagnet can be made/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 speed=distance/time in simple situations.	I can explain how thermal energy is transferred through different pathways; by particles in conduction and convection, and by radiation.	I can use the words galaxy, light year, star, orbit and exoplanet correctly and in context.
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 & 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.	I can explain why places on Earth experience different daylight hours and amounts of sunlight during the year & explain the choice of units for measuring distance.
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 & force around two magnets placed near each other. I can suggest how bells, circuit breakers & 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.	I can predict patterns in day length, intensity of the Sun of an objects shadow at different latitudes.