By the end of …	FORCES, MAGNETS AND MOTION Progression in Key Concepts …	PoS suggested year
Key Stage 1	• *Experience how pushing, pulling and twisting can make objects change shape* • *Recognise that pushes and pulls can make objects move* • *Recognise that pushes and pulls can make objects speed up, slow down, change direction or stop* • *Notice that objects fall downwards* • *Recognise that pushes and pulls are forces.*	**Year 1 or 2**
Key Stage 2	• Compare how things move on different surfaces • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing.	**Year 3**
	• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Identify the effects of air resistance, water resistance and friction, that act between moving surfaces • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	**Year 5**
Key Stage 3	**Forces** • *Describe* forces as pushes or pulls, arising from the interaction between two objects • *Use* force arrows in diagrams, adding forces in one dimension, *identifying* balanced and unbalanced forces • *Recognise a* moment as the turning effect of a force • *Recognise* forces: associated with deforming objects; stretching and squashing – springs; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water • *Recognise that* forces are measured in Newtons • *Investigate changes to* measurements of stretch or compression as force is changed • *Explain the* force-extension linear relation; *with* Hooke's Law as a special case • *Recognise* work done and energy changes on deformation	**Year 7, 8 or 9**

	• *Identify* non-contact forces: gravity forces acting at a distance on Earth and in space, forces between magnets and forces due to static electricity. **Balanced forces** • *Recognise* opposing forces and equilibrium: weight held by stretched spring or supported on a compressed surface.	
	Forces and motion • *Recognise that* forces *are* needed to cause objects to stop or start moving, or to change their speed or direction of motion (qualitative only) • *Recognise that* change *of motion depends* on direction of force and its size. **Describing motion** • *Recall the meaning of* speed and *recognise* the quantitative relationship between average speed, distance and time (speed = distance ÷ time) • *Represent* a journey on a distance-time graph • *Describe* relative motion: trains and cars passing one another.	
	Magnetism • *Describe* magnetic poles, attraction and repulsion • *Investigate* magnetic fields by plotting with compass, representation by field lines • *Recognise the* Earth's magnetism, *explain how* the compass *works* and *its use in* navigation • *Investigate* the magnetic effect of a current, electromagnets, D.C. motors (principles only).	
	Pressure in fluids • *Recognise that* atmospheric pressure decreases with increase of height as weight of air above decreases with height • *Describe changes to* pressure in liquids, increasing with depth; *Explain* upthrust effects, floating and sinking • *Describe* pressure measured by ratio of force over area – acting normal to any surface.	