






Science Medium Term Plan

	Year Group:	Term:	Topic/Unit :		
	5	Autumn	Forces		
National Curriculum Programme of Study	<ul style="list-style-type: none"> • 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. 				
Prior Learning	<ul style="list-style-type: none"> • Compare how things move on different surfaces. (Y3 - Forces and magnets) • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets) • Observe how magnets attract or repel each other and attract some materials and not others. (Y3 - Forces and magnets) • 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. (Y3 - Forces and magnets) • Describe magnets as having two poles. (Y3 - Forces and magnets) • Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 - Forces and magnets) 				
Future Learning	<ul style="list-style-type: none"> • Forces as pushes or pulls, arising from the interaction between two objects. (KS3) • Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces. (KS3) • Moment as the turning effect of a force. (KS3) • 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. (KS3) • Forces measured in Newtons, measurements of stretch or compression as force is changed. (KS3) 				
Links to other subjects	Science – Earth and Space DT – Bridges				
Enrichment	Egg parachutes				
Working Scientifically	Comparative tests	Identify and classify	Observation over time	Pattern seeking	Research
	 How does the surface area of an object affect the time it takes to sink?	 Can you label and name all the forces acting on the objects in each of these situations?	 How long does a pendulum swing for before it stops?	 How does surface area of parachute affect the time it takes to fall?	 How do submarines sink if they are full of air?
Working Scientifically Assessment Focus	Evaluate: aquadynamics Working Scientifically Review: Explain the degree of trust in the results Assessment Focus <ul style="list-style-type: none"> • Can children identify variables which may affect the results? • Can children evaluate how effectively variables were controlled? 				

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Sticky vocabulary	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears Working scientifically vocabulary: relationship, variables, accuracy, precision, scatter graphs
End points	<ul style="list-style-type: none">• A force causes an object to start moving, stop moving, speed up, slow down or change direction.• Gravity is a force that acts at a distance.• Everything is pulled to the Earth by gravity.• This causes unsupported objects to fall.• Air resistance, water resistance and friction are contact forces that act between moving surfaces.• The object may be moving through the air or water, or the air and water may be moving over a stationary object.• A mechanism is a device that allows a small force to be increased to a larger force.• The pay back is that it requires a greater movement.• The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover.• Pulleys, levers and gears are all mechanisms, also known as simple machines.