

Forces substantive knowledge end points

	Scientists	National curriculum	Key knowledge (Sticky knowledge)	Vocab	Jobs
EYFS How can we move objects?	The Wright Brothers (Aeroplanes) American males	Understanding the world Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps	Know the names of vehicles that can move due to forces (cars, trains, aeroplanes, bicycles)	Push Pull	Factory worker Pilot Train driver Sailor
Year 1					
Year 2 How can we change how things move?	Henry Ford (Cars) American male	No specific objectives	Pushing and pulling can make things move faster or slower. Pushing and pulling can make things move or stop. Things can move in different ways. Larger masses take bigger pushes and pulls to move or stop them. Pushing and pulling can change the shape of things. Bigger pushes and pulls have bigger effects	Push Pull Force	
Year 3 How can we move magnets?	Mary Somerville (Magnetism investigations) British female	Compare how things move on different surfaces. <ul style="list-style-type: none"> • Know how a simple pulley works and use making lifting an object simpler • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • Observe how magnets attract and repel each other and attract some materials and not others. 	Magnets exert attractive and repulsive forces on each other. Magnets exert non-contact forces, which work through some materials. Magnets exert attractive forces on some materials. Magnet forces are affected by magnet strength, object mass, distance from object and object material.	Friction Surface Magnetic field Attract Repel	

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		<p>Compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials.</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets with attract or repel each other, depending on which poles are facing.</p>			
Year 4					
Year 5	<p>Issac Newton (Mathematician)</p> <p>British male</p>	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives.</p> <p>Identify the effects of air resistance, water resistance and friction, which act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys, and gears, allow a smaller force to have a greater effect.</p>	<p>Air resistance and water resistance are forces against motion caused by objects having to move air and water out of their way.</p> <p>Friction is a force against motion caused by two surfaces rubbing against each other.</p> <p>Some objects require large forces to make them move; gears, pulley and levers can reduce the force needed to make things move</p>	<p>Air/water resistance</p> <p>Friction</p> <p>Gravity</p> <p>Gears</p> <p>Pulley</p> <p>Leaver</p>	
Year 6					