

St Mark's CE Primary School
Science Curriculum Map: Forces



Year	National Curriculum	Sticky Knowledge	Vocab
R	Year B Spring <ul style="list-style-type: none"> Introducing simple forces such as push and pull Investigating magnetism 		
3	How do forces help us lift, push and pull objects? (Spring 1)		
	<ul style="list-style-type: none"> Compare how things move on different surfaces Notice that some forces need contacts between tow objects, but magnetic forces can act at a distance 	<ul style="list-style-type: none"> In order to move or stop, objects have forces acting upon them. These include contact forces such as pushes and pulls. Friction is a force between two surfaces as they move over each other. Friction slows down a moving object. Smooth surfaces usually generate less friction than rough surfaces. Some surfaces are more suited to different jobs depending on the requirements of the job and the forces involved. Not all forces require contact. Magnetic forces can still be observed at a distance. 	Push Pull Force Contact Surface Movement Friction Suitable Unsuitable Distance Magnet Magnetic
3	How do magnets attract and repel different materials? (Spring 2)		
	<ul style="list-style-type: none"> 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 way the poles are facing. 	<ul style="list-style-type: none"> Some materials have magnetic properties. Magnetic materials are attracted to (pull towards) magnets. All magnetic materials are metals but not all metals are magnetic. Iron is a magnetic metal. Other materials are non-magnetic, such as wood, dough and glass. Magnets have two poles (north and south). Opposite poles (north and south) attract each other, while like poles (north and north, or south and south) repel each other. 	Magnet Pole North pole South pole Bar magnet Horseshoe magnet Ring magnet Magnetic Non-magnetic Magnetism Repel Attract Force Distance Strength
5	How do forces make things move or stay still? (Spring)		
	<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. 	<ul style="list-style-type: none"> Gravity is a force of attraction. Anything with a mass can exert a gravitational pull on another object. The Earth's large mass exerts a gravitational pull on all objects on Earth, making dropped objects fall to the ground. Friction, air resistance and water resistance are forces that oppose motion and slow down moving objects. These forces can be useful, such as bike brakes and parachutes, but sometimes we need to minimise their effects, such as streamlining boats and planes to move through water or air more easily. Mechanisms, such as levers, pulleys and gears, give us a mechanical advantage. A mechanical advantage is a measurement of how much a simple machine multiplies the force that we put in. The bigger the mechanical advantage, the less force we need to apply. 	Earth Gravity Isaac Newton Friction Surface Push Pull Air resistance Parachute Surface area Water Resistance Float Sink Upthrust Buoyancy Lever Pulley Load Effort Pivot Gear Cog Axle