

 PARK LANE PRIMARY SCHOOL	YEAR 3 FORCES & MAGNETS			SCIENCE
PRIOR KNOWLEDGE Builds on previous EYFS/KS1 objectives: • What happens when you push or pull something • Sinking and floating • Talk about what they see, using a wide vocabulary. • Explore how things work. • Explore and talk about the different forces they can feel.		COMMON MISCONCEPTIONS • A force is always visible: Children may believe that forces are only present when they can see physical contact or movement. They might not understand that forces can act even when objects are not visibly interacting, such as the force of gravity, friction or magnetic forces. • All forces cause motion: Children may think that forces always result in motion. They will start to understand that forces can also cause changes in the shape of objects, such as compressing or stretching them, without necessarily causing movement. Discussing the force of gravity will also demonstrate to children that forces do not always cause motion.		
Lesson Intention	National Curriculum Reference	Scientific Enquiry	Rocket Words	Resources
Explore contact and noncontact forces	Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Answering Questions through Collecting, Analysing & Presenting Data (Problem-Solving) Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions, with support	force contact force non-contact forces air resistance friction	A range of PE and playground equipment
Compare how things move on different surfaces	Compare how things move on different surfaces	Observing Over Time & Answering Questions through Collecting, Analysing & Presenting Data (Problem-Solving) Make systematic and careful observations, beginning to take accurate measurements with a range of equipment including thermometers and data loggers, with support	motion surface resistance texture tilt	A toy boat (or wooden block), thick books, a stopwatch, a cardboard/wooden ramp, a selection of materials e.g. bubble wrap, clingfilm, paper, felt and sandpaper (NB: any object can be timed moving down the ramp, but for a measurable effect, pick an object that slides - not rolls. Avoid toys with wheels or balls.)
Explore different types of magnets	Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing	Comparative & Fair Testing • Setting up simple practical enquiries, comparative and fair tests • Begin to recognise when a fair test is necessary and help to decide how to set it up, with support	➤ William Gilbert magnet attract repel bar magnet horseshoe magnet	Bar magnets and horseshoe magnets

Explore the properties of magnets and everyday objects that are magnetic	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	Answering Questions through Collecting, Analysing & Presenting Data (Problem-Solving) Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables, with support	magnetism magnetic magnetic field iron steel	A range of magnets and everyday classroom objects
Understand that magnetic forces can act at a distance	Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	Observing Over Time & Answering Questions through Collecting, Analysing & Presenting Data (Problem-Solving) Make systematic and careful observations, beginning to take accurate measurements with a range of equipment with support	non-contact forces magnetism attract non-magnetic materials recycle	5 different types of magnet, paperclips, something to hold the magnet, a thin thread, tape and a ruler or tape measure
Explore the everyday uses of magnets	Describe magnets as having two poles	Observing Over Time & Answering Questions through Collecting, Analysing & Presenting Data (Problem-Solving) Make systematic and careful observations, beginning to take accurate measurements with a range of equipment with support	➤ Shen Kuo (First compass?) compass magnetic needle magnetic north direction orienteering	Compasses, clipboards and writing tools