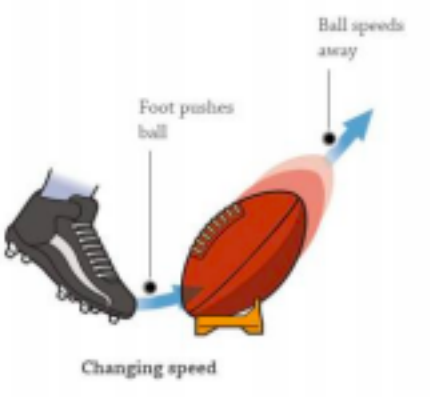
Y3 Knowledge Organiser Science – Topic: Forces and Magnets (Autumn term)

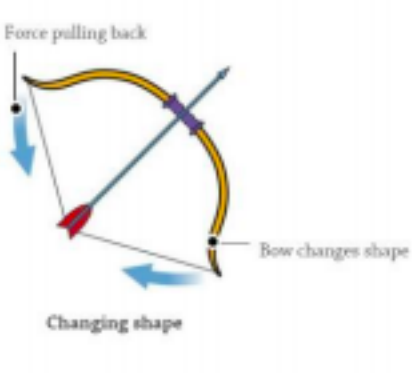
Objectives/outcomes:	Working Scientifically objectives:	Key vocabulary
• I can identify forces as pushes and pulls • I can identify the type of force required to carry out an action • I can describe friction as a force that slows objects down • I can investigate the force of friction produced by different surfaces • I can explain that magnets produce an invisible pulling force • I can identify magnetic materials • I can identify different types of magnet • I can sort materials according to whether they are magnetic or not • I can participate in an investigation that tests magnet strength • I can identify the different poles of a bar magnet • I can identify when magnets will repel or attract • I can use a magnetic compass with four points • I can form a conclusion based on my results from investigations	• Asking relevant questions • Setting up enquiries and choosing equipment • Setting up fair tests (with help) • Carefully observing and measuring • Recognising when to use other sources of information to find answers • Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts • Looking for patterns – identifying and classifying • Explaining results – drawing conclusions and using results	• **Forces** – pushes or pulls that speed up or slow down movement, change an objects shape or direction (see example below) • **Friction** – A force that act acts between two surfaces or objects that are moving, or trying to move, across each other • **Surface** – The top layer of something • **Magnet** – An object which produces a magnetic force that pulls certain objects towards it • **Magnetic** – Objects which are attracted to a magnet are magnetic. Objects containing iron, nickel or cobalt metals are magnetic • **Magnetic field** – The area around a magnet where there is a magnetic force which will pull magnetic objects towards the object • **Poles** – North and South poles are found at different ends of a magnet • **Repel** – Repulsion is a force that pushes objects away eg if a north pole is placed near the north pole of

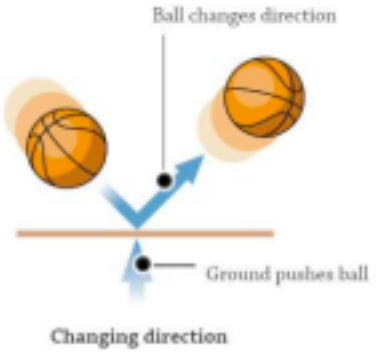
		another magnet, the two pole repel (push away from each other) • **Attract** – Attraction is a force that pulls objects together eg when a north pole is placed near the south pole of another magnet, the two poles attract (pull together)
Investigations: • Scrap yard challenge – sorting non-magnetic and magnetic materials • Exploring pushes and pulls through (safe) role play • Testing different surfaces for friction using toy cars • Creating a magnetic game	Resources • Powerpoints • Magnets • Variety of fabrics to use as surfaces to test friction • Variety of objects to test for magnetism	Curriculum Links: • **Maths** – recording and reading data from graphs and tables, measuring, estimating, predicting • **D&T** – Creating a magnetic game

Key examples

Forces in action:





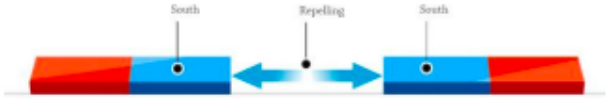


Friction – it is easier to push or pull something on a smooth surface compared to a bumpy surface:

Magnets:

Opposite poles attract eg a north pole is attracted to a south pole:

Same poles repel (push away from each other)



Types of magnets: