Progression: Forces

Reception:

- Talks about why things happen and how things work.
- ***Practical exploration and discussion of basic understanding of forces, including some play and experience based vocabulary e.g. push, pull, move, speed, stop***

Year 3:

- compare how things move on different surfaces
- **notice that some forces need contact between 2 objects, but magnetic forces can act at a distance**
- **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 2 poles
  predict whether 2 magnets will attract or repel each other, depending on which poles are facing

Working Scientifically

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings

Link to Teacher Assessment Framework

The pupil can describe the effects of simple forces that involve contact (air and water resistance, friction), and others that act at a distance (magnetic forces, including those between like and unlike magnetic poles; and gravity).

Recap -

Vocabulary: Magnetic, Force, Contact, Attract, Repel, Friction, Poles, Push, Pull

Working scientifically vocabulary: questions, scientific enquiry, comparative and fair test, observation, accurate measurements, equipment – magnets, data (gather, record), record (drawings, labelled diagrams, keys, bar charts, tables), oral and written explanation, conclusion, prediction, differenecs, similarities, changes, evidence, construct, interpret.

Year 5:

- 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**

Working Scientifically

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Link to Teacher Assessment Framework

The pupil can describe the effects of simple forces that involve contact (air and water resistance, friction), and others that act at a distance (magnetic forces, including those between like and unlike magnetic poles; and gravity).
The pupil can identify simple mechanisms, including levers, gears and pulleys that increase the effect of a force.

Recap –

- Compare how things move on different surfaces
- Explore magnets – attract/repel - including materials and poles

Vocabulary: Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys
Working scientifically vocabulary: plan, variables, measurements, accuracy, record data (scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs), predictions, further comparative and fair tests, report and present (conclusions, casual relationships, explanations, degree of trust, oral and written display and presentation), evidence, systematic, identify classify and describe