Porters Grange Primary School

# Science Learning Sequence

## Forces

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| Nursery/ Reception | • Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. |
| Year 1 | |
| Year 2 | • *Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)* |
| Year 3 | • Compare how things move on different surfaces<br>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance<br>• Observe how magnets attract or repel each other and attract some materials and not others<br>• 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<br>• Describe magnets as having two poles<br>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.<br>• Vocabulary: Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole |
| Year 4 | |
| Year 5 | • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object<br>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces<br>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.<br>• Vocabulary: Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears |
| Year 6 | |
| Key Stage 3 | • Magnetic fields by plotting with compass, representation by field lines.<br>• Earth's magnetism, compass and navigation.<br>• Forces as pushes or pulls, arising from the interaction between two objects.<br>• Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces.<br>• Moment as the turning effect of a force.<br>• Forces: associated with deforming objects; stretching and squashing – springs; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water.<br>• Forces measured in Newtons, measurements of stretch or compression as force is changed. |

NC Statements

Vocabulary

Science Milestones

*Linked Objectives*