



## Science Skills Progression

### To understand movement, forces and magnets

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| <b>Essential characteristics of scientists</b> | <ul style="list-style-type: none"> <li>•The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.</li> <li>•Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.</li> <li>•Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.</li> <li>•High levels of originality, imagination or innovation in the application of skills.</li> <li>•The ability to undertake practical work in a variety of contexts, including fieldwork.</li> <li>•A passion for science and its application in past, present and future technologies.</li> </ul> |   |
|  | <b>Key Knowledge</b>   | <b>Key Vocabulary</b>   |
| <b>EYFS<br/>30-50</b>                          | Talks about why things happen and how things work.   |   |
| <b>EYFS<br/>ELG</b>                            | Children know about similarities and differences in relation to places, objects, materials and living things.  |   |
| <b>EYFS<br/>ELG+</b>                           | They are familiar with basic scientific concepts such as floating, sinking, experimentation.   |   |
| <b>Y3/4</b>                                    | <p><b>Y3 learning challenge - Are you attractive enough?</b><br/><b>Science Bug - Y3 Magnets and forces</b></p> <ul style="list-style-type: none"> <li>• Compare how things move on different surfaces.</li> <li>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others.</li> <li>• 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.</li> <li>• Describe magnets as having two poles.</li> <li>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>   | <ul style="list-style-type: none"> <li>• squeezed</li> <li>• contact</li> <li>• magnetic</li> <li>• attract</li> <li>• repel</li> </ul> |
| <b>Y5/6</b>                                    | <p><b>Y6 learning challenge - Can you feel the force?</b><br/><b>Science Bug - Y5 Forces</b></p> <ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> </ul>  | <ul style="list-style-type: none"> <li>• steamlined</li> <li>• surface</li> <li>• grip</li> <li>• drag</li> <li>• motion</li> </ul>     |



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|    | <ul style="list-style-type: none"><li>• Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. Describe, in terms of drag forces, why moving objects that are not driven tend to slow down.</li><li>• Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.</li><li>• Understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect.</li></ul>  | <ul style="list-style-type: none"><li>• centre</li><li>• resistance</li><li>• friction</li><li>• gravity</li></ul> |
| Y7 | <ul style="list-style-type: none"><li>• Magnetic fields by plotting with compass, representation by field lines.</li><li>• Earth's magnetism, compass and navigation.</li><li>• Forces as pushes or pulls, arising from the interaction between two objects.</li><li>• Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces.</li><li>• Moment as the turning effect of a force.</li><li>• 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.</li><li>• Forces measured in Newtons, measurements of stretch or compression as force is changed.</li></ul> |  |