

Progression of skills, knowledge and understanding: Forces

- National curriculum level statements
 - Additional statements from QCA (2003)

| Level | Characteristic of level |
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| 1 | <ul style="list-style-type: none"> • Communicate observations of changes in movement that result from actions (e.g. pushing and pulling objects) <ul style="list-style-type: none"> ➤ Demonstrate push and pull actions they can carry out. ➤ Know that there is a limit to their ability to move objects |
| 2 | <ul style="list-style-type: none"> • Compare the movement of different objects in terms of speed or direction <ul style="list-style-type: none"> ➤ Describe pushes or pulls as big or small ➤ Know how to achieve different directions and speeds of movement of objects. ➤ Recognise actions such as throw, kick, blow and tug as kinds of push or pull. |
| 3 | <ul style="list-style-type: none"> • Link cause and effect in simple explanations (e.g. the direction or speed of movement of an object changing because of push or pull. <ul style="list-style-type: none"> ➤ Sequence pushes and pulls in order of magnitude ➤ Appreciate that machines, wind, waves, etc can exert pushes and pulls. ➤ Use the term 'force' to describe pushes and pulls. ➤ Know that pushes and pulls can be used to bring objects to a stop more quickly. |
| 4 | <ul style="list-style-type: none"> • Make generalisations about physical phenomena (e.g. motion is affected by forces, including gravitational attraction, magnetic attraction and friction). <ul style="list-style-type: none"> ➤ Recognise that changes in movement can be brought about only by the action of a force ➤ Know 'gravity' as the 'pull' of the Earth on objects. ➤ Know that the force of the Earth on objects is called 'weight'. |

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| | <ul style="list-style-type: none"> ➤ Explain friction as the general term for the force opposing movement between objects in contact. ➤ Know how to measure the size of a force with a forcemeter and that the unit of force is the Newton. ➤ Appreciate that more than one force can act on an object simultaneously. |
| 5 | <ul style="list-style-type: none"> • Use some abstract ideas in descriptions of familiar phenomena. <ul style="list-style-type: none"> ➤ Explain how when several forces act on an object, they can either reinforce or oppose each other. ➤ Estimate the size of the force in newtons. ➤ Use the term 'balanced' and 'unbalanced' in describing several forces on an object. ➤ Explain that, when the forces on an object are unbalanced, it will either speed up or slow down or change shape. ➤ Recognise that gravity is the force of attraction between an object and the Earth or the Moon ➤ Understand that air resistance is the frictional force of air on objects moving through it. ➤ Draw force diagrams with arrows showing the direction of forces acting on an object. |