

Forces

| Sub- ject Area | National Curriculum Programme of Study | The knowledge I will gain from my pro- ject... | Mini Outcomes |
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| FORCES | explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object | L.O: To review my knowledge of different types of force | Carousel of different activities designed to activate prior knowledge regarding forces. <ul style="list-style-type: none"> • Floating ball • Making a paper spinner • Magnetic attraction and repulsion • Sending cars down ramps • Bouncing a ball Series of diagrams to represent the forces experienced in the activities |
| | identify the effects of air resistance, water resistance and friction, that act between moving surfaces | | <ul style="list-style-type: none"> • Fact sheet about Issac Newton and his theories • Investigation regarding the weight and mass of a variety of objects • Explanation of the differences between weight (N) and mass (kg) |
| | explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object | L.O: To explore the effect that gravity has on objects and how the first theory of gravity was developed | <ul style="list-style-type: none"> • Children to make parachutes and record the variables that may affect the speed of drop. |
| | identify the effects of air resistance, water resistance and friction, that act between moving surfaces | L.O: To identify the variables that affect the air resistance acting on an object. | <ul style="list-style-type: none"> • An investigation regarding the speed in which a parachute falls to the ground. Children to identify, control and measure the control variables, the dependent variable and the independent variable. |
| | identify the effects of air resistance, water resistance and friction, that act between moving surfaces | L.O: To investigate the effects of air resistance. | <ul style="list-style-type: none"> • An investigation regarding the speed in which an object sinks. Children to identify, control and measure the control variables, the dependent variable and the independent variable. |
| | identify the effects of air resistance, water resistance and friction, that act between moving surfaces | L.O: To explore the effects of water resistance. | <ul style="list-style-type: none"> • An investigation regarding the distance a toy car travels on a variety of surfaces. Children to identify, control and measure the control variables, the dependent variable and the independent variable. |
| | identify the effects of air resistance, water resistance and friction, that act between moving surfaces | L.O: To investigate the effects of friction. | <ul style="list-style-type: none"> • Build and test LEGO models making predictions and observations. • Examine gears and pulleys in common objects and discuss their use. • Develop an understanding of the concepts of turning force (torque), speed and direction. • Discuss their findings and make a conclusion based on their observations and predictions. |
| | recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. | L.O: To investigate the uses of pulleys and gears to transfer forces | |

| Subject Area | The scientific skills I will gain from my project... | .IX |
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| Working Scientifically | <ul style="list-style-type: none"> • Plan different types of scientific enquiry to answer questions. • Decide which variables to control | |
| | <ul style="list-style-type: none"> • Make accurate and precise measurements. • Decide what to observe, how long to observe for and whether to repeat them. • Take accurate and precise measurements using standard units N, g, kg, mm, cm, mins, seconds, cm²V, km/h, m per sec, m/ sec. • Select equipment on my own and can explain how to use it accurately • Record data and results of increasing complexity • Choose how best to present data. • Communicate findings using detailed scientific language. | |
| | <ul style="list-style-type: none"> • Draw scientific, causal conclusions using the results of an enquiry to justify my ideas.. • Distinguish opinion and facts. • Use my findings to make predictions and set up further enquiries | |
| | <ul style="list-style-type: none"> • Explain my conclusion using scientific knowledge and understanding. • Begin to use abstract models to explain my ideas. • Explain my ideas with scientific reasons. • Use scientific conventions eg trends, rogue result, support prediction. | |