Forces	Science	Years 5 & 6, Term 1	Year A

Key vocabulary: Force, push, pull, balanced, unbalanced, opposing, gravity, air resistance, water resistance, friction, buoyancy, gravity, Isaac Newton, newton, newton metre, weight, mass, Galileo Galilei, mass, parachute, streamline, brake, Mechanism, lever, gear, cog, pulley, machine

Knowledge and skills:

Plan different types of scientific enquires to answer questions, including recognising and controlling variables where necessary. (C1)

Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. (C2)

Record data and results of increasing complexity, using scientific diagrams and labels, tables and bar and line graphs. (C3)

Use test results to make predictions to set up further comparative and fair tests. (C4)

Report and present findings from enquiries, including conclusions, causal relationships and explanation of and degree of trust in results, in oral and written forms, such as displays and other presentations. (C5)

Identify scientific evidence that has been used to support or refute ideas or arguments. (C6)

Find things out using a wide range of secondary sources of information. (C7)

Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources. (C8)

Explain that unsupported objects fall towards Earth because of the force of gravity acting between Earth and the falling object. (C19)

Identify the effects or air resistance, water resistance and friction, that act between moving surfaces. (C20)

Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (C21)

How forces affect the movement of an object

The discoveries of Isaac Newton.

Newton meters are used to measure force.

Weight and mass are different and can be measured.

Streamlining changes an object's shape.

Friction is used in brake pads.

Possible Activities:

Measure the weight and mass of different objects using a newton meter.

Create boats to investigate water resistance.

Create parachutes to investigate air resistance.

Design a crazy machine that uses lots of mechanisms to achieve a simple aim.

Identifying forces as pushes or pulls.

Recognising that there are different variables in an investigation.

Measuring an object's weight and mass.

Designing a mechanism to achieve a given purpose.

Use tests results to make predictions to set up further comparative and fair tests.

Describe and evaluate their own and other people's scientific ideas related to the topics in the national curriculum using evidence from a range of sources.

Use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate their findings.

Discuss Newtons discovery of gravity.

Use ramp of different surfaces to investigate friction.

Spiritual, Moral, Social and Cultural Education, and Promotion of British Values

Spiritual: Children will consider that science does not answer every question we may wish to ask.

Moral: Science raises questions about which people can have different opinions.

Social: Science is a respected career which is open to all.

Cultural: Scientists are well respected in British culture, particularly after the pandemic highlighted their importance in our lives.

British Values and Equalities: Consider how forces can be both positive and negative (eg friction is a problem for wheelchairs).