

Term: Autumn 1 Key Stage 2

Learning Challenge Question:

Can you feel the force?

WOW – Investigating forces in our local park.

Week 1: What makes objects move?

WOW - trip to the park thinking about pushes and pulls. Recognising pushes and pulls in different sports. Take photos to label the direction of different forces.

Group different forces acting on a moving body – friction/ gravity/ air resistance/ water resistance / upthrust.

Week 2: Why does a ball fall to the ground?

Learn about Isaac Newton. Identify gravity as a force acting on a body; identify the direction gravity moves in. Investigate whether the size of the ball changes how quickly it falls.

Week 3: How much force is needed?

Identify magnetism as a force acting on a body; classify objects into magnetic and non-magnetic groups; design an experiment to find out whether the bigger the magnet, the greater the magnetic force – what is needed for a fair test? Tabulate results.

Week 4: How much force is needed?

Identify friction as a force acting on a body; classify surfaces according to friction properties; design an experiment to find out whether the rougher the surface, the greater the force– how can we measure the force? what is needed for a fair test? Introduce vocabulary, eg variable. Draw graph of results.

Week 5: What can a lever do?

Design and make a moving lever card (1 or 2 levers) to show a park ride working. Evaluate how well design works.

Week 6: Can you code?

Lego WeDo. Create a robot to pull different objects. What is the heaviest object your robot can pull? Is there a way you can test how well it pulls different objects? Can we use our knowledge of fair testing to help investigate? GDS – design a push Robot?

Week 7: Reflection week

Create a double page spread of what you have learned.

ENGLISH

Class Text: The Boy who Harnessed the Wind by William Kamkwanda

Week 1 - 3 To inform – Forces (Non Chronological Report)

Week 4 – 6 To inform – How to make a moving card (Instruction)

Week 7 To persuade – advert for food product

Science

Scientific Enquiry focus: IC PS FT R

Knowledge

Children will:

- notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- 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
- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- compare how things move on different surfaces
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Skills

Children will be:

- planning a fair test.
- making predictions.
- taking measurements.
- recording results of increasing complexity using tables and bar line graphs.
- presenting findings including conclusions and explanations.

Computing

Knowledge and Skills

Children will:

- design, write and debug programs that accomplish specific goals
- use sequence, selection, and repetition in programs
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Design Technology

Knowledge and Skills

Children will:

- generate, develop and communicate their ideas through annotated sketches.
- understand and use mechanical systems in their products [ie levers].
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

RE FOCUS – What do different people believe about God?

Homework:

Detail how different materials are used in items in their household.