Year 3

Forces and Magnets

Statutory Requirements:

- Compare how things move on different surfaces
- 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
- 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
- Describe magnets as having two poles
- Predict whether two magnets will attract or repel each other, depending on which poles are facing

Working Scientifically:

- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Key Scientists:

Hans Christian Oersted (1777 – 1851)
Danish physicist and chemist who discovered that electric currents create magnetic fields.

William Gilbert (1544 – 1603)
English scientist, known as the father of electricity and magnetism.

Key Vocabulary:

- Magnets – bar and horseshoe
- Attract, repel
- North and south poles
- Magnetic
- Magnetic field
- Electromagnetic force
- Metals – nickel, cobalt, iron, steel

Key Knowledge:

Poles:

Magnets have two poles, a north and a south pole. The pole is where the pull of the magnet is strongest. When opposite poles are near to each other they will attract, whereas when the same poles are near to each other they will repel.

Magnetic and Non-Magnetic Materials:

Non-metallic materials are not magnetic. However, not all metals are attracted to magnets; only those containing iron, steel and nickel or cobalt. Magnets can repel or attract, but magnetic materials cannot.