Welton Primary School

Year 3 Progression & Coverage Science

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TERM	1	2	3 (1)	4	5	6
Topic Title **(Threshold Concept)** **NC Reference**	**Forces & Magnets** **(Forces and Magnets)** 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.		**Animals Including Humans** **(Animals and Humans)** Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	**Rocks** **(Substances and Properties)** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter	**Plants** **(Plant Life)** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	**Light** **(Light and Seeing)** Recognise that they need light in order to see things, and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change
Prior knowledge	The shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (y2)		Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2)	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (y2)	Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy (y2)	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Describe the simple physical properties of a variety of everyday materials, transparent and opaque.

Sticky knowledge	A force is a **push or a pull.** When an object moves on a surface, the texture of the surface and the object affect how it moves. Forces act in **opposite directions** to each other. When an object moves across a surface, **friction** acts as an **opposite force**. A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are **magnetic.** The strongest parts of a magnet are the **poles.** Magnets have two poles – a **north pole and a south pole**. If two like poles, e.g. two north poles, are brought together they will push away from each other – **repel.** If two unlike poles, e.g. a north and south, are brought together they will pull together – **attract.** The distance around a magnet which attracts magnetic materials is called its **magnetic field.**	Animals, unlike plants which can make their own food, need to eat in order to get the **nutrients** they need. Food contains a range of different nutrients – **carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water - and fibre** that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Humans, and some other animals, have **skeletons and muscles** which help them move and provide protection and support. There are 5 types of **vertebrate** (animals with backbone: **mammals ,fish, reptiles, amphibians, bird**s)	There are three types of rocks that are formed naturally. **Igneous: Sedimentary and Metamorphic**: Some rocks can absorb water. Some rocks contain fossils. **Fossils** were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. **Soils** are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter).	Many plants, but not all, have **roots, stems/trunks,** leaves and **flowers/blossom.** The roots absorb water and **nutrients** from the soil and **anchor** the plant in place. The stem transports water and **nutrients/minerals** around the plant and holds the leaves and flowers up in the air to enhance **photosynthesis, pollination and seed dispersal.** The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to **reproduce.** Pollen is transferred to the **female** part of other flowers **(pollination)**. This forms seeds, sometimes contained in **berries or fruits** which are then dispersed in different ways.	We see objects because our eyes can sense **light. Dark** is the **absence of light**. We cannot see anything in complete darkness. Some objects are sources of light. Objects are easier to see if there is more light. Some surfaces **reflect** light. Objects are easier to see when there is less light if they are **reflective.** The light from the sun can damage our eyes and therefore we should not look directly at the sun. **Shadows** are formed on a surface when an **opaque** or **translucent** object is between a **light source** and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface. Define: **transparent, translucent and opaque**
Working scientifically (These are suggested WS areas that complement unit - also refer to and highlight WS milestones as cover and ensure all covered over year/phase)	**Identify, classify and group** Identify magnetic and non-magnetic materials **Pattern Seeking** Explore the way that magnets behave in relation to each other. **Comparative and fair testing** Carry out investigations to explore how objects move on different surfaces e.g., rolling balls/cars. Devise an investigation to test the size of a magnetic field.	**Identify, classify and group** Compare, contrast and classify skeletons of different animals. Classify food according to food group and nutrients. Identify the impact of a lack of nutrients on human health Identify which bones are used for support, protection and movement. Identify how muscles expand and contract for movement.	**Identify, classify and group** Classify rocks according to simple physical properties , create a key Identify types of fossils **Observing change over time** Observe and describe the effects of weathering on different rocks **Comparative and fair testing** Devise a test to find out if all rocks are waterproof	**Identify, classify and group** Identify common features of flowers, name and label them Identify pollen in flowers observe pollination by insects in flowers in school grounds **Observing change over time** Observe the effect of putting cut white carnations or celery in coloured water. **Comparative and fair testing** Investigate how removal of leaves/ light/ soil/ roots affects a growing plant. Devise a fair test. **Secondary sources**	**Identify, classify and group** Classify materials according to how reflective they are **Pattern Seeking** Explore how shadows vary as the distance between a light source and an object or surface is changed. Explore shadows in the playground at different times of day- explain why they are different **Comparative and fair testing** Investigate best materials to make shadow puppets **Secondary sources**

			Investigate and test different kinds of soils to see how quickly water drains through	Research different types of seed dispersal	Research how sunglasses filter UV light from the sun
End of unit task	**Investigate movement, forces and magnets** Is a bigger magnet stronger? Investigate and conclude.	**Animals and humans** Identify and describe the main nutritional benefits of carbohydrates, fibres, fats, proteins Explain the impact of diet on human health and some of the effects of a poor diet and malnutrition	**Investigate fossils** Explain how a given fossil was formed -storyboard and explain the journey	**Investigate important changes in our environment** Research why bees are important and what we need to do to save them. Write an explanation of pollination and its importance.	**Understand light and seeing** Explain investigation findings about how and why the size of shadows changes.