Year 3 Science Curriculum

Topics

1. Plants
2. Animals
3. Rocks
4. Light
5. Forces and Magnets

Key
Observing over time
Identifying and classifying
Pattern seeking
Research from a secondary source
Fair testing

Cross curricular

Websites

Explorify – www.explorify.wellcome.ac.uk

TigTag – www.tigtagworld.co.uk

Y3 Plants

1. identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
2. 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
3. investigate the way in which water is transported within plants
4. explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

	Assessment guidance	Key learning	Possible 'I can' statements
SECURE	Shows understanding of a concept using scientific vocabulary correctly	• 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, which is produced by the male part of the flower, 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. Different plants require different conditions for germination and growth	I can explain the function of the parts of a flowering plant I can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination I can give different methods of pollination and seed dispersal, including examples **Key vocabulary** Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal
	Applying knowledge in familiar related contexts, including a range of enquiries	• Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space • Spot flowers, seeds, berries and fruits outside throughout the year • Observe flowers carefully to identify the pollen • Observe flowers being visited by pollinators e.g. bees and butterflies in the summer • Observe seeds being blown from the trees e.g. sycamore seeds	I can observe what happens to plants over time when the leaves or roots are removed I can observe the effect of putting cut white carnations or celery in coloured water. I can draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal I can research different and unique types of plants from around the world.

		- Research different types of seed dispersal - Classify seeds in a range of ways including by how they are dispersed - Create a new species of flowering plant	I can create a non-chronological report on the Venus Fly Trap. I can create a care guide for a plant/flower.

Y3 Animals including humans

1. 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
2. identify that humans and some other animals have skeletons and muscles for support, protection and movement

	Assessment guidance	Key learning	Possible 'I can' statements
SECURE	Shows understanding of a concept using scientific vocabulary correctly	• 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 that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. 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 **Key vocabulary:** Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints	I can name the nutrients found in food I can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients I can name some bones that make up their skeleton giving examples that support, help them move or provide protection I can describe how muscles and joints help them to move
	Applying knowledge in familiar related contexts, including a range of enquiries	• Classify food in a range of ways • Use food labels to explore the nutritional content of a range of food items • Use secondary sources to find out they types of food that contain the different nutrients • Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? • Plan a daily diet contain a good balance of nutrients • Explore the nutrients contained in fast food • Investigate pattern seeking questions such as - Can people with longer legs run faster? - Can people with bigger hands catch a ball better? • Compare, contrast and classify skeletons of different animals	I can classify food into those that are high or low in particular nutrients I can research and create a healthy meal. I can use data to look for patterns when answering an enquiry question I can use secondary sources to research the parts and functions of the skeleton. I can cook a healthy meal. I can write a letter to Jamie Oliver explaining why it is important for children to eat healthy meals.

Y3 Rocks

1. compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
2. describe in simple terms how fossils are formed when things that have lived are trapped within rock
3. recognise that soils are made from rocks and organic matter

	Assessment guidance	Key learning	Possible 'I can' statements
SECURE	Shows understanding of a concept using scientific vocabulary correctly	• Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). • Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock piece and the amount of organic matter affect the property of the soil. • 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. Over time the dissolving animal and plant matter is replaced by minerals from the water. **Key vocabulary:** Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	I can name some types of rock and give physical features of each I can explain how a fossil is formed I can explain that soils are made from rocks and also contain living/dead matter
	Applying knowledge in familiar related contexts, including a range of enquiries	Observe rocks closely Classify rocks in a range of ways based on their appearance Devise a test to investigate the hardness of a range of rocks Devise a test to investigate how much water different rocks absorb Observe how rocks change over time e.g. gravestones or old building Research using secondary sources how fossils are formed Observe soils closely Classify soils in a range of ways based on their appearance Devise a test to investigate the water retention of soils Observe how soil can be separated through sedimentation	I can classify rocks in a range of different ways using appropriate vocabulary I can devise tests to explore the properties of rocks and use data to rank the rocks I can link rocks changing over time with their properties I can identify plant/animal matter and rocks in samples of soil I can create a non-chronological report on Mary Anning. I can create a guide on how and where to find fossils.

Y3 Light

1. recognise that they need light in order to see things and that dark is the absence of light

2. notice that light is reflected from surfaces
3. recognise that light from the sun can be dangerous and that there are ways to protect their eyes
4. 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

	Assessment guidance	Key learning	Possible 'I can' statements
SECURE	Shows understanding of a concept using scientific vocabulary correctly	• We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example the sun, light bulbs and candles are sources of 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 and can protect our eyes by wearing sunglasses or sunhats in bright light. • 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. **Key vocabulary:** Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	I can describe how we see objects in light and can describe dark as the absence of light. I can state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses. I can define transparent, translucent and opaque. I can describe how shadows are formed by objects blocking light.
	Applying knowledge in familiar related contexts, including a range of enquiries	• Explore how different objects are more or less visible in different levels of lighting • Explore how objects with different surfaces e.g. shiny vs matt are more or less visible • Explore how shadows vary as the distance between a light source, an object or surface is changed • Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground	I can observe how a shadow changes when a light source is moved. I can choose suitable materials to make a shadow puppet. I can create a piece of art using shadows.

Y3 Forces and magnets

1. compare how things move on different surfaces
2. notice that some forces need contact between two objects, but magnetic forces can act at a distance
3. observe how magnets attract or repel each other and attract some materials and not others
4. 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
5. describe magnets as having two poles
6. predict whether two magnets will attract or repel each other, depending on which poles are facing

	Assessment guidance	Key learning	Possible 'I can' statements
SECURE	Shows understanding of a concept using scientific vocabulary correctly	• 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. It may help the object to move better or it may hinder its movement • 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. • For some forces to act there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts. **Key vocabulary:** Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	I can give examples of forces in everyday life. I can give examples of objects moving differently on different surfaces. I can name a range of types of magnets and show how the poles attract and repel. I can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets.
	Applying knowledge in familiar related contexts, including a range of enquiries	Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. Explore what materials are attracted to a magnet Classify materials according to whether they are magnetic Explore the way that magnets behave in relation to each other Use a marked magnet to find the unmarked poles on other types of magnets Explore how magnets work at a distance e.g. through the table, in water, jumping paper clip up off the table Devise an investigation to test the strength of magnets	I can devise an investigation to test the amount of friction on an object. I can use classification evidence to identify that some metals but not all are magnetic I can identify which materials are attracted to a magnet. I can create a bar chart to show the different lengths a toy car travelled off a ramp.