Science Curriculum

Autumn Term: Biology
Animals Including Humans
Year 3

Prior Knowledge

Things that I know:	Skills I will need:
That animals have offspring that grow in to adults.	Identifying and grouping
What animals and humans basic needs are to survive.	Observing and comparing animals movement.
Why humans need exercise, a balanced diet and good hygiene to stay healthy.	Comparing and contrasting diets of different animals (including pets) by researching.

Knowledge Objectives

- Identify that animals, including humans, need the right amounts 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.

Year 3: Biology – Animals Including Humans
Key Concepts: Functions

Specific Vocabulary	
nutrition	Nutrition involves drinking enough water and eating the right amount of items from the four main food groups.
skeleton	The human skeleton is made of bone and grows as we grow. Our skull protects our brain and our ribs protect our heart and lungs.
muscles	Muscles are attached to bones by tendons and help them to move. When a muscle contracts it gets shorter and pulls on the bone it is attached to.
diet	Our bodies need a balanced diet to work properly. This involves drinking enough water and eating healthily.
joint	Joints allow the body to make movements. The body has many bones and are connected through the joints.
pelvis	The pelvis is a bony cradle-shaped structure located at the base of the spine.
cartilage	Cartilage is a connective tissue found in many areas of the body including joints between bones e.g. the elbows, knees and ankles.
rib cage	It is made up of curved bones. The rib cage is found in the chest area. It protects a person's internal organs from damage.
tendon	Muscles are attached to the bone by tendons and work in pairs to allow for smooth movement.
spine	Also known as your backbone, your spine is a strong, flexible column of ring-like bones that runs from your skull to your pelvis.

Prior Knowledge:

That animals have offspring that grow in to adults.

What animals and humans basic needs are to survive.

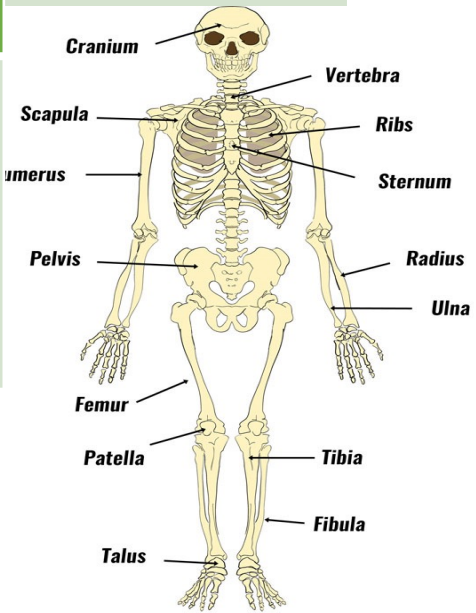
Why humans need exercise, a balanced diet and good hygiene to stay healthy.

Important Facts to know by the end of the materials topic:

- That humans cannot make their own food. They get their nutrition from what they eat.
- That humans have skeletons and muscles for support, protection and movement.
- Know that the body parts have special functions.
- Know the names of the body parts associated with skeleton and muscles.
- Compare the diets of different groups of

Different Diets to Compare

- Human – omnivore
- Lion – carnivore
- Horse- herbivore
- Gibbon- omnivore
- Cow –herbivore
- Pig- omnivore
- Owl- carnivore



Science Curriculum

Summer Term: Physics
Forces and Magnets
Year 3

Prior Knowledge

Things that I know:	Skills I will need:
Different objects are made out of different materials which causes them to move differently.	Comparing and grouping.
We can group and compare a variety of everyday materials.	Carrying out fair tests by gathering and recording data.
	Exploring the strengths of different magnets.

Knowledge Objectives

- Compare how things move on different surfaces
- Notice that some forces need contact between two objects, but magnetic forces can act as 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 toher, depending on which poles are facing.

Year 3: Physics – Forces and Magnets
Key Concept- Forces

Specific Vocabulary	
Force	An interaction that causes an affected objects to be pushed or pulled. A force can cause an object to accelerate, slow down, remain in place, or change shape.
Accelerate	Increase the speed.
Friction	Friction is the resistance of motion when one object rubs against another. Anytime 2 objects rub against each other the cause friction and energy.
Energy	The "ability to do work". Energy is how things change and move.
Resistance	The act of opposing. The ability o withstand force.
magnetic pole	Either of two areas on the earth's surface, one near the geographic north pole and one near the geographic south pole, where the Earth's magnetic fields are strongest.
attract and repel	A magnetic field is the area around the magnet where it can attract or repel things. When you bring two magnets together they will either attract or repel.

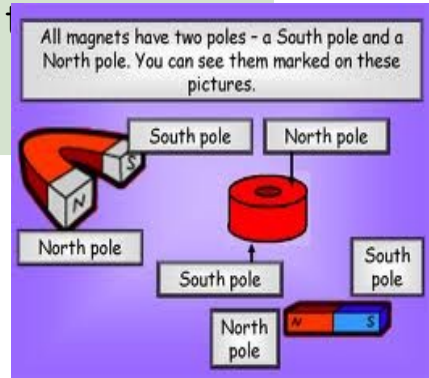
Prior Knowledge:

Different objects are made out of different materials which causes them to move differently.

We can group and compare a variety of everyday materials.

Important Facts to know by the end of the materials topic:

- Know that magnets attract some objects but not others.
- Predict whether two magnets will attract or repeal each other.
- Know that magnets have two poles.
- Know that some forces need contact between 2 objects but magnetic forces can act at a distance.
- To be able to compare how things move on different surfaces.
- Magnets only attract certain types of metals, other materials such as glass, plastic and wood aren't attracted.
- A magnet always has north and south poles. Cutting a magnet in half makes t
magnets, each with two poles.



Science Curriculum

Spring Term: Physics

Light

Year 3

Prior Knowledge

Things that I know:	Skills I will need:
That it is light in daytime and dark at night time.	Recognising patterns.
That we have different seasons throughout our year.	Using torches to see what happens to shadow when the light moves.
About the dangers of the sun and the dangers around looking directly at the sun.	

Knowledge Objectives

- 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 if blocked by a solid object.
- Find patterns in the way that the size of the shadows change.

Year 3: Physics – Light
Key Concept: Light

Specific Vocabulary	
reflection	A reflection occurs when a ray of light hits a surface and bounces off.
shadows	A shadow is formed when an object blocks out the light. The object must be opaque or translucent to make a shadow.
light source	The main light source for Earth is the Sun. Some other luminous objects give out light, for example, torches, candles and lamps.
Opaque	Opaque objects do not allow light to pass through them, in most cases creating a shadow.
transparent	Means that light can shine through them and objects can be clearly seen e.g. glass
refraction	It is the change of direction of a light ray as it passes through different surfaces, for example, from air to water.
orbits	An orbit is a repeating path that one celestial body takes around another.
convex	Convex lenses, also called positive lenses, are lenses that curve outward from the edges to the centre.
concave	A concave lens is one where the centre of the lens is thinner than the edges.
[illegible]	A translucent material lets light through but objects cant be seen clearly

Prior Knowledge:

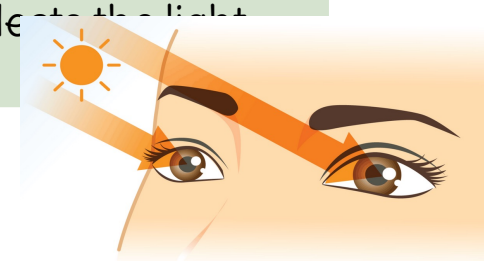
That it is light in daytime and dark at night time.

That we have different seasons throughout our year.

About the dangers of the sun and the dangers around looking directly at the sun.

Important Facts to know by the end of the materials topic:

- Know that dark is the absence of light
- Know that we need light so we can see things
- Know that light can be reflected
- Know how a shadow is formed
- Understand why shadows change shape
- Black and dark objects absorb light and heat whilst white or light objects reflect it
- Our main source of light on Earth comes from the Sun.
- A ray of light travels very fast
- The Sun and other stars, fires, torches and lamps all make their own light and so are examples of sources of light
- A mirror is not a source of light, it merely reflects light. Similarly, the Moon is not a source of light because it reflects the light from the Sun



Science Curriculum

Spring Term: Biology
Plants
Year 3

Prior Knowledge

Things that I know:	Skills I will need:
What plants need to grow, survive and stay healthy.	Observing different stages of plant life cycles through looking for patterns.
The different between seeds and bulbs.	Investigating and recording how water is transported.
How bulbs and seeds grow into mature plants.	Comparing different factors of plant growth.

Knowledge Objectives

- Identify and describe the functions of the 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.

Year 3: Biology – Plants
Key Concept- Growth

Specific Vocabulary	
nutrients	Nutrients are the food the plant wants. Most of the plant's nutrients comes from the soil.
pollination	Pollination is the act of transferring pollen grains from the male anther of a flower to the female stigma.
seed dispersal	Seed dispersal is the movement or transport of seeds away from the parent plant.
fertiliser	Fertilisers are used to increase the rate of a plant's growth.
seed formation	A seed is a small baby plant enclosed in a covering called the seed coat, usually with some stored food.
stigma	The stigma is usually sticky and receives pollen.
anther	The stamen has a pollen producing structure at the end which is called the anther.

Prior Knowledge:

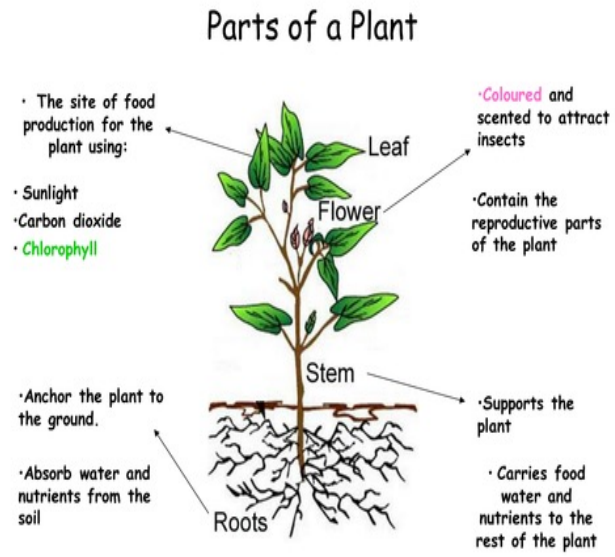
What plants need to grow, survive and stay healthy.

The different between seeds and bulbs.

How bulbs and seeds grow into mature plants.

Important Facts to know by the end of the materials topic:

- Know the function of the different parts of the flowering plant.
- Find out how water is transported within a plant.
- Know the part that flowers play in the life cycle of a flowering plant.
- Know about pollination, seed formation and seed dispersal.
- Trees absorb carbon dioxide and produce breathable air.
- Some plants such as orchids do not need soil to grow-they get all of their nutrients from the air.



Science Curriculum

Autumn Term: Chemistry
Rocks
Year 3

Prior Knowledge

Things that I know:	Skills I will need:
That rock is an everyday material.	To know how to set up simple, practical comparative and fair tests.
That some everyday materials are wood, metal, plastic, glass, brick, rock, paper and cardboard and they have a range of uses and are suitable for a variety of different objects.	Identifying differences, similarities or changes related to simple scientific ideas or processes.
That materials can be changed by squashing, bending, twisting and stretching.	Classifying data in different ways to help in answering questions

Knowledge Objectives

- 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 a rock.
- Recognise that soils are made from rocks and organic matter.

Year 3: Chemistry- Rocks
Key Concept- Materials

Specific Vocabulary	
fossil	A fossil is the preserved remains or traces of a dead organism.
soil	Soil consists of a mix of organic material (decayed plants and animals) and broken bits of rocks and minerals.
crystals	Crystals are a special kind of solid material where the molecules fit together in a repeating pattern.
sedimentary	Sedimentary rocks are made when sand, mud and pebbles get laid down in layers. Over time, these layers are squashed under more and more layers.
metamorphic	When a rock experiences heat and pressure, it becomes a metamorphic rock. All metamorphic rocks start as another type of rock.
igneous	Igneous rock is formed when magma cools and solidifies. It may do this above or below the Earth's surface.

Sedimentary Rocks	Igneous rocks	Metamorphic rocks
• Limestone • sandstone • shale	• Obsidian • Granite • pumice	• Marble • Slate • quartzite

Important Facts to know by the end of the materials topic:

- Know how fossils are formed.

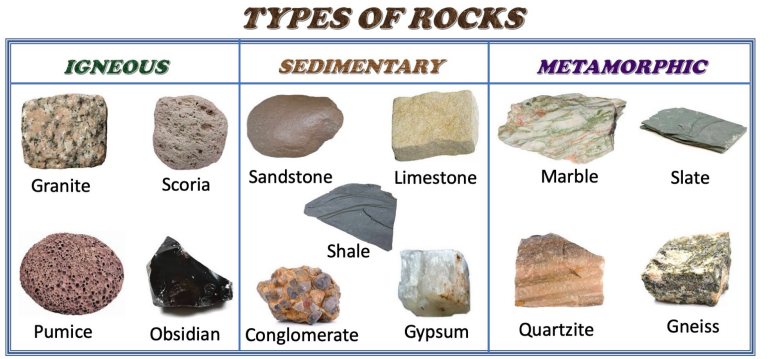
Fossils are formed when things that have lived are trapped within rock.

- Know what soil is.

Soils are made from rocks and organic matter.

Know the difference between igneous, sedimentary and metamorphic rocks.

- Be able to group together different rocks according to different attributes.
- Sediment deposited over time, often as layers at the bottom of lakes and oceans, forms sedimentary rocks.
- Extreme pressure and heat over time forms metamorphic rocks. Examples are marble and slate.
- When magma cools and solidifies it forms igneous rock. Examples are granite and pumice.



Prior Knowledge:

That rock is an everyday material.

That some everyday materials are wood, metal, plastic, glass, brick, rock, paper and cardboard and they have a range of uses and are suitable for a variety of different objects.

That materials can be changed by squashing, bending, twisting and stretching.