

Science Long Term Plan and Progression of Skills

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Year 1</p> <p>Changing Seasons Name the four seasons. Observe and describe the appearance of an evergreen and deciduous tree across the seasons. Identify local plants and animals found across the seasons. Compare differences between local plants and animals across the four seasons. Observe changes across the four seasons. List the different types of weather. Understand weather can be recorded using symbols and recognise these. Record observations of the daily weather using symbols on a weather chart. Describe changes in the weather across the seasons. Compare how dark or light it is at bed time and in the morning throughout the seasons. Understand that day length refers to the length of daylight. Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Changing Seasons</p> <p>Parts of Animals Compare external features of humans with other animals. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Name and identify the main human body parts (arms, legs, chest, head etc.). Name the five senses. Identify which body part is associated with each sense (for touch, skin rather than hands/fingers). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Changing Seasons</p> <p>Types of Animals Identify what an animal is. Name some animals, e.g. pets, farm and zoo animals such as cats, dogs and fish. Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Recognise external features of animals, e.g. fur, feathers, wings, fins etc. Identify differences and similarities between animals, including pets, that belong to different animal groups. Be able to sort animals by observable features (scales, wings, beaks). Know that different animals eat different things. Distinguish between the diets of carnivores, herbivores and omnivores. Know that animals can be sorted into groups by what they eat, e.g. herbivores, carnivores and omnivores. Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p>	<p>Changing Seasons</p> <p>Identifying Materials Recall and understand the terms hard/soft, stretchy/stiff, shiny/dull, rough/smooth and bendy/not bendy. Identify materials that feel soft, hard, flexible, rough, smooth, cold, warm, brittle, blunt, sharp, stretchy, squashy, sticky and/or transparent. Choose the correct material from a selection matching a description outlining its physical properties. Describe the simple physical properties of a variety of everyday materials. Outline differences between two different materials. Outline similarities between two different materials. Sort materials into two groups using opposites or by whether something does or does not have a certain property. Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Changing Seasons</p> <p>Comparing Materials Identify a variety of different objects. Understand that the same object can be made from different materials. Distinguish between an object and the material from which it is made. Match objects made out of the same material. List some common materials including solids and liquids. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p>	<p>Changing Seasons</p> <p>Plants Understand that some things are living and others are not living and be able to distinguish between these. Know that plants are living things and be able to distinguish plants from other living things. Recognise that trees and grasses are plants. Know the differences between deciduous and evergreen trees (by observation). Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Know that plants have features in common. Identify and name the leaf, flower, root, and stem in plant specimens, diagrams and photographs. Know that some trees have special names for plant parts, e.g. blossom, branch, trunk. Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Changing Seasons</p> <p>Plants Understand that some things are living and others are not living and be able to distinguish between these. Know that plants are living things and be able to distinguish plants from other living things. Recognise that trees and grasses are plants. Know the differences between deciduous and evergreen trees (by observation). Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Know that plants have features in common. Identify and name the leaf, flower, root, and stem in plant specimens, diagrams and photographs. Know that some trees have special names for plant parts, e.g. blossom, branch, trunk. Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>

Year 2

Uses of Materials

Identify the properties of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.
Identify and name a variety of different materials.
Know that some objects are made from more than one material and identify the different materials.
Understand that similarities in physical properties of different materials can make them suitable for use in the same type of object.
Explain why a certain material is suitable for an object.
Explain why a certain material is unsuitable for an object.
Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.

Habitats

Know that the scientific name for the 'home' of a living thing is habitat.
Recognise that there are many different habitats.
Recognise that different plants and animals live in different habitats.
Understand that living things can be dependent on each other, e.g. for food.
Recognise that some animals and plants have features that best suit them to a particular habitat, e.g. that fish have gills, polar bears have white fur.
Know that it would be difficult for some living things to survive in habitats to which they were not suited.
Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.
Understand that within habitats there may be smaller habitats called micro-habitats.
Identify and name a variety of plants and animals in their habitats, including micro-habitats.

Living Things

Understand that all living things share similar basic life processes (nutrition, growth, respiration, reproduction).
Know that living things can die.
Know that some non-living things may once have been alive.
Explore and compare the differences between things that are living, dead, and things that have never been alive.
Know that most living things live within particular environments which best provide for their basic needs (e.g. food, shelter, safety).
Be able to distinguish living things from non-living things or things that were once alive.
Understand that humans and other living things grow.
Know that humans and other animals change in appearance as they grow.
Know that baby animals grow to resemble their adult parents.
Recognise typical characteristics of and name distinct phases of human growth (baby, toddler, child, teenager and adult).
Notice that animals, including humans, have offspring which grow into adults.

Feeding and Exercise

Understand that all living things have the same basic needs to stay alive.
Know that animals, including humans, need to eat, drink and 'breathe' to stay alive.
Understand that different animals eat different food.
Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
Understand the importance for humans of eating the right amount of different types of food.
Understand the consequences of insufficient exercise, poor diet and poor personal hygiene.
Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
Know that food can be of plant origin or animal origin.
Understand that some animals eat plants, that some eat other animals and that some eat both plants and animals.
Know that animals depend on plants and animals in their environment for food.
Know the term 'food chain' and recognise its sequential nature starting with green plants.
Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Growing Plants

Know that seeds and bulbs come from plants.
Recognise that seeds from different plants are different from each other.
Be able to sort seeds from non-seeds.
Understand that seeds and bulbs have the potential to grow into plants that are the same as their parent plants.
Understand that plant growth is a long process and that plants change their appearance over time as they grow.
Observe and describe how seeds and bulbs grow into mature plants.
Understand that plants can produce seeds and new plants without human intervention.
Know that when people grow plants from seeds they need to provide particular conditions.
Be able to name basic plant needs.
Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Changing Shape

Understand that physical forces can make materials change shape.
Identify materials that can be squashed and those which cannot.
Compare the stretchiness of different materials.
Understand that bending can change the shape of some materials.
Classify materials according to their ability to bend.
Recognise that some materials can be twisted together.
Recognise that twisting materials together can increase the strength of the material.
Compare materials that change their shape by squashing, bending, twisting or stretching.
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Magnets and Forces

Understand that a force is needed to make objects move.
Describe how the amount of force applied changes how objects move.
Describe how a rolling object moves on different surfaces.
Compare how objects slide on different surfaces.
Compare how things move on different surfaces.
Know that a magnetic force can move some objects without making direct contact.
Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
Recall and use the terms 'attract' and 'repel' accurately.
Identify materials that are magnetic and those which are non-magnetic.
Observe how magnets attract or repel each other and attract some materials and not others.
Group materials that are magnetic and those which are non-magnetic.
Know that not all metals are magnetic.
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.
"Recall that the poles of a magnet are described as North and South.
Describe magnets as having two poles.
Describe how the opposite poles on a magnet are attracted to each other and two like poles repel each other.
Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Movement and Feeding

Sort different types of food into groups.
Know why we need different types of food to stay healthy.
Understand that some foodstuffs can be harmful to some animals.
Explain why undereating and overeating can be harmful.
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.
Name some common bones.
Know bones are strong and rigid.
Describe how muscles and tendons contract and relax to help with movement.
Identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Light and Shadows

Experience darkness and light.
Recognise that they need light in order to see things and that dark is the absence of light.
Know that light comes from a source.
Recognise that shiny objects can reflect light.
Distinguish between light sources and light reflectors.
Notice that light is reflected from surfaces.
Know that the Sun is a powerful source of light.
Understand that some powerful sources of light, such as our Sun, can cause damage to our eyes.
Know that they should not look directly at the Sun, even when wearing dark glasses.
Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes.
Know that some materials block light.
Understand that when light from a source is blocked a shadow can form.
Know that shadows are similar in shape to the objects forming them.
Know that shadows can be formed when opaque objects block light.
Be able to sort materials into transparent, translucent and opaque.
Recognise that shadows are formed when the light from a light source is blocked by a solid object.
Make and record observations and measurements of shadows.
Find patterns in the way that the size of shadows change.

Rocks and Soils

Know that there are different types of rocks.
Understand that different rocks have different observable features, e.g. colour.
Understand that different rocks have different physical properties.
Be able to describe some properties of rocks, e.g. hardness.
Be able to compare and contrast the properties of different rocks.
Identify different rocks using research or by comparing to samples.
Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
Know that rocks now cover the Earth but they haven't always been there.
Know that different rocks were formed in different ways.
Be able to describe how sedimentary rock is formed.
Know that a fossil is the remains of a once living thing that has long since died and been preserved and changed in sedimentary rock as the rock formed.
Describe in simple terms how fossils are formed when things that have lived are trapped within rock.
Know that over time rocks can be broken down into smaller pieces by processes such as weathering.
Understand that soil contains small parts of rocks.
Understand that soil contains rotting organic matter.
Recognise that there are different types of soil.
Know that different soils can have different characteristics, e.g. that they can be different colours and textures.
Know that the type of soil depends on the balance of its constituent parts.
Recognise that soils are made from rocks and organic matter.

What Plants Need

Be able to name basic plant needs.
Know that without air, light, water and nutrients a plant will not thrive.
Recognise that plants need the correct amount of water to grow well, e.g. that plants will not grow well if they have too much or too little water.
Know that plants can outgrow their containers and become root bound.
Recognise that some soils are better at supporting plant growth than others.
Understand that soil provides the nutrients to help plants grow.
Recognise that fertilizers can provide additional nutrients to help plant grow.
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.

Parts of a Plant

Be able to recognise some living things as plants.
Recognise that although they may look different, plants have some features in common, e.g. roots, stem, leaves.
Be able to recognise and name major plant parts.
Know that not all plants have flowers.
Know that each part of a plant has a different job to do (function).
Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
Understand that plants need water to live.
Be able to identify the roots of a plant.
Be able to describe the functions of the roots of plants.
Describe how water moves from the soil into a plant's roots and up through the stem through the plant.
Investigate the way in which water is transported within plants.
Know that without air, light, water and nutrients a plant will not thrive.
Understand that many plants grow from seeds.
Know that flowers are the parts of the plant where reproduction (new seed production) happens.
Know that seeds cannot form without a flower being pollinated.
Know that after pollination the plant produces fruit containing seeds.
"Be able to describe some forms of seed dispersal.
Be able to sequence the life cycle of a flowering plant.
Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Electricity

Understand that electricity is needed to make some appliances work.

Sort (pictures of) household objects into those that use electricity and those that don't. Identify common appliances that run on electricity.

Explore making bulbs light and buzzers buzz.

Record in their own way how to make a bulb light and/or a buzzer buzz.

Describe how to use a switch to turn off a light or stop a buzzer buzzing.

Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.

From photographs of circuits including a bulb, predict whether the bulb will light, and then test their prediction.

Understand that a lamp will light only if it is part of a complete loop with a battery.

Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.

Explore placing a switch in a circuit that lights a lamp and describe what happens when it is used.

Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

Explain what an electrical conductor and insulator are.

Test and then classify objects as those that conduct electricity and those that don't.

Know that metals are good conductors of electricity.

Recognise some common conductors and insulators, and associate metals with being good conductors.

Changes of State

Understand that objects are made from materials.

Know that different materials have different properties.

Know that solids, liquids and gases are groups of materials with different general properties.

Be able to describe and name some solids, liquids and gases.

Know that collectively, solids, liquids and gases are called the states of matter.

Be able to identify the state of matter of a material by its physical properties.

Compare and group materials together, according to whether they are solids, liquids or gases.

Know that materials can exist as solids, liquids or gases.

Understand that the state of a material can be changed.

Know that heating or cooling materials can change their properties.

Know that heating a solid can change it to a liquid and that this process is called melting.

Know that heating a liquid can change it to a gas and that this process is called evaporation.

Know that cooling a gas can change it to a liquid and that this process is called condensation.

Know that cooling a liquid can change it to a solid and that this process can be called freezing (or solidification).

Understand that melting and freezing are processes that can be reversed.

Know that temperature is a measure of how hot or cold something is and is measured in degrees Celsius using a thermometer (°C).

Know that water exists in three states and changes from one to another at different temperatures.

Recognise that not every substance needs to be put in a cold place to become solid, e.g. melted wax, and that not every substance will become solid in a commercial freezer but that different substances change state at different temperatures.

Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).

Know that evaporation and condensation are changes of state.

Recognise that changes of state require changes of temperature.

Understand that evaporation is the process in which liquid water is changed to water vapour by heating.

Understand that condensation is the reverse of evaporation and is the process in which water vapour in the air is cooled down to form liquid water.

Be able to describe the changes of state in the water cycle. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Human Nutrition

Know that the human body has organs and be able to name some.

Know that each organ has a function.

Understand that some groups of organs work together in a system.

Recognise that humans have a body system which digests (breaks down) food.

Know that this system is called the digestive system.

Be able to name and describe the main organs of the digestive system: teeth,

mouth, tongue, oesophagus, stomach, small and large intestines, rectum and anus.

Be able to sequence the process of digestion.

Describe the simple functions of the basic parts of the digestive system in humans.

Know that teeth are part of the digestive system.

Recognise that human teeth are not all the same size or shape.

Be able to identify and name the main types of teeth in humans: incisor, canine, pre-molar, molar.

Understand that the shape of a tooth is linked to its function, e.g. slicing, tearing, chewing or grinding food.

Identify the different types of teeth in humans and their simple functions.

Sound

Identify a variety of sounds.

Know that sounds come from a source. Recognise that sounds can be classified in different ways, e.g. loud, quiet, high, low.

Understand the term 'vibrate' (to move very quickly from side to side).

Understand and identify that all sounds are made by something vibrating.

Identify how sounds are made, associating some of them with something vibrating.

Know that we hear with our ears.

Know that sounds can travel.

Know that sound can travel through solids, liquids and gases.

Recognise that vibrations from sounds travel through a medium to the ear.

Know that the highness or lowness of a sound is called the pitch of the sound.

Recognise that there are high and low pitched sounds.

Understand that the pitch of sounds can be changed.

Identify features of an object that can be changed to alter its pitch e.g. length of tube, length of string, tension of string.

Find patterns between the pitch of a sound and features of the object that produced it.

Know that volume refers to how loud a sound is.

Know that the volume of sounds can be changed.

Know that the volume of sounds can be measured with a sound meter (data logger).

Know that the unit of measurement of volume is a decibel (dB).

Find patterns between the volume of a sound and the strength of the vibrations that produced it.

Know that sounds can travel from a source.

Recognise that sounds gets fainter as the distance from the sound source increases.

Grouping Living Things

Recognise that there is a vast array of living things.

Know that living things can be grouped according to features that they share.

Use more than one way to sort the same group of living things.

Recognise that living things can be grouped in a variety of ways.

Recall and use appropriately the term 'classification'.

Use a simple classification key to identify and name a living thing.

Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.

Dangers to Living Things

Recognise that animals obtain their food from plants and other animals.

Know that food is a basic need and the availability of food affects the animals found in an environment.

Recognise that all food chains start with a plant and that arrows show the direction of the energy (food) being transferred i.e. 'gets eaten by...'

Know that green plants are producers because they make their own food.

Recognise that there is only one herbivore in a food chain.

Define a predator as an animal that eats another animal and prey as an animal that gets eaten by another animal.

Recognise that the same animal can be both predator and prey.

Construct and interpret a variety of food chains, identifying producers, predators and prey.

Recall the term 'environment'.

Understand that environments can be changed in positive ways, e.g. the creation of nature reserves, and in negative ways, e.g. deforestation.

Identify ways in which humans can reduce the effects of environmental change.

Record the effects of small scale change on living things in a local environment.

Recognise that environments can change and that this can sometimes pose dangers to living things.

Earth and Space

Recognise the term 'spherical'.
 Know that the Earth, Sun and Moon are part of the solar system.
 Describe the Sun, Earth and Moon as approximately spherical bodies.
 Know that Earth has one moon.
 Describe the movement of the Moon relative to the Earth.
 Know that the Sun is a star.
 Know that the Earth is a planet.
 Know that the Earth, the other planets and their moons form our solar system.
 Understand that the Sun does not move in space.
 Know that the planets, including Earth, move around the Sun.
 Understand the term 'orbit' and be able to describe what a planetary orbit is.
 Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.
 Know that Earth has an axis.
 Understand that Earth spins on its axis.
 Understand that by spinning on its axis, some parts of the Earth are in daylight when other parts are in darkness.
 Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.

Forces

Understand that a force is needed to make things move.
 Know that gravity is an invisible force that pulls falling objects back to Earth.
 Recognise that objects fall because of a force called gravity.
 Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
 Describe how friction acts on moving objects to slow them down.
 Understand how friction can be used to improve how well an object grips to a surface.
 Recognise that air resistance is a force.
 Describe how air resistance reduces the speed at which objects fall.
 Explain how air can be used to push objects and make them move.
 Recognise that water resistance is a force.
 Describe how water resistance slows down moving objects.
 Describe how the shape of objects can be used to reduce the effects of water resistance.
 Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
 Recall the terms 'spring', 'lever', 'pulley' and 'gear' ('cog').
 Describe how the use of levers, pulleys and other simple machines reduces the amount of effort needed to move things.
 Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Types of Change

Recall the terms 'dissolving', 'mixing', 'melting', 'freezing', 'evaporation' and 'condensation' from earlier work.
 Define reversible change.
 Understand that dissolving is a reversible change based on observations of a soluble solid dissolving in water and then being recovered by evaporating the water.
 Explain that mixtures can be separated using a sieve or filter meaning the mixtures are not permanently combined so the process is reversible.
 Demonstrate that dissolving, mixing and changes of state are reversible changes.
 Define irreversible change.
 Describe observable changes when a substance is burnt, identifying that new substances are formed.
 Describe observable changes when acid and bicarbonate of soda are mixed and explain that new substances are formed.
 List some of the new substances formed through burning a familiar substance such as wax or wood and combining vinegar and bicarbonate of soda.
 Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Life Cycles

Know that humans have a life cycle.
 Know that humans change in appearance and capabilities as they age.
 Describe the changes as humans develop to old age.
 Recognise that all living things have a life cycle.
 Know that all life cycles have distinct stages.
 Know that some animals metamorphose during their life cycle.
 Be able to describe the process of metamorphosis.
 Be able to identify life cycle stages in different animals.
 Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.
 Be able to describe and sequence parts of plant and animal life cycles.
 Understand that sexual reproduction in plants and animals requires fertilisation to occur, i.e. between two parents.
 Know that some plants can reproduce without other plants.
 Describe the life process of reproduction in some plants and animals.

Materials

Understand what is meant by a material's hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
 Describe materials and identify materials from their description.
 Group materials with similar properties.
 Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
 Know that a variety of materials may be suitable for an object based on the properties of the materials.
 Raise questions about the properties of materials related to their suitability.
 Test properties of a material to establish their suitability or not for a given purpose.
 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

Separating Mixtures

Describe the observation of the apparent disappearance of a soluble solid when it dissolves in a liquid.
 Explain what a solution is.
 Explain that when a solution is left exposed to the air the liquid will evaporate into the air leaving the dissolved solid behind.
 Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
 Explain how sieving solids is possible because of the comparative size of the (pieces of) solid and the holes in the sieve.
 Explain how filtering separates a solid from a liquid because the solid is too large to pass through the holes in the filter but the liquid can pass through.
 Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

Changing Circuits

Explore and describe how to construct circuits with a very dim bulb and others with very quiet buzzers.
 Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
 Explore the variation in how different electrical components function, constructing different circuits and describing findings.
 Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
 Understand the need for universally recognised symbols for electrical components.
 Identify recognised electrical component symbols for a bulb, buzzer, battery (cell), wire, switch and motor.
 Use recognised symbols when representing a simple circuit in a diagram.

Light and Sight

Know that light comes from a source and be able to name some sources of light.
 Know that light can travel from a source.
 Know that light can be reflected from shiny surfaces and be able to name some reflectors.
 Notice how light from a source such as a torch travels.
 Recognise that light appears to travel in straight lines.
 Know that without light we cannot see.
 Understand that an object can be seen when it gives out or reflects light into our eyes.
 Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.
 Know that light can be reflected from surfaces.
 Know that different surfaces reflect light in different ways.
 Know that light is more scattered when it is reflected off a dull surface.
 Know that smooth and shiny surfaces reflect light well.
 Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
 Understand that light travels in straight lines.
 Know that light cannot travel around objects.
 Know that some materials let light pass through them.
 Understand that light is blocked by opaque materials.
 Understand that when opaque materials block the path of light a shadow can be cast.
 Know that shadows are similar in shape to the objects which make them.
 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Evolution and Inheritance

Know that geological time spans millions of years.
 Know that some living things that were on Earth millions of years ago, e.g. dinosaurs, are no longer inhabiting Earth.
 They are extinct.
 Understand that evolution is the process of change in living things over time.
 Understand that some fossils are examples of living things that were once alive on Earth but are no longer living.
 Know that humans are a relatively recent species on Earth.
 Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
 Know that living things reproduce offspring similar to themselves.
 Understand that offspring will bear some similarities to each other, to their parents and to other living things of the same kind.
 Recognise that small inherited changes in physical characteristics, e.g. colour, size, shape of limbs etc. over time lead to variation in species.
 Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
 Know that animals and plants exist and live in different environments.
 Know that not all animals or plants will survive to reproduce.
 Understand that variation in offspring over time can make animals and plants more or less able to survive in particular environments.
 Know that some adaptations to the environment in plants or animals can be advantageous if they keep the species alive for long enough to reproduce and pass on their features to a new generation.
 Know that living things start from a common ancestor but have evolved to suit the environmental conditions.
 Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Classifying Living Things

Recognise common observable characteristics that can be used to group/classify living things.
 Know that germs and bacteria are living organisms called micro-organisms.
 Understand that micro-organisms form part of the classification system for living things.
 Identify the conditions needed to support the growth of micro-organisms.
 Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.
 Know that there is a scientific system for classifying living things.
 Identify the observable characteristics used to identify local plants.
 Identify the observable characteristics to classify a specific species of plant, e.g. a buttercup.
 Identify the observable characteristics to classify a specific species of animal, e.g. an earthworm.
 Give reasons for classifying plants and animals based on specific characteristics.

Our Bodies

Know that the human body contains organs.
 Know that each organ has a specific function.
 Know that the heart is the organ that pumps blood around the body through blood vessels.
 Understand that organs can also work together as a body 'system'.
 Know that together the heart, blood vessels and blood form the circulatory system.
 Understand that blood picks up oxygen from the lungs and transports it through blood vessels to all of our organs.
 Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
 Know that humans need water and food to survive.
 Know that the substances in food that help us to grow and repair our bodies are termed 'nutrients'.
 Understand that it is the circulatory system that transports water and nutrients around our bodies.
 Describe the ways in which nutrients and water are transported within animals, including humans.
 Know that body systems respond to a person's physical needs, e.g. to run faster, to digest food.
 Understand that some aspects of a person's lifestyle, e.g. lack of exercise, taking narcotics, will have an effect on the way their body functions.
 Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.

Review and Celebration