Science Learning Journey

Recognise that light appears to travel in straight lines.

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.

Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.

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.

Use recognised symbols when representing a simple circuit in a diagram.

Give reasons for classifying plants and animals based on specific characteristics.

Identify and name parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.

Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.

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.

Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.

Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

Describe the ways in which nutrients and water are transported within animals, including humans.

Describe how living things are classified into broad groups and according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.

Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.

Recognise that some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect.

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 and bicarbonate of soda.

Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.

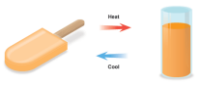
Describe the Sun, Earth and Moon as approximately spherical bodies.

Describe the movement of the Moon relative to the Earth.

Use the ide of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

Demonstrate that dissolving, mixing and changes of state are reversible changes.



Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

Compare and group together everyday materials on the basis of their properties including their hardness, solubility, transparency conductivity and response to magnets.

Describe the life process of reproduction in some plants and animals.

Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.

Describe the changes as humans develop to old age.

Describe the differences in the life cycles of a mammal, and amphibian, an insect and a bird.

Class 4

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

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

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

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

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

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

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.

Identify common appliances that run on electricity.

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

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

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

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

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

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

Identify the different types of teeth in humans and their simple functio

Predict whether two magnets will attract or repel each other, depending on which poles are facing.

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

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

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

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

Describe magnets as having two poles.

Notice that some forces need contact between two objects, but magnetic forces can act at a distance.

Find patterns in the way that the size of shadows change.

Recognise that light from the sun can be dangerous and that there are ways to protect your eyes.

Recognise that we need light in order to see things and that dark is the absence of light.

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.

Observe how magnets attract or repel each other and attract some materials and not others.

Compare how things move on different surfaces.

Recognise that shadows are formed when the light from a light source is blocked by an opaque object.

Notice that light is reflected from surfaces.

Recognise that soils are made from rocks and organic matter.

Identify and describe the functions of different part of flowering plants.

Explore the requirements of plants for life and growth and how they vary plant to plant.

Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Describe in simple terms how fossils are formed when things that have lived are rapped within rock.

Class 3

Investigate the way in which water is transported within plants.

Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food: they get nutrition from what they eat.

Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.

Identify and name a variety of plants and animals in their habitats, including micro-habitats.

Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Find out about and describe the basic needs of animals, including humans, for survival.

Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Observe and describe how seeds and bulbs grow into mature plants.

Describe how different habitats provide for the basic needs of different kind of animals and plants.

Identify and compare the suitability of a variety of everyday materials for particular uses.

Notice that animals, including humans, have offspring which grow into adults.

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.

Identify that most living things live in habitats to which they are suited.

Explore and compare the differences between things that are living, dead and things that have never been alive.

Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Distinguish between an object and the material from which it is made.

Describe the simple physical properties of a variety of everyday materials.

Observe and describe weather associated with the seasons and how day length varies.

Describe compare the structure of a variety of animals.

Identify and name a variety of everyday materials, including wood, plastic, metal, water and rock.

Compare and group together a variety of everyday materials on the basis of their simple physical properties.

Observe changes across the four seasons.

Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

Talk about the features of their own immediate environment and how they may vary.

Look closely at similarities, differences, patterns and change.

Develop and understanding of growth, decay and changes over time.

Can talk about some of the things they have observed such as plants, animals, natural and found objects.

Identify and name a variety of common animals that are carnivores, herbivores and omnivores.

Class 2

Class 1

Identify and describe the basic structure of a variety of common flowering plants, including trees.

Identify and name a variety of common wild and garden plants.

Make observations of animals and plants and explain why some things occur, and talk about changes.

Know about similarities and differences in relation to places, objects, materials and living things.

Show care and concern for living things and the environment.

Talk about why things happen and how things work.