Progression in Knowledge in Science.

| Subject | EYFS | Year 1 | Year 2 | LKS2 | UKS2 |
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| Seasons | Observe changes across the four seasons<br><br>Observe and describe weather associated with the seasons and how day length varies.<br><br>Use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted<br><br>Use the local environment throughout the year to explore and answer questions about animals in their habitat. | | | | |
| Plants | Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees | Identify and describe the basic structure of a variety of common flowering plants, including trees<br>Use the local environment throughout the year to observe how plants grow<br><br>Observe and describe how seeds and bulbs grow into mature plants<br><br>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | Introduction to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants.<br>Use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat.<br><br>Identify how the habitat changes throughout the year. | Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers<br><br>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<br><br>Investigate the way in which water is transported within plants<br><br>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal<br><br>Explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. | study and raise questions about their local environment throughout the year |
| Animals including humans | Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. | 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) | Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. | Become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as |

pets.

Learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes
Notice that animals, including humans, have offspring which grow into adults
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. Introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. Introduced to the processes of reproduction and growth in animals.The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.
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.
Learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.
Research different food groups and how they keep us healthy and design meals based on what they find out.

Describe the simple functions of the basic parts of the digestive system

in humans.Introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help
describe the changes as humans develop to old age.
draw a timeline to indicate stages in the growth and development of humans. learn about the changes experienced in puberty research the gestation periods of other animals and comparing them with humans

identify and name the main 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

describe the ways in which nutrients and water are transported within animals, including humans.
learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful

herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them

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

them to understand their special functions.

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

to the human body.

Everyday materials

Distinguish between an object and the material from which it is made
Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
Describe the simple physical properties of a variety of everyday materials
Compare and group together a variety of everyday materials on the basis of their simple physical properties
Explore, name, discuss and raise and answer questions about everyday materials so that they

become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.
Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
identify and discuss the uses of

different everyday materials so that they become familiar with
how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or
different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass)
States of Matter
compare and group materials together, according to whether they are solids, liquids or gases.

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).

identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
<u>Properties and changes in</u> <u>materials</u>
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 some materials will dissolve in liquid to form a solution.

Describe how to recover a substance from a solution.

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

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

Demonstrate that dissolving, mixing and changes of state are

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.

explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes.

explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda

find out about how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.

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| Living things and their habitats | Explore and compare the differences between things that are living, dead, and things that have never been alive 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<br>Identify and name a variety of plants and animals in their habitats, including microhabitats<br>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.<br>Introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy<br>Introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter)<br>Compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest | Recognise that living things can be grouped in a variety of ways.<br>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.<br>Recognise that environments can change and that this can sometimes pose dangers to living things.<br>Begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. | Describe the life process of reproduction in some plants and animals.<br>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics. | the life cycles of a mammal, an amphibian, an insect and a bird. |
| RocksCompare 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.
Research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed.
Explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water.

including playing mirror games to help them to answer

LightRecognise 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.
Explore what happens when light reflects off a mirror or other. reflective surfaces,

recognise that light appears to travel in

that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye

things because light travels from light sources to our eyes or from light sources to objects and then to our

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

Forces and  Magnets

questions about how light behaves.

Look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.

Earth and Space
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.
explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling of air resistance, water resistance and friction, that act between moving some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
explore falling objects and raise questions about the effects of air resistance experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel.
explore the effects of levers, pulleys and simple machines on movement. describe the movement of the Earth, and other planets, relative to the Sun

Sound identify how sounds are made, associating some of them with

something vibrating.Explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of

Recognise that

vibrations from sounds travel

Find patterns between the pitch of a sound and features of the object that produced it.
Find patterns between the volume of a sound and the strength of the vibrations that produced it.Recognise that sounds get fainter as the distance from the sound source increases.

ElectricityIdentify common appliances

describe the movement of the Moon relative to the Earth and Moon as approximately spherical

Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006)
find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.

switches and buzzers.
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.
Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
Recognise some common conductors and insulators, and associate metals with being good conductors.
Construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices.
Evolution and inheritance

construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs,

associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in

give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of swit
symbols when representing a simple circuit in a diagram.

construct simple series circuits, to help them to answer questions about what happens when they try different

components, for example, switches, bulbs, buzzers and motors. learn how to represent a simple circuit in a diagram using recognised symbols.

recognise that living things have changed over time

and that fossils provide information about living things that inhabited the Earth millions of years ago

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

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

introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles.

appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox.find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.