



Science Milestones

Science – EYFS ELGs

Understanding the World

Explore the natural world around them.

Describe what they see, hear and feel whilst outside.

Understand the effect of changing seasons on the natural world around them.

Science - Y1

Working Scientifically

Ask simple questions

Observe closely and describe observations (e.g properties of materials – “it looks rough”)

Perform simple tests suggested by an adult

Group/sort objects into given properties

Gather and record data to help in answering questions.

To Understand Plants

To identify and name some common plants, including garden plants, wild plants and trees

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

Understanding animals and humans

Identify and name some common animals that are birds, fish, reptiles, and mammals

Identify and name a some common animals that are carnivores, herbivores and omnivores

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

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

Investigate and describe the basic needs of animals, including humans, for survival (water, food and air).

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

To Investigate Living Things

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

Identify and name a variety of plants and animals in their habitats, including micro-habitats (log pile etc)

To Investigate 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

Seasonal Changes

Observe changes in the four seasons

Name the four seasons in the correct order

Observe and describe weather across the four seasons

Observe and describe variation in day length

Science – Y2

Working Scientifically

Ask a range of simple questions

Observe closely using simple equipment

Perform simple tests

Identify and classify objects

Understand what a fair test is.

Use observation and ideas to suggest answers to questions

To Understand Plants

Identify and name a variety of trees and those classified as deciduous and evergreen. (Taken from Year 1)

Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. (Taken from Year 1)

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

Understanding animals and humans

Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrate

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

Describe and compare features of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).

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

To Investigate Living Things

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

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.

To Understand Evolution and Inheritance

Identify how humans resemble their parents in many features.

To Investigate Materials

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

Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard for particular uses

To Understand Movements, Forces and Magnets

Notice and describe how things move, using simple comparisons such as faster and slower

Compare how different things move

To Understand Light and Seeing

Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes

To Investigate Sound and Hearing

Observe and name a variety of sources of sound, noticing that we hear with our ears

Science – Y3

Working Scientifically

Ask relevant questions

Set up simple, practical enquiries and comparative and fair tests

Make accurate measurements using familiar equipment

Gather, record, classify and present data in a variety of ways to help in answering questions

Use results to draw simple conclusions and suggest improvements

Identify differences, similarities or changes related to simple, scientific ideas and processes

Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables

To Understand Plants

Identify and describe the functions of different parts of flowering plants: roots, stem, 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 role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

To Understand Animals and Humans

To understand animals, and humans, need the right types and amounts of nutrition and that they cannot make their own food.

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

To Understand Movement, Forces and Magnets

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

To Investigate Materials (Rocks and Soils)

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

Relate the simple physical properties of some rocks to their formation (igneous or sedimentary)

Describe how fossils are formed when things that have lived are trapped within sedimentary rock

Recognise that soils are made from rocks and organic matter

To Understand Light and Seeing

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 is blocked by a solid object

Find patterns in the way that the size of shadows change

Science – Y4

Working Scientifically

Set up practical enquiries and comparative and fair tests using terms dependent and independent variable

Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers

Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests

Use straightforward, scientific evidence to answer questions or to support their findings

To Understand Animals and Humans

Construct and interpret food chains, identifying producers, predators and prey.

To understand and describe the digestive system in humans

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

To Investigate Living Things

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

Explore and use classification keys

Recognise that environments can change and that this can sometimes pose dangers to specific habitats

To Understand Evolution and Inheritance

Identify how plants and animals, including humans, resemble their parents in many features

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

To Investigate Materials (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 the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics

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

To Investigate Sound and Hearing

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

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

To Understand Electrical Circuits

Identify common appliances that run on electricity

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

Science – Y5

Working Scientifically

Plan enquiries, including recognising and controlling variables where necessary

Use appropriate techniques, apparatus, and materials in investigations.

Take measurements, using a range of scientific equipment, with increasing accuracy and precision.

Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar graphs.

Present findings in written form, displays and other presentations

Use test results to make predictions to set up further comparative and fair tests

Report findings from enquiries, including oral and written explanations of results.

To Understand animals and Humans

Describe the changes as humans develop to old age.

To Investigate Living Things

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

Describe the life process of reproduction in some plants and animals

To Investigate Materials

Compare and group together everyday materials based on testing of their properties

Understand how some materials will dissolve in liquid to form a solution and 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 reversible changes

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, oxidisation and the action of acid on bicarbonate of soda

To Understand Movement, Forces and Magnets

Forces:

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

Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces.

Describe, in terms of drag forces, why moving objects that are not driven tend to slow down

Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs

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

To Investigate Sound and Hearing

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

To Understand the Earth's Movement in Space

Describe the movement of the Earth relative to the Sun in the solar system

Describe the movement of the Moon relative to the Earth

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

Describe the movement of the Moon relative to the Earth

Describe the Sun, Earth and Moon as approximately spherical bodies

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

Science – Y6

Working Scientifically

Use appropriate techniques, apparatus, and materials in investigations

Record data and results of increasing complexity choosing the appropriate presentation technique.

Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions

Use test results to make predictions to set up further comparative and fair tests

Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments

Present findings in written form, displays and other presentations

To Understand Plants

Relate knowledge of plants to studies of evolution and inheritance.

Relate knowledge of plants to studies of all living things.

To Understand animals and 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 importance of diet, exercise, drugs and lifestyle on the way the human body functions.

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

To Investigate Living Things

Describe how living things are classified into broad groups according to common observable characteristics

Give reasons for classifying plants and animals based on specific characteristics

To Understand Evolution and Inheritance

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 their parents

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

To Understand Movement, Forces and Magnets

Magnets:

Describe magnets as having two poles

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

To Understand Light and Seeing

Understand 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 eyes

Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes

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

To understand electrical circuits

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