Science in KS1: Curriculum Roadmap

Widewell Primary Academy



Explore the natural world around me, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around me and contrasting environments, drawing on my experiences and what has been read in class. Understand some important processes and changes in the natural world around me, including the seasons and changing states of matter.

Make comments about what I have heard and ask questions to clarify my understanding.

Manage my own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Observe changes across four

weather associated with the

seasons and how day length

🛦 Sèasonal

changes

varies.

seasons. Observe and describe

answered in different ways * observing closely, using simple equipment * performing simple tests * identifying and classifying * using their observations and ideas to suggest answers to questions * gathering and recording data to help in answering questions.

Year 1 / 2 Working Scientifically

* asking simple questions and recognising that they can be

Year 3 / 4 Working Scientifically

* asking relevant questions and using different types of scientific enquiries to answer them * setting up simple practical enquiries, comparative and fair tests * making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers * gathering, recording, classifying and presenting data in a variety of ways to help in answering questions * recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables * reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions * using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions * identifying differences, similarities or changes related to simple scientific ideas and processes * using straightforward scientific evidence to answer questions or to support their findings.

Year 5/6 Working Scientifically

* planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate * recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs * using test results to make predictions to set up further comparative and fair tests * reporting and presenting findings

from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations * identifying scientific evidence that has been used to support or refute ideas or arguments.

CLL - Listening, UW - The natural world

Distinguish between an object and the material

of everyday materials including wood, plastic,

properties of a variety of everyday materials.

Plants

from which it is made. Identify and name a variety

glass, metal, water and rock. Describe the simple

Compare and group together a variety of everyday

materials on the basis of their simple properties.

PSED attention and Managing self understanding

> Identify and name a variety of common animals. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. I can describe and compare the structure of a variety of common animals. Identify, name, draw and label the basic parts of the human body and say which

part of the body is associated with each sense.

Everyday $^{ extsf{ iny}}$ materials

Animals, including humans

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

Uses of everyday materials

Identify and compare the suitability of a

variety of everyday materials including

wood, metal, plastic, glass, brick, rock,

paper, cardboard for particular uses. Find

out how the shape of solid objects made

from materials can be changed by

squashing, bending, twisting and stretching.

Animals, including humans

Plants

Explore and compare the differences between things that are living, dead and things that have never been alive. Identify most living things live in habitats to which they are suited and describe how different habitats provide for basic needs of different kinds of animals and plants and how the depend on each other. Identify and name a variety of plants and animals in their habitat, including microhabitats. 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.

Observe and describe how seeds and bulbs grow into mature plants. Find and describe how plants need water, light and a suitable temperature to grow and stay healthy.



Identify and describe the basic

flowering plants including

of common wild and garden

evergreen trees.

plants including deciduous and

structure of a variety of common

trees. Identify and name a variety

Biology

Living things

and their habitats.



Chemistry



Physics

Science in KS2: Curriculum Roadmap

Widewell Primary Academy



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 rock. Recognise that soils are made from rock and organic matter.

Recognise we need light in order to see things and that dark is the absence of light. Light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect your eyes. Recognise that shadows are formed when light from a light source is blocked by an opaque object. Find patterns in the way that the shadows change.

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.

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

Describe the simple functions of the basic parts of the digestive system in hui. ans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey.

Animals,

humans

including 🖈



Compare and group together everyday materials on the basis of their properties,

including their hardness, solubility, transparency, conductivity, and response to

magnets. Know that 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.



Forces and magnets

Explain that unsupported objects fall

towards the Earth because of the force of

gravity acting between the Earth and the

falling object. 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.





Identify and describe the functions of different parts of a flowering plant. Explore the requirements of plant life and growth. Investigate the way in

which water is transported within plants. Explore the part that flowers play in the lifecycle of flowering plants including pollination, seed formation and seed dispersal.



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 and the action of acid on bicarbonate of soda.

Properties and changes of materials

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.

Torces

Living things and their habitats

Identify common appliances that run on electricity.

Construct simple series electrical circuit, identifying and

naming its basic parts. Identify whether or not a lamp will

light in a simple 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.

TElectricity

States of 💢 matter

Living things and their habitats

Earth and

space

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.

Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group. Identify and name a variety of living things in the environment. Recognise that environments can change and this can sometimes pose dangers to living things.

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

Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. 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.

Animals, 🌟 including humans

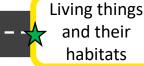


Animals, including 🏋 humans

Evolution and inheritance









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.

Describe the changes as humans develop to old

Identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. Describe the ways in which nutrients and water and transported within animals including humans. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.

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. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Use recognised symbols when representing a simple circuit in a diagram.

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

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.