

## West Green Primary School Science Progression

Year Group	National Curriculum Progression Guidance
Year 1	<p data-bbox="304 331 495 352"><u>Everyday materials</u></p> <ul data-bbox="353 421 1451 536" style="list-style-type: none"><li>• distinguish between an object and the material from which it is made</li><li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li><li>• describe the simple physical properties of a variety of everyday materials</li><li>• Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li></ul> <p data-bbox="304 544 479 564"><u>Seasonal changes</u></p> <ul data-bbox="353 603 1200 655" style="list-style-type: none"><li>• observe the changes across the 4 seasons</li><li>• observe and describe weather associated with the seasons and how the day varies</li></ul> <p data-bbox="304 663 367 684"><u>Plants</u></p> <ul data-bbox="353 722 1413 775" style="list-style-type: none"><li>• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li><li>• Identify and describe the basic structure of a variety of common flowering plants, including trees.</li></ul> <p data-bbox="304 815 562 836"><u>Animals including humans</u></p> <ul data-bbox="353 874 1659 991" style="list-style-type: none"><li>• identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li><li>• identify and name a variety of common animals that are carnivores, herbivores and omnivores</li><li>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets</li><li>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense s</li></ul> <p data-bbox="304 1026 517 1046"><b>Working scientifically</b></p> <p data-bbox="304 1054 551 1075"><b>By the end of key stage 1</b></p> <ul data-bbox="353 1114 1809 1353" style="list-style-type: none"><li>• asking simple questions and recognising that they can be answered in different ways</li><li>• observing closely including changes over time</li><li>• using simple equipment</li><li>• performing simple comparative tests</li><li>• grouping and classifying</li><li>• using their observations and ideas to suggest answers to questions as well as using secondary sources of information</li><li>• Gathering and recording data to help in answering questions.</li><li>• Use appropriate scientific language from the national curriculum to communicate ideas in a variety of ways, what they do and what they find out</li></ul>

## Year 2

### 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 that they provide basic needs of different plants and animals and how they depend on each other
- identify and name plants and animals in their habitats including micro habitats
- describe how animals obtain food from plants and other animals ,using a simple food chain, identify and name different sources of food

### Plants

- observe and describe how seeds and bulbs grow into mature plants
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
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### 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 (water, food and air)
- Describe the importance for humans 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 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.
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### Working scientifically

#### **By the end of key stage 1**

- asking simple questions and recognising that they can be answered in different ways
- observing closely including changes over time
- using simple equipment
- performing simple comparative tests
- grouping and classifying
- using their observations and ideas to suggest answers to questions as well as using secondary sources of information
- Gathering and recording data to help in answering questions.
- Use appropriate scientific language from the national curriculum to communicate ideas in a variety of ways, what they do and what they find out

## Year 3

### Forces and magnets

- compare how things move on different surfaces
- note that some forces need contact between 2 objects but magnetic forces 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 magnetic materials
- describe magnets as having 2 poles
- predict whether 2 magnets will attract or repel each other depending on which poles are facing

### Light

- 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 changes.

### Rocks

- 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 rocks and organic matter.

### Animals including Humans

- 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.

### Plants

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, 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 part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
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### Working scientifically

#### During years 3 and 4:

- 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 to support their findings

## Year 4

### During years 3 and 4:

- 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
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- using straightforward scientific evidence to answer questions to support their findings

### Animals including Humans

- describe the simple functions of the basic parts of the digestive system in humans
- 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.

### Sound

- 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 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.

### Living things in their habitats

- 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 their local and wider environment
- Recognise that environments can change and that this can sometimes pose dangers to living things.

### Working scientifically

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## Year 5

### Earth and Space

- 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 – moon diary
- 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.

### 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 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.

### Properties and Changes of Materials

- 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, 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 and the action of acid on bicarbonate of soda.

### Animals Including Humans

- describe the changes as humans develop to old age

### Living things and their habitats

- **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**
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### Working Scientifically

**During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:**

**By the end of Keystage 2 children should demonstrate that they meet these 'working scientifically' statements**

- Describe and evaluate their own and other people's scientific ideas related to topics in the National Curriculum (including ideas that have changed over time), using evidence from a range of sources
- Ask their own questions about scientific phenomena they are studying, and select and plan the most appropriate ways to answer those questions, or those of others, recognising and controlling variables where necessary including **observing changes over periods of time ,noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources of information**
- Use a range of scientific equipment to take accurate and precise measurements or readings with repeat readings where appropriate
- Record Data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Present findings and draw conclusions in different forms ,and raise further questions that could be investigated, based on their data and observations
- Use appropriate scientific language and ideas from the national curriculum to explain and evaluate and communicate their methods and findings

## Year 6

### Light

- 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.

### Electricity

- 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.

### Animals Including 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.

### 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.

### Living things and their habitats

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities

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