

Hoo Progression Steps

Science

Yr 1

Working Scientifically

- Ask simple questions about the topic and know that they can be answered in different ways
- Use simple equipment to make simple observations
- Perform simple tests
- Identify and classify groups
- Use observations made to suggest answers to questions
- Collect and record simple data to help in answering questions

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 carnivorous, herbivores and omnivores
- Describe and compare the structure of a variety of common animals
- Identify, name, draw and label the basic parts of the human body
- Say which part of the body is associated with each sense

Materials

- Tell the difference between an object and the material from which it is made
- Identify and name a variety of every day materials, including wood, plastic, glass, metal, water and rock
- Describe the physical properties of some everyday materials
- Compare and group together a variety of everyday materials on the basis of their simple physical properties

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

Seasonal Changes

- Observe changes across the four seasons
- Observe and describe the weather associated with the seasons and how day length varies (talking)

Yr 2

Working Scientifically

- Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the topics studied.
- Use simple equipment to observe changes over time
- Perform simple comparative tests
- Identify groups and classify
- Use observations to suggest answers to questions noticing similarities, differences and patterns

Animals including Humans

- Understand that animals, including humans, have babies which grow into adults
- Describe the basic needs of animals, including humans, for survival
- Describe the importance for humans of exercise, a balanced diet, and hygiene

Materials

- Compare the suitability of a variety of everyday materials for particular uses
- Describe how the shape of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Plants

- Explain how seeds and bulbs grow into plants
- Describe how plants need water, light and a suitable temperature to grow and stay healthy

Living Things and Their Habitats

- Explain the difference between things that are living, dead and things that have never been alive
- Identify that most living things live in habitats in which they are suited
- Describe how different habitats provide for the basic needs of different kinds of animals and plants
- Describe how animals and plants depend on each other for survival
- Identify and name a variety of plants and animals in their habitat including micro-habitats
- Describe how animals obtain their food from plants and other animals using the idea of a simple food chain.



Working Scientifically

- Ask relevant questions and use different types of scientific enquiries to answer them
- Set up simple practical comparative and fair tests
- Make accurate observations and measurements using a range of measuring equipment
- Gather, record, classify and present data in a variety of ways
- Record findings using simple scientific language, drawings, labelled diagrams, graphs and tables
- Report conclusions of investigations and display results in written and visual form
- Use results to make simple conclusions, make predictions, suggest improvements to testing methods
- Identify differences, similarities or changes relating to simple scientific ideas and processes

Animals including Humans

- Identify that humans and some animals have skeletons and muscles for support, protection and movement
- Identify that animals, including humans, need the right types and amount of nutrition

Plants

- Identify and describe the functions of different types of flowering plants: roots, stem/trunks, leaves, flower
- Explore the requirements of plants for life and growth (air, light, water, nutrients, space) 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

Forces and Magnets

- Compare how things move on different surfaces
- Understand that some forces need contact between two objects but that magnetic forces can act at a distance
- Identify and group magnetic and non-magnetic materials
- Observe how magnets attract or repel each other and attract some materials and not others
- Describe how magnets have two poles
- Predict if magnets will attract or repel each other based on the poles facing each other

Light

- Notice that light is reflected from surfaces
- Recognise that light is needed to see things and that dark is the absence of light
- Recognise the dangers of sunlight and how the eyes can be protected
- Recognise that shades 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

- Recognise that soils are made from rocks and organic matter
- Describe in simple terms how fossils are formed when living things become trapped within rock
- Compare and group together different kinds of rock in basis of their appearance and physical properties



Working Scientifically

- Ask relevant questions and use different types of scientific enquiries to answer them
- Set up simple practical comparative and fair tests
- Make careful observations and take accurate measurements using a range of equipment
- Gather, record and present data in a variety of ways to help with answering questions
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identify differences, similarities or changes related to simple scientific ideas and processes
- Use straightforward scientific evidence to answer questions to support 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

Electricity

- 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 whether or not a lamp lights in a simple series circuit
- Recognise some common conductors and insulators, and associate metals with being good conductors

Living Things and 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

Sound

- Identify how sounds are made, associating 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 objects that produce 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

State of Matter

- Compare and group materials together, according to whether they are solids, liquids or gases including tricky ones such as paste, gels, mist, foams
- 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



Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Take accurate measurements using a range of scientific equipment, taking repeat readings when necessary
- Record data and results of increasing complexity, using diagrams and labels, tables, scatter graphs, bar and line graphs
- Use test results to make predications to set up further comparative and fair tests
- Discuss the accuracy of results and how reliable the information is
- Identify scientific evidence that has been used to support or refute ideas or arguments.

Animals including Humans

- Describe the changes as humans develop into old age

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
- Recognise that some materials will dissolve in liquids 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 by filtering, sieving and evaporating.
- Give reasons based on evidence from comparative and fair test, 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 acids

Forces and Magnets

- Explain that unsupported objects fall towards the Earth because of the force of gravity
- 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

Earth & 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
- 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

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 processes of reproduction in some plants and animals



Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables
- Take accurate measurements using a range of scientific equipment, taking repeat readings when necessary
- Record data and results of increasing complexity, using diagrams and labels, tables, scatter graphs, bar and line graphs
- Use test results to make predications to set up further comparative and fair tests
- Present results orally and in written form
- Identify scientific evidence that has been used to support or refute ideas or arguments.
- Describe and evaluate their own and other people's scientific ideas related to topics studied, including ideas which may have changed over time.
- Group and classify things and recognise patterns
- Find out things using a wide range of secondary evidence
- Use appropriate scientific language and ideas to explain, evaluate and communicate methods of findings.

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

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 bulb brightness, buzzer volume and the on/off position of switches
- Use recognised symbols when representing a simple circuit in a diagram

Evolution and Inheritance

- Recognise that living things have changed over time and that fossils provide information about living things that lived 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 adaption may lead to evaluation.

Light

- Recognise that light appears to travel in straight lines
- Understand that things are seen as they reflect light into the eye or give out light
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects they cast on them

Living Things and Their Habitats

- Give reasons for classifying plants and animals based on specific characteristics
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organism, plants and animals