Worlingham CEVC Primary School

Science Assessment Descriptors

Year	Working Scientifically						Scientific Knowledge
	Asking and answering questions	Observation and measurement	Setting up enquiry	Recording and presenting	Answering and concluding	Evaluation and Communication	
EYFS							• Recognise some environments that are different to the one in which they live. • Talk about members of their immediate family and community. • Name and describe people who are familiar to them. • Draw information from a simple map. • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
1	Children develop questions with the teacher and are involved in planning how to answer them Asks simple questions e.g. what is...? How does it work? Why has that happened? Which is better?	Children use appropriate senses and equipment to make observations Children begin to make measurements by comparison	Children use practical resources to gather evidence. Sorts and groups objects, materials or living things, based on criteria Can use secondary sources, such as identifications sheets, to name living things.	Children record observations with drawings, photos or words. Uses a pre-prepared table, pictogram, tally etc. to record measurements/data	Children use their experience of the world around them to suggest answers to questions. Begin to relate their answers to the measurements/evidence they have gained, e.g. biggest, smallest, best, worst.		<u>Plants</u> • 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. <u>Animals including humans</u> • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Everyday materials</u> • Distinguish between an object and the material from which it's made.

							•Identify and name a variety of everyday materials (wood, plastic, glass metal, water, 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. <u>Seasonal change</u> •Observe changes across the 4 seasons. •Observe and describe weather associated with the seasons and how day length varies.
2	Children develop questions with the teacher and are involved in planning how to answer them Asks questions independently and begins to think of how these can be answered.	Children use equipment to observe changes over time Children can make measurements by comparison and begins to measure with non-standard units.	Uses different types of scientific enquiry to gather and record data, using simple equipment where appropriate to answer questions including: • noticing similarities, differences and patterns • grouping and classifying things • carrying out simple comparative tests • finding things out using secondary sources of information	Children record observations with labelled diagrams, photos, and sentences. Uses a pre-prepared table, pictogram, tally etc. to record measurements/data with increasing accuracy	Children use their experience of the world around them to suggest answers to questions. Can relate their answers to the measurements/evidence they have gained.	Children are beginning to communicate their ideas, what they do and what they find out in a variety of ways	<u>Plants</u> •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. <u>Animals including humans</u> •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. <u>Everyday materials</u> •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. <u>Living things and their habitat</u> •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.

							•Identify and name a variety of plants and animals in their habitats, 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.
3	Children consider their prior knowledge when asking questions. Children can answer questions posed by the teacher. Children are beginning to make decisions for themselves how to answer a question. By the end of y3, children are beginning to identify the type of enquiries they are using to answer a question.	Makes increasingly careful observations Takes measurements using standard units, using a range of equipment, including thermometers and data loggers	Select from a range of practical resources to gather evidence. They follow a plan to answer questions including: • noticing similarities, differences and patterns • grouping and classifying things • carrying out comparative tests • simple fair tests • finding things out using secondary sources of information	Beginning to decide how best to record data. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	With some guidance, children answer their questions based on their observations, measurements, or secondary information. Children are beginning to interpret the data to generate simple comparisons and notice patterns and relationships in their data.	Uses results to draw simple conclusions and suggest improvements. Reports on findings, with guidance, from enquiries, including oral and written explanations, displays or presentations of results and conclusions	<u>Plants</u> •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. <u>Animals, including humans</u> •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. <u>Rocks</u> •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. <u>Light</u> •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 an opaque object. •Find patterns in the way that the size of shadows change.

							<u>Forces and magnets</u> •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.
4	Children consider their prior knowledge when asking questions. Children can answer questions posed by the teacher. Children can decide for themselves how to gather evidence to answer a question. Children can identify when questions require a secondary source and cannot be answered through practical. Can identify the type of enquiries they are using to answer a question.	Makes systematic and careful observations Takes accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Select from a range of practical resources to gather evidence. They follow a plan to answer questions including: • noticing similarities, differences and patterns • grouping and classifying things • carrying out comparative tests • simple fair tests • finding things out using secondary sources of information	Beginning to decide how best to record data. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Children answer their questions based on their observations, measurements, or secondary information. Children interpret the data to generate simple comparisons and notice naturally occurring patterns and casual relationships.	Uses results to draw simple conclusions, suggest improvements and raise further questions. Reports on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	<u>Animals, including humans</u> •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. <u>Living things and their habitats</u> •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. <u>States of matter</u> •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>Sound</u>

							•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. <u>Electricity</u> •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.
5	Plans different types of scientific enquiries to answer questions Children independently ask relevant questions, based on prior knowledge Children chose the type of enquiry to carry out, and can explain their choices. Children can identify when questions require a secondary source and cannot be	Takes measurements, using a range of scientific equipment. Selects measuring equipment which will give the most precise answer. Does this with increasing accuracy and precision, taking repeat readings when appropriate	Select from a range of resources to gather evidence. Carry out fair tests, recognising and controlling variables where necessary Decides on what observation or measurement to make and for how long. Looks for patterns and relationships in data samples.	Records data and results of increasing complexity Uses photographs, videos, labelled diagrams, observational drawings, labelled diagrams and writing to record observation. Uses tables, tally charts, bar charts, line and scatter graphs to record measurement. Uses tables, Venn diagrams, Carroll	Children answer their questions based on their observations, measurements, or secondary information. They can discuss whether evidence supports or refutes their results. They discuss how they have adapted/changed their ideas due to evidence collected.	Uses enquiry results to make predictions to set up further comparative and fair tests. Describes and evaluates their scientific ideas using evidence from a range of sources. Evaluates the accuracy of their methods. Can identify limitations of their experiments.	<u>Living things and their habitats</u> •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. <u>Animals, including humans</u> •Describe the changes as humans develop to old age. <u>Properties and changes of 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, and describe how to recover a substance from a solution. •Use knowledge of solids, liquids and gases to decide how mixtures might be separated,

	answered through practical.			diagrams and classification keys.		Present ideas in oral and written forms such as displays and other presentations. Reports and presents findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in result.	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. <u>Earth and space</u> •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. <u>Forces</u> •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.
6	Asks their own questions about the scientific phenomena they are studying. Selects and plans the most appropriate ways to answer these questions Recognises and controls variables where necessary.	Uses a range of scientific equipment to take accurate and precise measurements or readings. Makes decisions during an experiment e.g. taking repeat readings, increasing sample sizes, adjusting observation time/frequency,	Select independently from a range of resources to gather evidence. Carry out fair tests, recognising and controlling variables. Decides on which observation or measurement to make and for how long.	Records data and results of complexity. Makes decisions on how to record data. Uses photographs, videos, labelled diagrams, observational drawings, labelled diagrams and writing to record observation.	Answers questions based on their findings. Raises further questions that could be investigated, based on their data and observation They talk about how their scientific ideas change due to new	Describes and evaluates their own and other people's scientific ideas using evidence from a range of sources. Evaluates their choice of method and the accuracy of experiments.	<u>Living things and their habitats</u> •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. <u>Animals, including humans</u> •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.

	Uses a wide range of secondary sources of information.	checking a range of secondary sources.	Actively looks for patterns and relationships in data samples.	Uses tables, tally charts, bar charts, line and scatter graphs to record measurement. Uses tables, Venn diagrams, Carroll diagrams and classification keys.	evidence they have gathered. They can talk about how new discoveries change Scientific understanding.	Explains findings using subject knowledge. Identifies casual relationships and patterns Uses enquiry results to make predictions to set up further comparative and fair tests. Points out results that don't fit the overall pattern. Children communicate their findings to an audience using relevant Scientific language. Evaluates their choices of methods, control of variables, the accuracy of measurements and the credibility of secondary Sources. Can identify limitations that reduce the trust they have in their evidence.	•Describe the ways in which nutrients and water are transported within animals, including humans. <u>Evolution and inheritance</u> •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. <u>Light</u> •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. <u>Electricity</u> •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.