Key Skills Assessment Criteria - 2022-23

Subject: Science

	Autumn	Spring	Summer
Nursery	Throughout nursery the children will cover these objectives: • Beginning to understand 'why' and 'how' questions. • Listens and responds to ideas expressed by others in conversation or discussion. • Learns new words very rapidly and is able to use them in communicating. • Uses talk to connect ideas, explain what is happening. • Questions why things happen and gives explanations. • Builds up vocabulary that reflects the breadth of their experiences. • Extends vocabulary, exploring the meaning of new words. • Notices detailed features of objects in their environment. • Comments and asks questions about aspects of their familiar world and the natural world. • Can talk about some of the things they have observed such as plants, animals, natural and found objects. • Talks about why things happen and how things work. • Developing an understanding of growth, decay and changes over time. • Shows care and concern for living things and the environment. • Looks closely at similarities, differences, patterns and change. .		
Reception	• Extends vocabulary, especially by grouping and naming. • Uses talk to organise, sequence and clarify thinking, ideas, feelings and events • They develop their own narratives and explanations by connecting ideas or events. • They answer 'how' and 'why' questions about their experiences or events. • Shows some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health. • Looks closely at similarities, differences, patterns and change. • Children know about similarities and differences in relation to objects, materials and living things. • They make observations of animals and plants and explain why some things occur, and talk about changes. • Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy		
Year 1	Animals including humans -Name a variety of common animals including fish, amphibians, reptiles, birds and mammals -Identify animals that are carnivores, herbivores and omnivores -Describe a variety of common animals -Label the basic parts of the human body and say which part of the body is associated with each sense.	Seasonal Changes (Autumn, Winter) – Observe changes across the 4 seasons. -Observe and describe weather associated with the seasons and how the day length varies	Everyday materials -recognise an object and the material from which it is made. -identify and name a variety of materials. -describe the simple properties of materials. -compare materials.
	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 (Spring, Summer) -observe changes across the 4 seasons. -Observe and describe weather associated with the seasons and how the day length varies.	**Focused Assessments** - -Observe changes across the four seasons (Seasons) Identify basic parts of the human body and say which part of the body is associated with each sense. (Animals, including humans) - Compare and group together a variety of everyday materials on the basis of their simple physical properties (Materials) -Identify and describe the basic structure of a plant and a tree (Plants)
Working Scientifically	**Working Scientifically skills**		
	Planning Experiments	Conducting and Recording Experiments	Reporting Findings and Concluding
	Ask simple questions Understand that questions can be answered in different ways.	Observe closely, using simple equipment Perform simple tests Identifying and classifying (e.g. living and non living things)	Recognise findings Gather and record data Use observations to suggest answers to questions

Year 2	Uses of everyday materials -Explore what different materials are used for. -Find different objects which are made of different materials. -Find reasons why objects are made out of particular materials -Investigate how objects made from different materials can change shape.	Living things and their habitats -To compare the differences between things that are living, dead, and things that have never been alive -Describe how different habitats provide for the basic needs of different kinds of animals and plants. -Name a variety of plants and animals in their habitats, including microhabitats -Investigate simple food chains.	Animals including Humans -how animals grow and change. -the basic needs of animals. -the need for exercise, healthy food choices and hygiene.	Plants Observe seeds and bulbs and how they grow. The needs of plants, water, light, suitable temperatures in order to grow and stay healthy.	Exploring and Investigating Develop scientific skills. By completing a range of investigations and experiments the children will be encouraged to ask simple questions and recognise that they can be answered in different ways -Observe closely, using a range of simple equipment	**Focused Assessments** – -Identify and name a variety of plants and animals in their habitats, including micro-habitats (Living things and their Habitats) - Use knowledge and understanding of properties of materials to compare suitability for different uses (Materials) - Recognise growth in humans (Animals) - Describe how plants needs water, light and a suitable temperature to grow and stay healthy (Plants)
Working Scientifically	**Working Scientifically skills**					
	Planning Experiments		Conducting and Recording Experiments		Reporting Findings and Concluding	
	Ask simple questions Understand that questions can be answered in different ways.		Observe closely, using simple equipment (e.g. magnifying glasses) Perform simple tests (to find things out) Identifying and classifying (e.g. living and non living things)		Recognise findings Gather and record data (information) to help answer questions Use observations and ideas to suggest answers to questions Use their observations and ideas to suggest answers to questions	
Yaer 3 HEP Curriculum	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.	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	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 an opaque object -Find patterns in the way that the size of shadows change	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 animals have skeletons and muscles for support, protection and movement.	Forces and Magnets -compare how things move on different surfaces -notice that some forces need contact between 2 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 2 poles -predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	Bee Project A look at the relationship between bees and their environment; importance in pollination, food, light and earth's magnetic field
Working Scientifically	**Working Scientifically skills**					
	Planning Experiments		Conducting and Recording Experiments		Reporting Findings and Concluding	
	Ask relevant questions Set up simple and practical enquiries, comparative and fair tests Plan different types of scientific enquiries to answer questions		Make systematic and careful observations using a range of equipment, including thermometers and data loggers Take accurate measurements using standard units Gather, record, classify and present data in a variety of ways to help in answering questions		Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings using oral and written explanations, of results and conclusions (including the use of displays or presentations) Use results to draw simple conclusions, make predictions for new values, suggest improvements and ask further questions. Identify differences, similarities or changes related to simple scientific ideas and processes Use simple scientific evidence to answer questions or to support their findings.	

Year 4 HEP Curriculum

States of Matter	Animals, including humans	Sound	Living things and their habitats	Electricity	Focused Assessments
-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.	-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.	-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.	To recognise that living things can be grouped in a variety of ways. -To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment -To recognise that environments can change and that this can sometimes pose dangers to living things.	-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	-Identify what is to be changed and what is to be kept the same in a fair test (States of Matter) - Find patterns between the pitch of a sound and features of the object that produced it (Sound) -Recognise that living things can be grouped in a variety of ways (Living things and their habitats) -Take accurate measurements using standard units, using a range of equipment including thermometers and data loggers (States of Matter) -Recognise some common conductors and insulators, and associate metals with being good conductors (Electricity) -Describe the simple functions of the basic parts of the digestive system in humans (Animals including humans)

Working Scientifically

Working Scientifically skills

Planning Experiments	Conducting and Recording Experiments	Reporting Findings and Concluding
Ask relevant questions Set up simple and practical enquiries, comparative and fair tests Plan different types of scientific enquiries to answer questions	Make systematic and careful observations using a range of equipment, including thermometers and data loggers Take accurate measurements using standard units Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	Suggest how findings could be reported Report on findings using oral and written explanations, of results and conclusions (including the use of displays or presentations) Use results to draw simple conclusions, make predictions for new values, suggest improvements and ask further questions. Identify differences, similarities or changes related to simple scientific ideas and processes Use simple scientific evidence to answer questions or to support their findings. Suggest possible improvements or further questions to investigate

Year 5

Earth and Space	Forces	Properties and changes of material	Living things and their habitats	Animals, including humans	Focused Assessments
-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.	-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	-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 -Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	-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.	-Recognise the stages of growth and development in humans -Know the stages in the gestation period of humans and compare them to other animals -Recognise the stages of development during childhood and understand the needs of children at those stages - Understand the initial changes inside and outside of the body during puberty -Understand how to keep ourselves happy and healthy during puberty	-Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Earth and Space) -Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials (Properties of materials) -Identify the effects of water resistance - Aerodynamics (Forces) - describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird (Living things and their habitats) -Describe the changes as humans develop to old age. (Animals, including humans)

Working Scientifically

Working Scientifically skills

Planning Experiments	Conducting and Recording Experiments	Reporting Findings and Concluding
Plan different types of scientific enquiries to answer questions Recognise and control variables where necessary	Take precise measurements using standard units. Take measurements with increasing accuracy and precision. Take repeat readings when appropriate. Record data using labelled scientific diagrams, keys, tables and charts Record data and results of increasing complexity using line graphs	With support, present findings from enquiries orally and in writing (such as displays and other presentations). Use test results to make predictions to set up further comparative and fair tests. With prompting, identify causal relationships and that not all results may be trustworthy. Suggest how evidence can support conclusions. Identify scientific evidence that has been used to support or refute ideas or arguments.

Year 6

Animals, including humans	Evolution and inheritance	Electricity	Light	Living things and their Habitats	Focused Assessments
-Identify and name the main parts of the human circulatory system, and explain 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.	-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.	-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.	-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 micro-organisms, plants and animals -Give reasons for classifying plants and animals based on specific characteristics	- recognise the impact of exercise on the way their bodies function (Animals, including humans) - Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Evolution and Inheritance) - Compare variations in how components function. (Electricity) - Use the idea that light appears to travel in straight lines to explain why shadows have the same shape as their objects (Light) - Give reasons why a particular invertebrate belongs to a certain group (Living things and their Habitats)

Working Scientifically

Working Scientifically skills

Planning Experiments	Conducting and Recording Experiments	Reporting Findings and Concluding
Plan different types of scientific enquiries to answer questions Recognise and control variables where necessary	Take precise measurements using standard units. Take measurements with increasing accuracy and precision. Take 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	Report and presents findings from enquiries in oral and written forms such as displays and other presentations. Use test results to make predictions to set up further comparative and fair tests With prompting, identify causal relationships and that not all results may be trustworthy. Suggest how evidence can support conclusions. Identify scientific evidence that has been used to support or refute ideas or arguments.