




KNOWLEDGE PROGRESS MAPS FOR SCIENCE JKPS 2021

	EYFS	End of Key Stage One	Lower Key Stage Two	Upper Key Stage 2
Working scientifically	<ul style="list-style-type: none"> Observe things closely through a variety of means (photos, magnifiers) With support, notice and discuss patterns around them. 	<ul style="list-style-type: none"> Explore the world around them and raise their own simple questions. Begin to recognise that there are different ways to answer a scientific question. Experience a variety of practical scientific enquiries. Carry out a simple test. Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (Identify and classify). Observe closely using simple equipment: pooters, magnifying glasses With guidance, begin to notice patterns and relationships. Use simple measurements and equipment to gather data (egg timers, lenses, magnifiers) Use observations and ideas to suggest answers to questions. 	<ul style="list-style-type: none"> Raise their own relevant questions about the world around them. Provide a range of different scientific experiences including different types of scientific enquiries to answer questions. Start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions. Begin to set up simple scientific enquiries, comparatives and fair tests. Recognise when a fair test is necessary and help to decide how to set it up. Talk about the criteria for sorting, grouping and classifying; and use simple keys. Make systematic and careful observations. Help to make decisions about the observations to make, how long to make them for and the type of simple equipment that might be used. Begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. Take accurate measurements using standard units. Learn how to use a greater range of equipment including data loggers and thermometers. 	<ul style="list-style-type: none"> Use their own science experiences to explore ideas and raise different kinds of questions. Talk about how scientific ideas have developed over time. Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Use and development keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment. Make decisions about what observations to make, what measurements to use and long to make them for. Look for different causal relationships in data and identify evidence that refutes or supports their ideas. Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate.
Communicating Scientifically	<ul style="list-style-type: none"> With support, talk about patterns and changes that have been seen. 	<ul style="list-style-type: none"> Record simple data. Talk about what you have found out and how you have found out. With support, record and communicate findings in a range of ways, beginning to use simple scientific language. 	<ul style="list-style-type: none"> Collect and record data from observations and measurements in a variety of ways: notes, bar charts and tables, standard units, drawings, labelled diagrams and keys. Look for changes, patterns, similarities and differences in data in order to draw simple conclusions and answer questions. 	<ul style="list-style-type: none"> Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Identify scientific evidence that has been used to refute or support ideas or arguments. Use relevant scientific language and illustrations to discuss, communicate and justify scientific ideas, use oral and written forms such as displays and other presentations to report conclusions, causal relationships and explanations of degrees of trust in results. Use results to make predictions and identify when further observations, comparative and fair tests might be needed.
Animals, including humans	<ul style="list-style-type: none"> Identify and name some common animals. This will be linked to personal experiences such as pets, books or days out 	<ul style="list-style-type: none"> 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 carnivores, herbivores and omnivores. Understand that animals, including humans, have offspring which grow into adults. Describe the basic needs of animals, including humans, for survival: water, food, air Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> Know that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food and that they get their nutrition from the food they eat. Know that humans and some other animals have skeletons and muscles for support and movement. Know the basic functions of the human digestive system. Know the types of teeth in the human mouth and their function. Know how to construct and interpret a food chain, identifying predators, prey and producers. 	<ul style="list-style-type: none"> Know how humans develop and change to old age. Know how to group plants, animals and microorganisms based on common, observable characteristics. Give reasons for the classification chosen. Know the main parts of the human circulatory system. Know the functions of the heart, blood vessels and blood. Know what impact diet, exercise, drugs and lifestyle has on the function of the human body. Know how water is transported within animals.

Living Things and their Habitats	<ul style="list-style-type: none"> • Make observations of living things in the immediate environment. 	<ul style="list-style-type: none"> • 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 micro-habitats. • 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. 	<ul style="list-style-type: none"> • Know that living things can be classified in different ways. • Know how to use a classification key to group, identify and name a variety of living things. • Know that environments can change and that these changes can pose danger to living things. 	<ul style="list-style-type: none"> • Know how lifecycles differ for mammals, insects and birds. • Know the process of reproduction for plants and animals- sexual and asexual
Plants	<ul style="list-style-type: none"> • With support, make observations of plants in the immediate environment 	<ul style="list-style-type: none"> • Identify and name a variety of common wild and garden plants. • Identify and name a variety of native evergreen and deciduous trees. • Know the basic structure of a variety of common flowering plants including: petal, leaf, trunk, branch, stem, root, fruit, bulb, seed • Observe and describe how bulbs and seeds grow into mature plants. • Know that plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> • Know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. • Know the requirements of a plant for life and growth (air, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • Investigate the way in which water is transported in plants. • Know the life cycle of a flowering plant: pollination, seed formation and seed dispersal. 	<ul style="list-style-type: none"> • Reproduction of flowers- see living things and habitats
Materials, their properties and change	<ul style="list-style-type: none"> • Use a variety of materials during independent play: plastic jugs, wooden blocks, fabric puppets. 	<ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. • Describe the simple physical properties of a variety of everyday objects. • Compare and group together a variety of everyday materials on the basis of their simple physical properties. • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Know how to group materials based on their hardness, solubility, transparency, conductivity and response to magnets. • Know that some materials will dissolve in liquid to form a solution and how to recover a substance from a solution. • Know how to best separate a mixture using filtering, sieving and evaporating. • Know that dissolving, mixing and changes of state are reversible. • Know that some changes result in the formation of a new material and that this is usually irreversible.
Seasonal Changes- the world	<ul style="list-style-type: none"> • Observe and name the types of weather seen on a daily basis. 	<ul style="list-style-type: none"> • Observe changes across the four seasons. • Observe and describe weather associated with these seasons and how day length varies. 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Know how the Earth and the other planets move in relation to the sun. • Know how the moon moves in relation to the earth. • Know that the sun, moon and earth are approximately spherical bodies. • Know that the rotation of the Earth explains the concept of day and night
Rocks	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Compare and group different kinds of rocks on the basis of their appearance and simple physical properties. • Describe in simple terms how fossils are formed. • Know that soils are made from rocks and organic matter. 	<ul style="list-style-type: none"> •

Light	<ul style="list-style-type: none"> Explore sources of light: torches, ceiling lights, the sun, the moon. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Know that light is needed in order to see. Know that dark is the absence of light. Know that light can be reflected from surfaces. Know that light from the sun can be dangerous and know some ways to protect yourself. Know how shadows are formed and that their size can be changed. 	<ul style="list-style-type: none">
Forces and Magnets	<ul style="list-style-type: none"> Explore and investigate bar magnets. Can you find an object that will stick to a magnet? <ul style="list-style-type: none"> magnet? 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Know that objects will move in different ways on different surfaces. Know that some forces can act at a distance and that some forces need direct contact between two objects. Know that magnets have two poles and how magnets behave depending on which of the poles meet. Know that some objects are attracted to metals but some are not. 	<ul style="list-style-type: none"> Know that an unsupported object will fall to the Earth because of the effect of gravity. Know how water resistance, air resistance and friction act between moving surfaces. Know how levers, pulleys and gears allow a smaller force to have a greater effect.
States of Matter	<ul style="list-style-type: none"> Explore malleable materials with hands, fingers and a variety of tools. 	<ul style="list-style-type: none"> Know that some objects can be squashed, bent, twisted or stretched depending on the material they are made from. 	<ul style="list-style-type: none"> Know if a material is a solid, liquid or gas. Know that heating or cooling a material can change its state. Know that some changes can be reversed and that some are irreversible. Know that evaporation rate increases as temperature increases. 	<ul style="list-style-type: none">
Sound	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Know that some sounds are created when an object vibrates. Know that vibrations from sounds travel through a medium (usually the air) to the ear. Know that features of an object will change the pitch of a sound. Know that as the strength of vibrations increases, the volume of a sound will increase. Know that sounds get fainter as the difference from the sound source increases. 	<ul style="list-style-type: none">
Electricity	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Know that common appliances require electricity to run. Know how to construct a simple series circuit. Know the basic parts of an electrical circuit. Know that a circuit must complete a full loop in order for the electricity to flow around it. Know how a switch affects a series circuit. Know that some materials conduct electricity and some insulate electricity. 	<ul style="list-style-type: none">