Progression grid for Science - Knowledge

Science Knowledge – Learning Progression							
Key Area	**EYFS**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
Plants **Progression (Black)** **Links to other Scientific areas (Red)**	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.	Know names of a variety of common wild and garden plants, including deciduous and evergreen trees. Know the basic structure of a variety of common flowering plants, including trees.	Know that seeds and bulbs grow into mature plants. Know how to find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)	Know the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Know 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. Know how water is transported within plants. Know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats) Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats).	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. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)

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Key Area	**EYFS**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
Living things and their habitats **Progression (Black)** **Links to other Scientific areas (Red)**	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.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) Describe and compare the structure of a variety of common animals. (Y1 – Animals, including humans) Observe changes across the four seasons. (Y1 - Seasonal change)	Know that there are differences between things that are living, dead, and things that have never been alive. Know 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. Know names of a variety of plants and animals in their habitats, including microhabitats. Know 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. Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals including humans)	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	Know that living things can be grouped in a variety of ways. Know how to use classification keys to help group, identify and name a variety of living things in their local and wider environment. Know that environments can change and that this can sometimes pose dangers to living things. Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)	Know the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Know the life process of reproduction in some plants and animals.	Know how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Know reasons for classifying plants and animals based on specific characteristics. Know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (Y6 - Evolution and inheritance) Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Y6 - Evolution and inheritance)

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Animals including humans **Progression (Black)** **Links to other Scientific areas (Red)**	Talk about members of their immediate family and community. Name and describe people who are familiar to them. Recognise some environments that are different to the one in which they live.	Know names of a variety of common animals including fish, amphibians, reptiles, birds and mammals. Know names of a variety of common animals that are carnivores, herbivores and omnivores. Know how to compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Know names of, and know how to draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Know that animals, including humans, have offspring which grow into adults. Know how to find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Know the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 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. (Y2 - Living things and their habitats)	Know 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. Know that humans and some other animals have skeletons and muscles for support, protection and movement.	Know the simple functions of the basic parts of the digestive system in humans. Know the different types of teeth in humans and their simple functions. Know how to construct and interpret a variety of food chains, identifying producers, predators and prey.	Know that there are changes as humans develop to old age. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)	Know names of the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Know the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Know the ways in which nutrients and water are transported within animals, including humans. 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. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)

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Evolution and Inheritance **Progression (Black)** **Links to other Scientific areas (Red)**	Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)		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. (Y2 - Living things and their habitats) Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)	Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)	Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)	Know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

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Seasonal Changes **Progression (Black)** **Links to other Scientific areas (Red)**	Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.		Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 - Earth and space)	

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Materials **Progression (Black)** **Links to other Scientific areas (Red)**	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Know how to distinguish between an object and the material from which it is made. Know names of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Know how to describe the simple physical properties of a variety of everyday materials. Know how to compare and group together a variety of everyday materials on the basis of their simple physical properties.	Know how to Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Know that the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks) Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) 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. (Y3 - Forces and magnets)	Know how to compare and group materials together, according to whether they are solids, liquids or gases. Know 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). Know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Know some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)	Know how to 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. Using knowledge of solids, liquids and gases, know how mixtures might be separated, including through filtering, sieving and evaporating. Based on evidence from comparative and fair tests, know the particular uses of everyday materials, including metals, wood and plastic. Know that dissolving, mixing and changes of state are reversible changes. Know 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.	

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Rocks **Progression (Black)** **Links to other Scientific areas (Red)**	Explore the natural world around them. (Reception – Living things and their habitats) Describe what they see, hear and feel whilst outside. (Reception – Living things and their habitats)	Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - 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. (Y2 - Uses of everyday materials)	Know how to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Know how fossils are formed (in simple terms) when things that have lived are trapped within rock. Know that soils are made from rocks and organic matter.			Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 - Evolution and inheritance)

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Key Area	**EYFS**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
Light **Progression (Black)** **Links to other Scientific areas (Red)**	Describe what they see, hear and feel whilst outside.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)		Know that they need light in order to see things and that dark is the absence of light. Know that light is reflected from surfaces. Know that light from the sun can be dangerous and that there are ways to protect their eyes. Know that shadows are formed when the light from a light source is blocked by an opaque object. Know why/when the size of shadows change.		Know how to 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. (Y5 - Properties and changes of materials)	Know that light appears to travel in straight lines. Know that as light travels in straight lines this explains that objects are seen because they give out or reflect light into the eye. Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Know that as light travels in straight lines this explains why shadows have the same shape as the objects that cast them.

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Forces **Progression (Black)** **Links to other Scientific areas (Red)**	Explore the natural world around them. Describe what they see, hear and feel whilst outside.		Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses ofeveryday materials)	Know how to compare how things move on different surfaces. Know that some forces need contact between two objects, but magnetic forces can act at a distance. Know that magnets attract or repel each other and attract some materials and not others. Know how to 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. Know that magnets have two poles. Know how to predict whether two magnets will attract or repel each other, depending on which poles are facing.		Know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Know the effects of air resistance, water resistance and friction, that act between moving surfaces. Know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

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Sound **Progression (Black)** **Links to other Scientific areas (Red)**	Describe what they see, hear and feel whilst outside.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)			Know how sounds are made, associating some of them with something vibrating. Know that vibrations from sounds travel through a medium to the ear. Know that larger objects produce lower sounds, and smaller/shorter objects produce higher pitched sounds. Know that stronger vibrations produce louder sounds. Know that sounds get fainter as the distance from the sound source increases.		

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Electricity **Progression (Black)** **Links to other Scientific areas (Red)**					Know that common appliances that run on electricity. Know how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Know 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. Know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Know some common conductors and insulators, and associate metals with being good conductors.		Know the association of the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Know how to 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. Know how to use recognised symbols when representing a simple circuit in a diagram.

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Earth and Space **Progression (Black)** **Links to other Scientific areas (Red)**	Explore the natural world around them. Describe what they see, hear and feel whilst outside.	Observe changes across the four seasons. (Y1 – Seasonal changes) Observe and describe weather associated with the seasons and how day length varies. (Y1 – Seasonal changes)				Know the movement of the Earth, and other planets, relative to the Sun in the solar system. Know the movement of the Moon relative to the Earth. Know the Sun, Earth and Moon as approximately spherical bodies. Know how to use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	