Science – units of work: **Whole-School Curriculum Progression Map**

	EYFS (30 - 50mths to ELGs)	KS1		KS2			
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	Through provision, focus groups and with adult support, children can… Look at	***Plants (Term 4)*** **Children can:** 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. **Plant grown** - tomatoes? **Investigation focus**-	**Plants (Term 4)** **Children can**: 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. **Plant grown** - **Investigation focus**- Investigate and describe the impact of removing light, soil or water from a growing plant.	**Plants (Term 5/6)** **Children can**: 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. **Plant grown** - **beans** **Investigation focus** - Testing Pupil-led investigation – What is the most important factor that influences plant health? Prove it.			
	Exceeding	**Greater Depth** Identify and notice similarities between various local plants. Identify and notice similarities between the structure of	**Greater Depth** Compare and contrast the growth patterns of different types of plants Have a good understanding of the optimal conditions a plant needs and is able to make	**Greater Depth** Compare the requirements of different plants and link these to particular habitats. Suggest how water being transported might vary from one type of plant to another.	**Greater Depth**	**Greater Depth**	**Greater Depth**

		various local plants. Identify further examples to add to the categories: 'living', 'dead' and 'things that have never been alive'. Can they begin to describe what each part of a plant does? (e.g. roots, stem, leaves, petals, pollen) on a range of plants.	reasonable predictions about other conditions not show. Eg. varying amount of water/light/temp Can they describe what plants need to survive and link it to where they are found? Can they explain that plants grow and reproduce in different ways?	Suggest why pollination, seed formation and seed dispersal may vary from one type of plant to another. Can they classify a range of common plants according to many criteria (environment found, size, climate required, etc.)?			
Animals Including Humans	Through provision, focus groups and with adult support, can children…	**Animals Including Humans (Term 2/3)** **Children can**: 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. **Investigation focus -**	**Animals Including Humans (Term 5)** **Children can**: 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. **Investigation focus -**	**Animals Including Humans (Term 4)** **Children can**: 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. **Investigation focus** - Recording findings Make a working muscle. How can you make your muscle stronger?	**Animals Including Humans (Term 4)** **Children can**: 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. **Investigation focus -**	**Animals Including Humans (Term 4)** **Children can**: Describe the changes as humans develop to old age. Investigation focus -	**Animals Including Humans (Term 4)** **Children can**: 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. Describe the ways in which nutrients and water are transported within animals, including humans. **Investigation focus -**

	Exceeding	**Greater Depth** Identify common features of the main groups of vertebrates. Suggest whether an unfamiliar animal might be a carnivore, herbivore or omnivore. Compare key features of familiar and unfamiliar animals. Suggest how the senses are used in an activity such as eating. Can they begin to classify animals according to a number of given criteria? Can they point out differences between living things and non-living things? Can they name some parts of the human body that cannot be seen? Can they say why certain animals have certain characteristics? Can they name a range of wild animals?	**Greater Depth** Describe the relationship between adult animals and their offspring. Suggest how the basic needs of different animals influences their choice of habitat. Suggest effects of poor diet and hygiene. Canthey explain that animals reproduce in different ways?	**Greater Depth** Explain why a varied diet is important. Compare the ways that the skeletons of different animals provide support, protection and movement. Can they explain how the muscular and skeletal systems work together to create movement? Can they classify living things and non-living things by a number of characteristics that they have thought of? Can they explain how people, weather and the environment can affect living things? Can they explain how certain living things depend on one another to survive?	**Greater Depth** Explain why the simple functions of the basic parts of the digestive system in humans are necessary. Explain why humans have different types of teeth. Suggest what might happen in a food chain if the population of one of the organisms changes and explain reasoning. Can they classify living things and non-living things by a number of characteristics that they have thought of? Can they explain how people, weather and the environment can affect living things? Can they explain how certain living things depend on one another to survive?	**Greater Depth** Suggest why some of the changes that take place in humans happen, e.g. suggest why babies have disproportionately large heads compared to adults Can they create a timeline to indicate stages of growth in certain animals, such as frogs and butterflies? Can they describe the change experienced in puberty? Can they draw a timeline to indicate stages in the growth and development of humans?	**Greater Depth** Explain some characteristics of the heart, blood vessels and blood, e.g. explain that the arteries are thicker because they carry blood at a higher pressure. Explain how decisions about lifestyle can affect the quality of life, e.g. recognise that making excessive use of convenience foods may introduce more additives into the diet. Compare the ways in which nutrients and water are transported in two animals that are quite different Can they explore the work of medical pioneers, for example, William Harvey and Galen and recognise how much we have learnt about our bodies? Can they compare the organ systems of humans to other animals? Can they make a diagram of the human body and explain how different parts work and depend on one another? Can they name and locate the major organs in the human body?

Living Things and Habitats	Through provision, focus groups and with adult support, can children…	**Seasons (Term 2)** **I can:** Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. **Investigation focus -**	**Living Things and Habitats (Term 6)** **Children can**: 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. **Investigation focus -**		**Living Things and Habitats (Term 6?)** 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. **Investigation focus -**	**Living Things and Habitats (Term 4)** **Children can**: 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. **Investigation focus -**	**Living Things and Habitats (Term 5)** **Children can**: 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. **Evolution and Inheritance (Term 3)** **Children can:** 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. **Investigation focus -**

	Exceeding	**Greater Depth** Recognise changes within seasons as well as between seasons. Make and test predictions relating to changing day length and weather patterns. Can they observe features in the environment and explain that these are related to a specific season? Can they observe and talk about changes in the weather? Can they talk about weather variation in different parts of the world?	**Greater Depth** Identify things that are living, dead and have never been alive accurately and consistently into groups explaining their reasoning by referring to more than three of the processes used to inform their sorting. Explain why there may be a limit as to how many of a certain living thing can live in a particular area. Identify a range of living things and suggest why they may be found in that habitat. Suggest, within a simple food chain, what might happen if one of the living things becomes scarce. Can they name some characteristics of an animal that help it to live in a particular habitat? Can they describe what animals need to survive and link this to their habitats?	**Greater Depth**	**Greater Depth** Suggest why some ways of grouping living things may be more useful than others, e.g. why grouping by number of legs is an easy aid to identification. Devise and explain own classification keys to group living things. Describe examples of living things adapting to environmental change, e.g. urban foxes, and examples of extinction due to environmental change. Can they give reasons for how they have classified animals and plants, using their characteristics and how they are suited to their environment? Can they explore the work of pioneers in classification? (e.g. Carl Linnaeus) Can they name and group a variety of living things based on feeding patterns? (producer, consumer, predator, prey, herbivore, carnivore, omnivore)	**Greater Depth** Suggest similarities in the life cycles of a number of vertebrates, e.g. comparison of dog, human and bird embryos. Compare the process of reproduction in animals and plants, e.g. compare and contrast fertilisation. Can they observe their local environment and draw conclusions about life-cycles, e.g. plants in the vegetable garden or flower border? Can they compare the life cycles of plants and animals in their local environment with the life cycles of those around the world, e.g. rainforests?	**Greater Depth** Explore why some living things, such as the duck billed platypus, don't neatly fit into one group. Explain why other features are less useful as a basis for classification, such as size or colour. Can they explain why classification is important? Can they readily group animals into reptiles, fish, amphibians, birds and mammals? Can they sub divide their original groupings and explain their divisions, such as vertebrates and invertebrates? Can they find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification? <u>Evolution</u> Can they research and discuss the work of famous scientists, such as Charles Darwin, Mary Anning and Alfred Wallace? Can they explain how some living things adapt to survive in extreme conditions? Can they analyse the advantages and disadvantages of specific adaptations, such as being on two rather than four feet?

Materials	Through provision, focus groups and with adult support, can children… •	**Materials (Term 1 and 5)** **Children can:** 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 materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. **Investigation focus -**	**Materials (Term 3)** **Children can:** 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. **Investigation focus -**	**Rocks (Term 1)** **Children can:** 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. **Investigation focus - Identify and classify** Explore the composition of different soils. Examine different types of rocks according to their characteristics (e.g. permeability and durability, buoyancy)	**States of Matter (Term 2/3)** **Children can:** 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. **Investigation focus -**	**Properties and Changes of Materials (Term 5)** **Children can:** 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, 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. **Investigation focus -**	

	Exceeding	**Greater Depth** Compare the same object made from different materials in terms of its effectiveness. Identify, name and explore typical uses of a range of materials. Compare the physical properties of different everyday materials. Use simple physical properties to suggest classification of materials. Can they describe things that are similar and different between materials? Can they explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate? Can they explain what happens to certain materials when they are cooled, e.g. jelly, heated chocolate?	**Greater Depth** For particular materials in particular uses, identify limitations as well as suitability. Identify that some changes to shapes are permanent and others are temporary, and that this can influence their uses. Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.? Can they sort materials into groups and say why they have sorted them in that way? Can they say which materials are natural and which are man-made?	**Greater Depth** Explain the importance of studying fossils. Compare different soils in terms of composition. Can they classify igneous and sedimentary rocks? Can they begin to relate the properties of rocks with their uses?	**Greater Depth** Suggest patterns in which kinds of materials change state at higher or lower temperatures. Apply the relationship between rate of evaporation with temperature to everyday contexts Can they group and classify a variety of materials according to the impact of temperature on them? Can they explain what happens over time to materials such as puddles on the playground or washing hanging on a line?	**Greater Depth** Classify various processes relating to materials as reversible or irreversible. Provide examples of when changes being irreversible are a good thing, e.g. making bricks, or not, e.g. non-biodegradable plastic bags. Can they describe methods for separating mixtures? (filtration, distillation) Can they work out which materials are most effective for keeping us warm or for keeping something cold? Can they use their knowledge of materials to suggest ways to classify? (solids, liquids, gases) Cant they explore changes that are difficult to reverse, e.g. burning, rusting and reactions such as vinegar with bicarbonate of soda? Can they explore the work of chemists who created new materials, e.g. Spencer Silver (glue on sticky notes) or Ruth Benerito (wrinkle free cotton)?	**Greater Depth**	

Light and Sound				**Light (Term 3)** **Children can**: 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. **Investigation focus** - Observing Shadow puppet theatres. What affects the size of your puppet's shadow?	**Sound (Term 1)** **Children can:** 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. **Investigation focus** -	**Earth and Space (Term 6)** **Children can:** 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. **Investigation focus** -	**Light (Term 2)** **Children can:** 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. **Investigation focus** -

				Greater Depth Explain why sunlight can be dangerous and how types of protection works. Suggest how light is travelling to form a shadow. Relate position of an object and position of a screen to the size of the shadow. **Can they explain why lights need to be** dimmer according to need? Can they say what happens to the electricity when more batteries are added? Can they explain why their shadow changes when the light source is moved closer or further from the object?	**Greater Depth** Group sound-making objects in terms of how they make sounds Compare the effectiveness of different media in terms of their ability to transmit sound. Identify generic features that cause the pitch of a note to be changed. Can they explain why sound gets fainter or louder according to the distance? Can they explain how pitch and volume can be changed in a variety of ways? Can they work out which materials give the best insulation for sound?	**Greater Depth** Identify that the further out a planet is, the longer its orbit is around the Sun. Relate the Moon's orbit of the Earth to the Earth's orbit of the Sun. Recognise that many heavenly bodies are approximately spherical. Explain the effect of a planet in the solar system rotating at a different rate to Earth. Can they compare the time of day at different places on the earth? Can they create shadow clocks? Can they begin to understand how older civilizations used the sun to create astronomical clocks, e.g. Stonehenge? Can they explore the work of some scientists? (Ptolemy, Alhazen, Copernicus)	**Greater Depth** Refer to the idea that some objects may be better reflectors than others. Use a diagram to explain that although a shadow is the same shape as the object, it may not be the same size. Can they explain how different colours of light can be created? Can they use and explain how simple optical instruments work? (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope) Can they explore a range of phenomena, including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters.

Forces and Electricity				**Forces including Magnets (Term 2)** **Children can:** 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. **Investigation focus** - Testing and recording findings Friction – How does the surface affect how far an object can roll? Which is the strongest magnet?	**Electricity** **Children can:** 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. **Investigation focus** -	**Forces (Term)** **Children can:** 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. **Investigation focus** -	**Electricity (Term 1)** **Children can:** 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. **Investigation focus** -

				Greater depth Predict how an object will move on other surfaces and suggest why. Explore how magnetic attraction and repulsion are affected by distance Explore whether some magnets are stronger than others. Can they classify igneous and sedimentary rocks? Can they begin to relate the properties of rocks with their uses?	**Greater depth** Compare and contrast appliances that run on mains electricity with those that run on batteries. Identify the functions of components within a circuit. Explain why certain arrangements will not result in the bulb lighting. Can they explain how a bulb might get lighter? Can they recognise if all metals are conductors of electricity? Can they work out which metals can be used to connect across a gap in a circuit? Can they explain why cautions are necessary for working safely with electricity?	**Greater depth** Recognise that gravity acts between all masses, e.g. the Sun and the Earth Identify ways in which forces that oppose motion may be useful (e.g. bicycle handlebar grips) or a nuisance (e.g. bicycle chain) Explain, with reference to everyday contexts, why a force multiplier might be useful. Can they describe and explain how motion is affected by forces? (including gravitational attractions, magnetic attraction and friction) Can they design very effective parachutes? Can they work out how water can cause resistance to floating objects? Can they explore how scientists, such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation?	**Greater depth** Explain the effect of changing the order of the components in a circuit. Design circuits using symbols. Can they make their own traffic light system or something similar? Can they explain the danger of short circuits? Can they explain what a fuse is? Can they explain how to make changes in a circuit? Can they explain the impact of changes in a circuit?

Greater depth from Partnership Science Assessment grids

Areas we couldn't see coverage for in long-term curriculum maps.