

Penponds Curriculum overview – Science

	Autumn	Spring	Summer
Rec	<p>Superheroes Assemble</p> <p>Investigate the nature around our environment. Take part in an Autumn walk - Throughout the year children will learn about the four seasons and how begin to associate seasonal colours with the time of year. In forest school the children to use the story ‘Superworm’ to explore their outside space, exploring who lives there and making collage worms. Learn about why we celebrate harvest and the story of The Little Red Hen. Watch farm to fork videos to learn about the journey our food goes on. Introduce weekly cooking sessions and the importance of a balanced diet.</p>	<p>Let’s Crawl</p> <p>Explore the changes in our local natural world and dip into the wider world through stories. Seasons snapshot – Use the story of ‘tree’ to support and to track the seasonal changes. Use the story of the Hungry Caterpillar (TfW) to explore life cycle of a butterfly (observing and exploring real minibeasts and learn about metamorphosis), taste and explore different fruits in cooking time and discuss like and dislikes to develop reasoning and understand healthy eating; Explore the story of the tiny seed to support planting and understanding how/why around growth. Explore the story of The Snail and the Whale (TfW) to understand the wider world and explore different habitats, build on from previous topic around people and communities.</p>	<p>Just Keep Swimming</p> <p>Build on from previous two terms of looking at our locality and continue to compare changes in our surrounding e.g. seasonal changes - Children will their walk to the park or visit the woods to observe the seasonal changes of summer. Continue to develop exploration of our locality by broadening their knowledge of different geographical locations - Children will go on a journey on a train to the beach. Children will learn about being eco-friendly on the beach and will sort materials for recycling. A Beach workshop will support learning about keeping our beaches clean.</p>
	<p>Follow instructions involving several ideas or actions. Answer ‘how’ and ‘why’ questions about their experiences and in response to events. Understand about a range of healthy food and the need for variety in food. Asks questions about aspects of their familiar world such as the place where they live or the natural world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Develop 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. Know about similarities and differences in relation to places, objects, materials and living things. Talk about the features of their own immediate environment and how environments might vary from one another. Make observations of animals and plants and explain why some things occur, and talk about changes.</p>		

<p>Y1/2 A</p>	<p>Voyage of the Mystery Everyday Materials</p> <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 materials. • Compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>Into the Woods Plants</p> <ul style="list-style-type: none"> • 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. <p>Plants</p> <ul style="list-style-type: none"> • 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. <p>Seasonal Changes</p> <ul style="list-style-type: none"> • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. 	<p>Castles and Coasts Use of everyday materials</p> <ul style="list-style-type: none"> • 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.
<p>Y1/2 B</p>	<p>Down in the Jungle Animals including humans</p> <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. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). 	<p>Space Animals including humans</p> <ul style="list-style-type: none"> • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <p>Animals including humans</p> <ul style="list-style-type: none"> • 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. 	<p>Dinosaurs and Discovery Living things and their habitats</p> <ul style="list-style-type: none"> • Explore and compare the differences between things that are living, dead and 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.

<p>Y3/4 A</p>	<p>Ancient Egyptians</p> <p>Light</p> <ul style="list-style-type: none"> • 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. <p>Electricity</p> <ul style="list-style-type: none"> • 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. 	<p>Superhumans</p> <p>Animals including humans</p> <ul style="list-style-type: none"> • 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. <p>Animals including humans</p> <ul style="list-style-type: none"> • 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. 	<p>Invaders and Settlers</p> <p>Sound</p> <ul style="list-style-type: none"> • 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.
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<p>Y3/4 B</p>	<p>Mysterious Mayans</p> <p>Forces and Magnets</p> <ul style="list-style-type: none"> • 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. 	<p>Earth Matters</p> <p>Plants</p> <ul style="list-style-type: none"> • 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. <p>Living things and their habitats</p> <ul style="list-style-type: none"> • 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. 	<p>Stone Age to Iron Age</p> <p>Rocks</p> <ul style="list-style-type: none"> • 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. <p>States of Matter</p> <p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <ul style="list-style-type: none"> • 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.
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<p>Y5/6 A</p>	<p>Groovy Greeks</p> <p>Properties and Changes of Materials</p> <ol style="list-style-type: none"> i. Compare and group together everyday materials on the basis of their properties, including their solubility and response to magnets ii. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution iii. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating iv. Demonstrate that dissolving, mixing and changes of state are reversible changes v. 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 <p>Light</p> <ol style="list-style-type: none"> i. Recognise that light appears to travel in straight lines ii. 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 iii. 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 iv. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them 	<p>There is No Planet B</p> <p>Living things and their habitats</p> <ol style="list-style-type: none"> i. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ii. Describe the life process of reproduction in some plants and animals <p>Animals (including humans)</p> <ol style="list-style-type: none"> i. Describe the changes as humans develop to old age <p>Animals (including humans)</p> <ol style="list-style-type: none"> ii. Identify and name the main parts of the human circulatory system, and describe the iii. functions of the heart, blood vessels and blood iv. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function v. describe the ways in which nutrients and water are transported within animals, including humans 	<p>Vicious Vikings</p> <p>Electricity</p> <ol style="list-style-type: none"> i. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ii. 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 iii. Use recognised symbols when representing a simple circuit in a diagram <p>Revision Block</p> <ul style="list-style-type: none"> • 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 • 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
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<p>Y5/6 B</p>	<p>WW2</p> <p>Living Things and their Habitats</p> <ul style="list-style-type: none"> i. 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 ii. Give reasons for classifying plants and animals based on specific characteristics <p>Evolution and Inheritance</p> <ul style="list-style-type: none"> i. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ii. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents iii. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 	<p>Space</p> <p>Earth and space</p> <ul style="list-style-type: none"> i. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system ii. Describe the movement of the Moon relative to the Earth iii. Describe the Sun, Earth and Moon as approximately spherical bodies iv. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky 	<p>What did the Victorians do for us?</p> <p>Forces</p> <ul style="list-style-type: none"> i. Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ii. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces iii. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect <p>Revision Block</p> <ul style="list-style-type: none"> i. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ii. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating iii. Demonstrate that dissolving, mixing and changes of state are reversible changes iv. 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
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