Science coverage and progression across topics and year groups

Golden thread – to be able to understand how science can be used to explain what is occurring, predict how things will behave and analyse causes.

Green: Skills Blue: Knowledge

	Topic Title	EYFS objective	What it looks like at Meadowside
Reception	Meadowside explorers	Understand why questions Explore how things work. Begin to make sense of their own life-story and family's history Explore collections of materials with similar and/or different properties Talk about what they see using a wide vocabulary. Make healthy choices about food, drink, activity and toothbrushing. Use all their senses in hands-on exploration of natural materials	Talk about our families Learn about healthy options for snacks. Explore forest school. **Science book** Smelling investigation Trees- parts of a tree and obs of tree. Plant acorns.
	Marvellous monsters	Explore the natural world around them. Describe what they see, hear and feel while they are 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. Learn new vocabulary. Use new vocabulary in different contexts.	Explore forest school the pond and the meadow, places monsters might live. Look at different places monsters live- eg cave. Look at changes due to weather/ seasons. **Science book** Observe changes in the trees Simple grouping task, Sorting objects by simple observable features. Investigating candles.
	What's the story?	Ask questions to find out more and to check what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Know and talk about the different factors that support their overall health and wellbeing: – regular physical activity – healthy eating – sensible amounts of 'screen time'	Investigate strength of building materials – 3 pigs Investigate strong bridges- billy goats gruff Investigate waterproof materials- Ginger bread man. 3 bears – healthy breakfasts - healthy sleep routine Ginger bread man – keeping healthy with exercise

	How can we help?	Know and talk about the different factors that support their overall health and wellbeing: – regular physical activity – healthy eating – toothbrushing – sensible amounts of 'screen time' – having a good sleep routine being a safe pedestrian Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices	Use facts for life resources to look at: Exercise Healthy eating Oral hygiene Sleep Safe medications Germs Road safety
	Where shall we go? How shall we get there?	Make comments about what they have heard and ask questions to clarify their understanding. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Look at changes in school environment. Drawings of flowers in forest school and courtyard. Grow some of our own plants. - what do plants need? Learn about other Environments as we travel- mountains in Switzerland, beaches in Thailand, village in Kenya. How are they the same/ different to here? Investigations- paper planes. Floating and sinking.

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Year 1	Meadowside explorers	**Animals inc. Humans** Identify and name a variety of common animals inc. fish, amphibians, retiles, 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, retiles, birds and mammals inc. pets) Identify name and label the basic parts of the human body and say which part is associated with each sense **Plants** Identify and name a variety of common wild and garden plants, inc. deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, inc. Trees **Seasonal Changes** Observe changes across the four seasons Observe and describe weather associated with each season and how day length varies	Label pictures of common animals. Sort animal pictures into a Venn diagram based on what they eat. Label the external body parts of different animals (cut and stick). Draw picture of human face and label the body parts associated with each sense. Discuss the sense of touch and how this occurs on all areas of skin. Test this by touching objects with different body parts. Know the difference between flowering plants, bushes and trees by looking at examples and matching description to picture Go on a school plant hunt and name the flowering plants, bushes, trees within our grounds Name other common examples not located in our grounds by looking at pictures Make predictions at the start of each season and add to seasons wall. Go on a walk around school grounds during early, mid and late season, note the plants we can see and how they change over time. Discuss the weather we experience. Take photos and add to wall.
	A Toys' Story	**Everyday Materials** Distinguish from an object and the material from which it is made Identify and name a variety of everyday materials, inc. wood, plastic, glass, metal, water and rocks 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 **Seasonal Changes** Observe changes across the four seasons Observe and describe weather associated with each season and how day length varies	Be given a set of various everyday objects and ask chn to name sort them into groups based on their material (or their main material if mixed) Learn the words flexibility, strength, magnetism, buoyancy and water resistance. Discuss and learn the term property. Test objects made of different materials for each of the listed properties and record results. Make predictions at the start of each season and add to seasons wall. Go on a walk around school grounds during early, mid and late season, note the plants we can see and how they change over time.

			Discuss the weather we experience. Take photos and add to wall.
	A Tale of Tails	**Seasonal Changes** Observe changes across the four seasons Observe and describe weather associated with each season and how day length varies	Make predictions at the start of each season and add to seasons wall. Go on a walk around school grounds during early, mid and late season, note the plants we can see and how they change over time. Discuss the weather we experience. Take photos and add to wall.
	Setting Sail	**Seasonal Changes** Observe changes across the four seasons Observe and describe weather associated with each season and how day length varies **Everyday Materials** 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	Make predictions at the start of each season and add to seasons wall. Go on a walk around school grounds during early, mid and late season, note the plants we can see and how they change over time. Discuss the weather we experience. Take photos and add to wall. Sort which material would be best suited for building a given part of a pirate ship based on the properties of the material. (Strength, flexibility, water resistance, buoyancy)

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Year 2	Meadowside explorers	Explore and compare the diffs btwn 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 diff habitats provide for the basic needs of diff 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 diff sources of food 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	Sort pictures of obj- discuss how you know if something is living Hunt around sch grounds for examples of bushes, plants and trees- identify them according to their features Find animals in their habitats from around sch environment Sort pics of animals to 3 diff environments (woodland/ pond/ meadow) & shark to prompt discussion about needs Find micro habitats in Forest School session Use Sheppard Software food chain game to learn how plants and animals work together Plan and experiment what cress seeds need to germinate and grow- test for light/ dark/ water/ lots of water
	Step back in time	Notice that animals, including humans, have offspring which grow into adults Find out about and describe the basic needs of animals, inc humans, for survival (water, food, air) Describe the importance for humans of exercise, eating the right amounts of diff types of food and hygiene	Choose the best site for human survival according to humans' needs (and defend choice) Create a human life cycle using given pics Sort pics into the categories Wants and Needs
	Let's pretend	• identify and compare the suitability of a variety of every day materials, inc wood, metal, glass, brick, rock, paper, card for diff purposes • find out how the shapes of solid obj made from some materials can be changed by squashing, bending, stretching, twisting	Decide on suitable materials for making own costume Investigate what material items are made from -investigate existing costumes- what are they made from? How do they move? -what materials could we make our costumes from? -investigate how to shape paper (create paper sculpture) Look at how these principles can be applied to other materials, albeit sometimes needing specialist equipment- glass/ wood
	Buckets and spades		

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Year 3	Meadowside explorers	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	Hunt around Meadowside - Labelled diagrams
		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	Cress experiment – design and set up Drawing conclusions from the results Grow seed at home – keep a seed diary
		Investigate the way in which water is transported within plants	Celery and white flower in Ink experiment Drawing conclusions from the results
		Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	Hunt around Meadowside, Powerpoint to explain and hunt on walk to river
		Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Skeleton – what we think it looks like, Body layers – lift up and label Look at x-rays – guess the animal
	History hunters	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	Briefly look at how rocks a re formed – igneous, metamorphic, sedimentary (link to geography volcanoes) Rock testing investigation – permeable, hardness etc
		Describe in simple terms how fossils are formed when things that have lived are trapped within rock	Link back to sedimentary rock formation. - investigate fossils, fossil sketching, use clay and plaster of paris to make mould and cast fossils. Order set of pictures
		Recognise that soils are made from rocks and organic matter	Look at soil sample, what can they see? Draw and label a soil cocktail.
	Planes, trains and automobiles	**Light** Recognise that they need light in order to see things and that dark is the absence of light	What are sources of light. What happens when there is no source ? - discussion
		Notice that light is reflected from surfaces	Is the moon a source of light – look at different opinions, who do they agree with? Why? List sources of light and reflected light – topic book page
		Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Protect your eyes poster
		Recognise that shadows are formed when the light from a light source is blocked by an opaque object	Look at shadow formation explanation – investigate – choosing materials for curtains to keep light out on a coach – which material and why?
		Find patterns in the way that the size of shadows change	How do shadows change when the distance between the torch and object changes – investigation – make prediction, investigate, record results

		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	Can we go faster – investigation comparing how things move on different surfaces – design surface for fastest / slowest racetrack Can you make it move – designing and making vehicles- identify forces needed to make them move What's the force? Magnetic or not? investigation, record, and group materials What's the force – poles of a magnet activity – attract or repel – predict then investigate .
	Tomb Raiders		

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Year 4	Meadowside Explorers	Recognise that living things can be grouped in different 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. Construct and interpret a variety of food chains, identifying producers, predators and prey.	Use camera trap and visit to identify animals that live in the Meadow. Revision of insects/amphibians/mammals/birds/reptiles/fish Group animals identified as predators/prey/producers. Create food chains Use and create classification keys. Threat of housing to local area. Visit Meadow and contrast to photographs from the past.
	Hellenic Heroes	Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel though a medium to the ear. Find patterns between the pitch of a sound and features of the objects that created 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.	BBC Byte size video clip and use of a range of percussion instruments to explore patterns of pitch and the strength of vibrations relating to the volume of sound. Use a recording at a fixed volume and point, (table on playground). Chn to move back at 5m intervals until at the end of the field.
	We are Scientists	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. 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.	Investigate properties of examples of solids, liquids and gases, also BBC video clip. Boil ice and record temperature when it melts and then turns to steam. Leave a saucer of water over a weekend and measure how much remains, Demonstrate how steam from a kettle collects on a cool surface, (tray) and changes to water when it cools. How many can we find in the classroom/ home? Why are circuits needed? Create circuits and name basic parts, to include: switches, bulbs and a buzzer. Make a detailed, labelled drawing of their circuit. Make a simple switch and introduce it to make a closed/ open circuit. What materials are good conductors of heat? Design a test for a range of materials to determine whether they are good conductors. Suggest why some materials make good conductors. What is the digestive system in humans? How does it work? Why is it vital to our survival? Use clay or suitable alternative material to create a representation of different teeth types. Explain their function.

		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.	Show the experiment from https://www.youtube.com/watch?v=eSEYPO30AN0 and recreate it in the classroom.
	A Tale of Two Cities	How was the Roman diet in Britain different to ours?	Thinking Scientifically. As a class, design a simple experiment to consider whether a meal from today might be healthier or not compared to a simple meal from Roman Britain. Children to determine what the ingredients/ quantities might suggest. Encourage children to consider modern lifestyles and the quantity/ frequency and amount we eat. What might we wish to investigate further? Why?
	Let Me Entertain You!	TBD prior to Term 6 2025 but will include Sound.	

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Year 5	Meadowside explorers	Describe differences in the life cycles of a mammal, amphibian, an insect and a bird Describe life processes of reproduction in some plants and animals Describe the changes as humans develop to old age	Compare similarities and differences between two different life cycles Life cycle race. Arrange in correct order. Plant dissection and diagram. Animal reproduction comparison grid. Human timeline
	Watch this space	Describe movement of Earth and other planets relative to Sun Describe the movement of the Moon relevant to 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 Earth and falling object	Working Earth, Sun Moon split pin model. Space centre trip Interactive model of Moon. Phases of the Moon split pin model Class discussion Day and night sketch diagram Sketch diagram of 'movement' across playground Make rockets and launch on playground. Discuss effect of gravity
	The Battle for Middle England	Identify the effects of air resistance, water resistance and friction	Investigate the size of a sail and how it affects how fast a boat can move
	Curious cases	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.	Investigating properties of materials Practical experiment to discover there is anything dissolved in clear liquids Practical experiment to separate sand, gravel, iron filings and water Practical experiment linked to magnetic and conductivity experiment Practical demonstration of various foods being heated/cooled (egg, bread, chocolate, ice cream, ice lolly). Practical demonstration of bicarbonate soda and vinegar

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Year 6	Meadowside explorers	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. 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.	To use classification keys to categorise animals To understand that all living things can be classified To recognise the key differences between animals in Britain and the Amazon Rainforest To use a branching database to categorise rainforest animals Understand how exercise impacts our bodies To understand how the heart works and is key to the circulatory system- (science specialst visitor teacher) Recognise the impact of diet on the way our bodies function Understand how to achieve a balanced diet and why it is important To be able to categorise drugs and understand the dangers and benefits
	Murderous Mayans		
	The origin of species	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.	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 Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago To understand the role human intervention has played on animals and plants locally and across the planet

	A child's war		
	Dreams and aspirations		