



## Progression in Science – The Mill Academy

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Working Scientifically-Skills</b>	<p><b>Self regulation:</b> Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate;</p> <p>- Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.</p> <p><b>Listening, attention and understanding:</b> - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; - Make comments about what they have heard and ask questions to clarify their understanding;</p>	<p>Ask simple questions.</p> <p>Observe closely.</p> <p>Perform simple tests to explore a question or idea suggested to them, with support.</p> <p>Gather and record data using a given table.</p>	<p>Ask simple questions and recognises that simple questions can be answered in different ways.</p> <p>Observe closely using simple equipment.</p> <p>Identify things to measure or observe that are relevant to the question or idea they are investigating using a simple test (in a group or independently)</p> <p>Record data in a wider range of given ways</p> <p>Use their data and results to answer questions</p> <p>Use observations and ideas to suggest answers to questions.</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Make systematic and careful observations during a fair test</p> <p>Plan and carry out a simple fair test relevant to the question or ideas they are investigating</p> <p>Take and record accurate measurements using standard units (e.g. to a whole cm)</p> <p>Gather and record data in to simple formats e.g. tables, bar charts and pictograms</p> <p>Use simple scientific language to present findings</p> <p>Record and report findings from enquiries in labelled drawings and diagrams</p> <p>Draw simple conclusions using my own results</p> <p>Begin to recognise when a test is not fair and suggest improvements</p> <p>Identify differences and similarities</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Set up simple practical enquiries, comparative and fair tests</p> <p>Know which are control, dependent and independent variables in a fair test</p> <p>Identify one or more control variables from those provided when conducting a fair test</p> <p>Make observations and take increasingly accurate measurements using standard units (e.g. to a decimal point)</p> <p>Use a range of equipment, including thermometers and data loggers</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Use straightforward scientific evidence to answer questions or to support their findings</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Identify one or more control variables in investigations when conducting a fair test</p> <p>Identify which type of measurements should be taken</p> <p>Take accurate and appropriate measurements using specific, provided equipment</p> <p>Record data and results (e.g. using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs)</p> <p>Use test results to make predictions</p> <p>Report and present findings from enquiries with a given format</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Recognise which type of practical enquiry is most appropriate to the question or idea being investigated, before planning and carrying out the enquiry</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision</p> <p>Identify when to take repeat readings when appropriate</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations.</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments</p>
<b>Vocabulary</b>	Question, answer, ask, notice, spook, look, listen, smell, touch/feel, taste, investigate, test, try it out	properties, magnifying glass, question, answer, observe, test, explore, gather, record, data, identify, classify, equipment, measure, table, diagram		fair test, comparative, observation, accurate, standard units, equipment, thermometer, data logger, gather, record, classify, present, data, tables, bar graph, presentation, conclusion, prediction, differences, similarities, theory, hypothesis, dependent variable, independent variable, results		controlled variables, classify, comparative, enquiry, predict, present, explain, conclusion, causal relationship, fair test, patterns, observations, accurate, precise, measurements, data, opinion, fact, communicate, diagram, labels, classification keys, line graph, scatter graph, repeat readings, secondary information, justify, outlier	



<p><b>Topics</b></p>	<p><b>Cycle 1:</b> -Float a boat -Fly a kite -Make blackberry crumble <b>Cycle 2:</b> -Blow bubbles -Perform a science experiment -Bake bread</p>		<p>Protecting the Polar Regions  The Land Before Time  Enchanted Wood</p>		<p>Under the Sea</p>	<p>Circle of Life</p>	<p>Wolf Wilder</p>
<p><b>Living things and their Habitats- Knowledge</b></p>	<p>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;</p>		<p>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 sources of food</p>		<p>Recognise that living things can be grouped in a variety of ways  Explore and use classification keys to 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>	<p>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</p>	<p>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)  Gives reasons for classifying plants and animals based on specific characteristics</p>
<p><b>Vocabulary</b></p>	<p>Plant, animal, insect, bird, alive, home, needs, survive, live, similar, different, alike, not alike, compare, here, country, World, far, near</p>		<p>living, dead, never been alive, move, reproduce, sensitive, grow, nutrition, habitat, animal, plant, microhabitat, food, sources, food chain, predator, prey, producer, birth, decay, energy, life cycle, consumption</p>		<p>group, variety, identify, classification, key, environment, kingdom, species, fungi, bacteria, climate change, characteristics, extinction, pollution</p>	<p>mammal, amphibian, insect, bird, reproduction, life cycle, life span, egg, live young, hatchling, fledgling, metamorphosis</p>	<p>classify, classification, groups, characteristic, organism, micro-organism, invertebrates, vertebrates, virus, thorax, arthropod, arachnid, antenna</p>
<p><b>Topics</b></p>	<p><b>Cycle 1:</b> Help a wild animal <b>Cycle 2:</b> Make a difference</p>	<p>Along Brambly Hedge</p>	<p>The Enchanted Wood</p>	<p>Mayan Quest</p>			
<p><b>Plants- Knowledge</b></p>	<p>Explore the natural world around them, making observations and drawing pictures of animals and plants;  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>	<p>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>	<p>Observe and describe how seeds and bulbs grow into mature plants  Find and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>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 vary between species (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>			
<p><b>Vocabulary</b></p>	<p>Plant, leaf, stem, root, petal, flower, tree,</p>	<p>plant, tree, wild, garden, deciduous, evergreen, leaf, stem, flower, roots,</p>	<p>seeds, bulbs, grow, mature, healthy, water, light, temperature, optimum,</p>	<p>absorb, reproduction, photosynthesis, sunlight, support,</p>			



		component, energy, growth, structure, trunk	conditions, survival, nutrients, consume, soil	anchor, attract, stamen, anther, stigma, filament, style, ovary, petal, sepal, pistil, pollen, pollination, nectar, female, male, fertilisation, wind, seed dispersal, expulsion, transportation			
<b>Topics</b>	<b>Cycle 1:</b> -Watch something grow <b>Cycle 2:</b> -Grow our own food	<b>A Journey to Africa</b>  <b>Along Brambly Hedge</b>	<b>Protecting the Polar Region</b>  <b>Superheroes</b>	<b>Archaeology Rocks</b>  <b>Mayan Quest</b>	<b>Food, Glorious Food</b>	<b>Circle of Life</b>	<b>Pig Heart Boy</b>
<b>Animals, including Humans- Knowledge</b>	Explore the natural world around them, making observations and drawing pictures of animals and plants;  Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	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)  Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	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 amount of different types of food, and hygiene.	Identify that animals, including humans, need the right types and amounts of nutrition, and 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	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, consumers and prey	Describe the changes as humans develop to old age	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
<b>Vocabulary</b>	Healthy, unhealthy, clean, dirty, teeth, tongue, gums, hands, fingers, thumbs, palms, fingernails, care, self-care,  Animal, legs, paws, claws, feather, fur, sales, body, head, eyes, ears, nose, mouth	energy, growth, habitat, fish, amphibian, reptile, bird, mammal, carnivore, herbivore, omnivore, vertebrate, skeleton, organ, scale, fur, hair, skin, feather, bone, skeleton, live young, egg, cold blooded, warm blooded, pet, teeth, meat, plant, gills, torso, limb, hand, eye, nose, ear, tongue, senses, touch, smell, hearing, taste	offspring, adult, young, human, water, food, air, exercise, nutrients, nutrition, reproduction, diet, survival, hygiene, germs, overweight, underweight, obese, healthy, unhealthy, consumption	protein, carbohydrates, fats, sugar, vitamins, minerals, fruit, vitamin, vegetable, meat, grain, seeds, skeleton, muscle, support, protection, movement, spine, femur, tibia, fibula, radius, ulna, skull, clavicle, ribcage, pelvis, patella, biceps, abdominals, triceps, hamstrings, calves, cartilage, invertebrate	digestion, excretion, peristalsis, anus, duodenum, small intestine, large intestine, stomach, rectum, oesophagus, tongue, saliva, acid, bile, enzymes, functions, incisor, canine, molar, food chain, producer, predator, prey, consumers, producer, primary, secondary, tertiary	develop, grow, change, baby, infant, toddler, child, teenager, adolescent, puberty, adult, geriatric, life cycle, life span, embryo, weaned	circulatory, function, heart, blood vessels, vein, artery, valve, muscle, blood, impact, diet, exercise, drugs, lifestyle, nutrients, transportation, aorta, atrium, capillary, pulse, ventricle, resting heart rate
<b>Topics</b>	<b>Cycle 1:</b> Help a wild animal High-five someone in uniform <b>Cycle 2:</b> Be a real life hero Grow our own food Have a picnic						<b>Back to the Future</b>
<b>Evolution and Inheritance- Knowledge</b>							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
<b>Vocabulary</b>							inhabited, offspring, identical, adaptation, variation, environment, genes, DNA, evolution, inherit, Charles Darwin, artificial selection, natural selection, advantageous, extinction
<b>Topic</b>		<b>The Adventures of Paddington</b> <b>Fire! Fire!</b>	<b>Exploring Castles</b>	<b>Archaeology Rocks</b>	<b>Food, Glorious Food</b>	<b>Wizarding world of Science</b>	
<b>Materials - Knowledge</b>	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	<u>EVERYDAY MATERIALS</u> 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	<u>USES OF EVERYDAY MATERIALS</u> 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.	<u>ROCKS</u> 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	<u>STATES OF MATTER</u> 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 materials change state (in Degrees Celsius)  Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	<u>PROPERTIES AND CHANGES OF MATERIALS</u> 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 change result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the act of acid on bicarbonate of soda	
<b>Vocabulary</b>	Melt, change, liquid, hard, soft, prickly, sharp, rough, smooth, squashy, stretchy, roll, mix, knead,	material, object, wood, plastic, glass, metal, paper, water, rock, cardboard, property, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, classify, waterproof, absorption, sort, group, compare, similar, different, matter	suitability, solid, change, squash, bend, twist, stretch, conductor, flexible, rigid, pliable, supple, malleable, multiple uses, purpose, useful, categorise, particular use	sedimentary, igneous, metamorphic, minerals, magma/lava, sediments, permeable, texture, impermeable, weight, pattern, colour, rock, soil, organic matter, fossil, formed, bones, bacteria, dead, decay, sediment, resistant, extinction, weathering, palaeontologist, molten rock, tectonic plate, crust	absorption, solid, liquid, gas, state, degrees celsius, evaporation, condensation, water vapour, water cycle, precipitation, dissolve, particle, temperature, bond, thermometer, sublimation, boiling point	reversible, irreversible, compare, hardness, solubility, transparency, conductivity, insulator magnetism, electrical, thermal, dissolve, solution, particle theory, separate, filter, sieve, evaporate, materials, mix, state, crystallisation, saturation, solvent	
<b>Topic</b>	<b>Cycle 1:</b> -Make a sculpture -Float a boat	<b>Along Brambly Hedge</b>					



	<ul style="list-style-type: none"> <li>-Fly a kite</li> <li>-Recycle</li> <li>-Roll</li> <li>-Have fun folding</li> </ul> <b>Cycle 2:</b> <ul style="list-style-type: none"> <li>-Build</li> <li>-Perform a science experiment</li> <li>-Blow bubbles</li> <li>-Play Pooh sticks</li> <li>-Bake bread</li> <li>-Build a den</li> <li>- Go barefoot</li> </ul>						
<b>Seasonal Changes- Knowledge</b>	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	<p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>					
<b>Vocabulary</b>	Spring, Summer, Autumn, Winter, change, season, day, night, hot, cold, rain, snow, wind, sun,	season, autumn, winter, spring, summer, weather, rain, snow, fog, sun, cloud, wind, hail, thunder, lightning, dark, light, day, night, long, short, hot, cold, orbit, energy, freezing, melting, reflection					
<b>Topic</b>	<b>Cycle 1:</b> <ul style="list-style-type: none"> <li>-Watch something grow</li> <li>-Make a blackberry crumble</li> <li>-Discover a new country</li> </ul> <b>Cycle 2:</b> <ul style="list-style-type: none"> <li>- grow our own food</li> <li>-Discover a new country</li> </ul>			<b>Urban Art</b>	<b>Listen Up</b>		<b>Back to the Future</b>
<b>Light &amp; Sound- Knowledge</b>	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			<p><u>LIGHT</u></p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change</p>	<p><u>SOUND</u></p> <p>Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</p> <p>Find patterns between the volume of the sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases</p>		<p><u>LIGHT</u></p> <p>Recognise that light appears to travel in straight lines</p> <p>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</p> <p>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</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>
<b>Vocabulary</b>	Light, dark, shine, light source, shadow,			angle, bright, dark, dim, electricity, emits, light, mirror, opaque, reflects, shadow, source, beam, absence, translucent, transparent, reflect,	amplitude, decibel, energy, frequency, medium, power, soundwaves, vibrate, vibrations, air, source, transmit, travel, pitch,		absorb, phenomena, angle of incidence, angle of reflection, refraction, spectrum, periscope



				surface, straight, protect, hazardous, long, short, incident ray, photons, image	volume, high, low, quiet, loud, faint, eardrums, energy		
<b>Topic</b>	<b>Cycle 1:</b> -Look up -celebrate <b>Cycle 2:</b> -Have a feast			<b>Mechanoid Magnetism</b>		<b>Guardians of the Galaxy</b> <b>Star Wars : The resistance</b>	
<b>Forces and Magnets- Knowledge</b>	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.			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 the two poles of a magnet  Predict whether two magnets will attract or repel each other depending on which poles are facing		Explain that unsupported objects fall towards 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	
<b>Vocabulary</b>	Pull, push, magnet, materials, metal			force, push, pull, friction, surfaces, materials, contact, magnet, magnetic, non-magnetic, attraction, repulsion, pole, north, south, sliding friction, static friction, resist, elastic		gravity, air resistance, water resistance, mechanisms, lever, pulley, gear, cause, effect, acceleration, buoyancy, effort, force meter, fulcrum, load, mass, Newton, pivot, rigid, streamlined, terminal velocity, weight	
<b>Topic</b>	<b>Cycle 1:</b> -Recycle <b>Cycle 2:</b> -complete a science experiment				<b>Listen up</b>		<b>Back to the Future</b>
<b>Electricity- Knowledge</b>					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		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit  Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and on/off position of switches  Use recognised symbols when representing a simple circuit in a diagram



					Recognise some common conductors and insulators, and associate metals with being good conductors		
<b>Vocabulary</b>					appliance, circuit, series circuit, charge, cell, wire, bulb, switch, buzzer, loop, battery, open circuit, closed circuit, conductor, insulator, components, electron, current, static electricity, emit		voltage, negative terminal, positive terminal, parallel circuit, resistance
<b>Topic</b>						<b>Guardians of the galaxy</b>	
<b>Earth and Space-Knowledge</b>	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter..					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	
<b>Vocabulary</b>	Sun, moon, planets, Earth, space					relative, planet, moon, solar system, spherical bodies, rotation, rotate, orbit, day, night, seasons, satellite, eclipse, universe, star, constellation, axis, celestial body, lunar, solar, telescope	