

Science curriculum map

At Burlington Infant and Nursery School, we ensure science lessons are fun, challenging and intriguing, stimulating children's curiosity and translating into meaningful experiences. Building on children's existing knowledge and experience helps science to feel relevant and accessible on their level. This gives them the appetite and confidence to explore and discover the world around them through a scientific lens. Science is integrated into the curriculum at every opportunity so children appreciate the interrelationship between science and other disciplines. Hands on exploration both inside and outside the classroom cements their understanding of important scientific concepts. Children are taught how to apply a scientific method to their investigations - including investigate, hypothesis, test, record, and conclude - which sets up a good foundation and vocabulary to build their science learning further. We want to awaken in our children a passion for science and its limitless possibilities. By giving them the confidence to ask questions, take risks and reflect on what they discover we hope we are planting a seed that will last a lifetime.

Our School's Science provision is recognised by the achievement of the nationally recognised 'Primary Science Quality Mark', Gilt Award.

	Autumn	Spring	Summer	Key Vocabulary
--	--------	--------	--------	----------------

<p>Nursery</p>	<p>Develop a sense of belonging to their family and their key carer.</p> <p>Begin to discuss key people in their own lives.</p> <p>Is interested in photographs of themselves and other familiar people and objects</p> <p>Enjoys stories about key people in their lives e.g. 'My Mummy is Marvelous, My Dads is Fantastic' and is interested in photographs of themselves with these.</p> <p>Begins to have their own friends and begins learns each others names e.g. through songs and rhymes, and use them when addressing children</p> <p>Shows curiosity about animals e.g. watches a spider, looks for ladybirds</p> <p>Begins to observe and discuss indoor plants.</p> <p>Enjoys in pretend play, imitates everyday actions and events from own family and cultural background, e.g. making and drinking tea, going to the barbers, being a cat, dog or bird.</p> <p>Investigate paper, cardboard, playdough and use the correct vocabulary modelled to them e.g. soft/hard, bendy/stiff</p>	<p>Show an interest and discuss their own immediate family and relations and pets.</p> <p>Begins to observe and discuss indoor plants and compares to other indoor plant and indoor plants.</p> <p>Plants bulbs and helps to water them.</p> <p>Enjoys stories about nature (birds, bees, snails, cats, dogs, etc).</p> <p>Enjoys in pretend play, imitates everyday actions and events from own family and cultural background, e.g. making and drinking tea, going to the barbers, being a cat, dog or bird.</p> <p>Investigate materials for building e.g. building bricks, and use the correct vocabulary modelled to them e.g. heavy, light, tall, short</p> <p>Investigate ice and how the change can be reversed.</p>	<p>Begin to develop positive relationships with community members who visit the nursery e.g. fire fighters</p> <p>Is curious about people and shows interest in stories about people, animals or objects that they are familiar with or which fascinate them</p> <p>Observe farm animals (trip) and discuss what they do. Discuss the changes as they observe butterfly life cycle and chicken life cycle, using correct vocabulary modelled to them e.g. chrysalis. Make links to what they already know.</p> <p>Plants seeds and seedlings and waters them. Discuss the changes they observe.</p> <p>Enjoys pretend play, imitates everyday actions and events from own family and cultural background, e.g. uses herbs from herb garden in mud kitchen</p> <p>Select the material to use and explain why they have selected it using correct vocabulary</p> <p>Investigate how to make things move e.g. push and pull</p>	<p>Family Mum Dad Sister Brother Granny Grandad Friend Pet Spring Summer Autumn Winter Plant Bulb Seed, seedling</p> <p>I wonder</p> <p>Wet Dry</p>
-----------------------	---	---	---	---

		Investigate the wind and how it makes things move.		
Reception				
Plants	<p>Through role play, discuss what flowers need to grow. Name pot, soil and seed.</p> <p>Observe and draw pictures of plants e.g. paint the leaves in autumn colours and show they are falling to the ground. Paint conkers in their pictures and show that they have fallen off the trees.</p>	<p>Observe and draw pictures of plants e.g. paint blossom on trees</p>	<p>Plant cress seeds and water them. Observe the changes as they grow. Explain that you need soil, water and sun to help it to grow.</p> <p>Show an interest in caring for plants by watering them. Begin to understand if they are alive or dead by observing their colour and how they are growing.</p> <p>Observe, draw and label the part of trees and flowering plants.</p>	<p>Plant Tree Leaf blossom Flower stem Soil Cress Water Sun Alive dead</p>
Animals, including humans	<p>Look closely at their face, using a mirror in order to draw a self portrait. Name the different facial features.</p> <p>Begin to name the 5 senses. Use their sense of smell, to investigate what is inside the pots. Use their sense of touch to describe different materials. Use their sense of taste to describe different foods.</p> <p>Recognise and describe special times or events for family or friends e.g. It's my brother's birthday, he's 3',</p> <p>Shows interest in different occupations and ways of life e.g. people who help us policeman, lollypop man. Role play different occupations e.g. chef, hotel receptionist, shop keeper, pretending to be the King and Queen,</p>	<p>Know some of the things that make them unique, and discuss some of the similarities and differences in relation to friends or family</p> <p>Show an interest in different occupations and ways of life indoors and outdoors - trip to Beverley Park</p>	<p>Discuss past and present events in their own life and in the lives of family members by sharing a family photo e.g a holiday they went on, moving house</p> <p>Describe similarities and differences between themselves and others, and among families, communities, cultures and traditions</p> <p>Show an interest in different occupations and ways of life e.g. hospital</p>	

	<p>Begin to show an understanding of the importance of keeping healthy e.g. the exercise family members take part in.</p> <p>Take part in songs and stories about animal e.g. five little ducks, The Three Little Pigs, The Snail and the Whale</p> <p>Show an interest in small world and real animals. Discuss with an adult what they already know about that animal e.g. number of legs, and where it lives e.g. crabs at the seaside</p>	<p>Describe animal features e.g. I have stripes and four legs to make a 'Who am I?' book.</p> <p>Develop an understanding of changes over time by learning about the life cycle of a frog.</p>	<p>Show an understanding of the importance of keeping healthy e.g. healthy food → vegetables.</p> <p>Observe and draw pictures of animals. e.g. animals from Around the World class county. Describe the animals by naming its parts e.g. elephant has a long trunk,</p> <p>Develop an understanding of changes over time by learning about the human life cycle and recapping the life cycle of a butterfly.</p>	
<p>Materials</p>	<p>Enjoy stories about animals and materials e.g. Three Billy Goats Gruff, The Snail and the Whale, The Three Little Pigs and then use it during role play e.g. building a house made of bricks.</p> <p>Use different objects made from different materials to complete design challenges e.g. foam bricks, and predict what might happen e.g. I think it will fall over soon because it is getting too tall and wobbly.</p>	<p>Select objects to complete a design challenge e.g. design a door for a fairy.</p> <p>Begin to discuss what different objects are made from e.g. toy cow made from plastic, frog is made from rubber</p>	<p>Select materials based on their properties to complete a design challenge e.g. can you make something strong enough to hold 10 1ps</p> <p>Explore with magnets and begin show an understanding that objects made from different materials will and wont stick to</p>	

	<p>Understand how to make small world toys, such as cars and trains, move by pushing them.</p> <p>Collect natural objects and discuss what they know.</p> <p>Investigate floating and sinking.</p> <p>Begin to describe the feeling of different materials e.g prickly, soft, hard, cold (ice cubes),</p> <p>Begin to discuss changes they observe e.g. the ice melts because it likes cold weather not hot weather. You put water in the freezer and it becomes ice'.</p> <p>Investigate that the shape of materials e.g. playdough and salt dough, can be changed through squashing, twisting and stretching.</p>		<p>the magnets e.g. metal will stick to the magnet but plastic will not.</p>	
<p>Seasonal Changes</p>	<p>Know that the season is changing from summer to autumn, then autumn to winter.</p> <p>Explore the school site for signs of autumn and winter.</p> <p>Describe the changes in the weather by explaining what clothes they now need to wear. Name the activities they can take part in now there has been a change in the weather e.g. fly kites, build a snowman. Describe that the leaves (and conkers, acorns) are falling off the trees.</p> <p>Begin to be curious about the weather and begin to make predictions e.g. rainbows might appear, it might start to rain because the clouds have gone dark</p>	<p>Know that the season is changing from winter to spring. Describe the changes in the weather by explaining what clothes they now need to wear. Describe the changes that have happened to plants e.g. blossom on the trees. Describe the changes that are happening to animals e.g. coming out of hibernation, having babies.</p> <p>Continue to discuss the weather and make predictions e.g. rainbows might appear, it might start to rain because the clouds have gone dark</p>	<p>Know that the season is changing from spring to summer. Describe the changes in the weather by explaining what clothes they now need to wear. Name flowering plants that they see e.g. sunflowers. Name the activities they can take part in now e.g. playing in their paddling pool.</p> <p>Discuss the weather and make predictions.</p>	

<p>Working Scientifically</p>	<p>Begin to use simple science resources such as magnifying glass and different coloured glasses to explore objects. Begin to understand that it will increase the size of the object or change its colour. . Explore magnets and begin to show an understanding of what materials will and won't 'stick'. Use pipettes and beakers when exploring water.</p> <p><i>Begin to make draw conclusions e.g. the sky has gone dark, it is about to rain.</i></p> <p><i>Begin to make predictions e.g. it might not grow if it doesn't get watered</i></p>	<p>Answer 'I wonder...?' questions with increasing confidence to draw conclusions, make predictions and speculate.</p>		
<p>Year 1</p>				
<p>Plants</p>	<p>Identify and describe the plants in Henri Rousseau's painting Tiger in the Storm.</p> <p>Explain what happens to trees in the autumn e.g. leaves change colour and fall off the trees, conkers and acorns fall from trees.</p>	<p>Explain what happens to trees in the spring e.g. leaves and blossom appear on the trees, and name flowers that you may see e.g. snowdrops, daffodils.</p>	<p>Enjoy stories about plants e.g. The Tiny Seed by Eric Carle, and Bloom by Anne Booth.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees. (WS: Observing closely, using simple equipment)</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees found in our school grounds and at Beverly Park.</p> <p>Plant a sunflower seed and water it. Observe the changes as it grows. (WS. Observing closely, using simple equipment)</p>	<p>plant, leaf, stem, flower, petal, bud, root, seed, water, light, temperature tree, deciduous, evergreen, blossom, fruit, branch, root, leaf, bark, trunk</p>
<p>Animals, including humans</p>	<p>Identify, name, draw and label the basic parts of the human body. Begin to show an understanding of the part of the body which is associated with each sense. (WS: Identifying and classifying, gathering and recording data)</p>	<p>Recap senses and write a senses poem about Henri Rousseau's painting Tiger in the Storm.</p> <p><i>*Anything that can be added in here?*</i></p>	<p>Identify, name, draw and label the basic parts of the human body and explain what they do e.g. blood pumps blood around the body.</p>	<p>senses, nose -smell, ear -hear, tongue -taste, hands - touch, eyes - see, head, neck, arms, elbows, legs, knees,</p>

	<p>Identify and name a variety of common birds by taking part in daily bird watching on the school site. Enjoy a story about birds - Owl Babies. Describe the structure of birds by researching and writing a fact book about birds.(WS: Identifying and classifying)</p> <p>Identify and name a variety of fish. Describe the structure of a fish. Create fish for a given ocean habitat e.g. red snapper, Atlantic mackerel and Northern puffer in the Atlantic Ocean and label the parts of the fish.(WS: Identifying and classifying)</p> <p>Identify and name a variety of common mammals Describe the structure of mammals. (WS: Identifying and classifying)</p> <p>Identify and name a variety of common reptiles and amphibians. Make a moving part reptile and label the structure. Describe the structure of a reptile and amphibian by writing 'Guess Who?' clues. (WS: Identifying and classifying)</p> <p>Sort animals (mammal, reptile, bird and fish) into groups and begin to explain their reasons.</p> <p>Identify which animals is the odd one out (robin/elephant/snake) and discuss their reasons why.</p>		<p>Know which part of the body is associated with each sense and begin to say if their is a loss of a sense e.g. sight, what can be done to help e.g. glasses, braille (WS: Identifying and classifying)</p> <p>Identify, name and sort a variety of common animals that are carnivores, herbivores and omnivores. (WS: Identifying and classifying)</p> <p>Identify and name a variety of common animals that are mammals with a focus on bears i.e. spectacled, polar, panda.</p> <p>Label the parts of a polar bears and begin to understand how the bear is suited to it's habitat e.g. claws to help it grip to the ice.</p> <p>After researching, write facts about a panda e.g. where it lives, what it looks like and why, what it eats.</p> <p>Compare how the bears are similar and different.</p> <p>Using their knowledge about bears, write a poem about bears called 'At the Bear Zoo'.</p> <p>During Around the World Week, research animals and their habitats from their chosen class country.</p> <p>(Optional Science homework - Create a bear that would be suitable for living in Africa.)</p>	<p>face, hair, teeth, heart</p> <p>wing, claw, feathers, beak, owl, robin</p> <p>fin, scale, tail fin, gills</p> <p>warm blooded, babies, milk, hair/fur</p> <p>cold blooded, scales, dry skin, lay eggs, ear holes, 4 or no legs</p> <p>hollow fur, swim, black skin, sharp teeth, camouflage, herbivore, carnivore, omnivore, endangered</p> <p>hot/cold, diet, herbivore, carnivore, omnivore, flat teeth</p> <p>bamboo, endangered, China, extra thumb</p>
<p>Uses of everyday materials</p>	<p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (WS: Identifying and classifying)</p> <p>Distinguish between an object and the material from which it is made (WS: Identifying and classifying)</p>	<p>Compare and group together a variety of everyday materials on the basis of their simple physical properties. (WS: identifying and classifying. Using their observations and ideas to suggest answers to questions</p> <p>Investigate which materials are magnetic (pencil, scissors, glue stick, jumper, rubber</p>	<p>**materials - summer term **e.g. Investigate the most absorbent material?</p> <p>Or light blocking - finding out how well the materials block light. Introduce them to a toy owl and talk about nocturnal animals and how they sleep during the day. Ask them to think about which of their materials would</p>	<p>plastic, wood, metal</p> <p>hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy/not bendy,</p>

	<p>Investigate which materials (tissue, foil, plastic bag, card and fabric) are waterproof. (WS: Performing simple tests)</p> <p>Design a car for Traction Man and name and describe the materials chosen.</p>	<p>band, paper clip). (W.S: Performing simple tests)</p> <p>Investigate which materials will protect an egg when it is dropped. State which material was the best and explain why. (W.S: Performing simple tests)</p> <p>Pirate Day - Explore and select materials to make a pirate ship.</p>	<p>make the best curtains for blocking out the light so that the owl can sleep. Provide some torches so the children can experiment with which material is the most effective. Discuss predictions with the children and allow them to record their results if they wish.</p>	<p>GD: waterproof/not waterproof, absorbent/not absorbent, opaque/transparent</p> <p>waterproof, properties, metal, foil, plastic, card, fabric, predict</p> <p>magnetic, not magnetic</p>
Seasonal Changes	<p>Observe and describe weather associated with autumn and how day length varies.</p>	<p>Observe and describe weather associated with winter and how day length varies.</p> <p>Observe and describe weather associated with spring and how day length varies.</p>	<p>Observe and describe weather associated with summer and how day length varies.</p>	<p>Autumn, hibernate, store food, migrate, leaves, change, conker,</p> <p>day length gets shorter, colder,</p> <p>day length, warmer,</p> <p>day length gets longer, warmer</p>
Working Scientifically	<p>Identify and classify, gather and record data (body parts)</p> <p>Identify and classify a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Perform simple tests. (waterproof materials)</p>	<p>Ask simple questions about the weather and recognise they can be answered in different ways</p> <p>Gather and record data about the weather to help in answering questions. Observe closely, using simple equipment</p> <p>Use observations and ideas to suggest answers to questions</p> <p>Perform simple tests, using their observations and ideas to suggest answers to questions (rain on different materials)</p> <p>Identify and classify. Use observations and ideas to suggest answers to questions. (materials)</p> <p>Perform simple tests. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions. (Egg experiment)</p>	<p>Identify and classify a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Observe closely, using simple equipment. Perform simple tests. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions. (fruit decay)</p> <p>Observe plants closely, using simple equipment.</p>	<p>foggy, cloudy, rain, sunny, windy, hail, ice, showers, sleet, stormy, snow, lightning, showers, hail, drizzle, cold, hot, warm, dry, wet,</p> <p>C - Celsius, mm -millimetre, mph -miles per hour, foggy, cloudy, rain, sunny, windy, hail, ice, showers, sleet, stormy, snow, lightning, showers, hail, drizzle, cold, hot, warm, dry, wet,</p>

				<p>fair test, prediction, tin foil, card, tissue paper, cotton wool, plastic, bubble wrap,</p> <p>fruit, record, predict, results, mould, rot,</p>
Year 2				
Plants	<p>Identify that most plants live in habitats to which they are suited, e.g. cactus plants grow in the desert and have a thick stem so they can store water. Most cactus plants have sharp spines to stop animals from eating them.</p> <p>Describe how different habitats provide for the basic needs of different kinds of plants e.g. ferns and other small plants like to live in damp, shady habitats and grow on the woodland floor.</p> <p>Observe and describe how bulbs grow into mature plants.</p>	<p>Describe parts of plants that are dead and living e.g. dry leaves on the ground are dead, but they were once part of a living tree. (WS: Identifying and classifying)</p> <p>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain.</p>	<p>Observe and describe how bean seeds grow into mature plants.</p> <p>Investigate and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>habitat, ocean, polar, savannah, woodland plant, cactus, sea kelp, oak tree, fern, living, dead, never been alive, seed, bulb, germination, sprout, shoot, seed dispersal, nutrition</p>
Animals, including humans	<p>Understand the basic needs of birds and make a bird bud for the birds to help them survive in the winter which can be hung in our school grounds.</p>	<p>Discover the effect that exercise has on the body discuss why exercise is important.</p> <p>Name the different food groups and what we use each food group for.</p> <p>Know the importance of brushing our teeth and washing our hands by taking part in experiments which focus on hygiene. (WS: observing closely using simple equipment, performing simple tests, identifying and classifying)</p> <p>Investigate and describe the basic needs of animals, including humans, for survival (water, food and air) by considering different scenarios e.g. preparing for a trip into space and taking a pet to the vets - carrier with holes in it (WS: Using their observations and ideas to suggest answers to questions)</p>	<p>(Link to Healthy Living Week) Create a poster or information leaflet about the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>germs, mould, incisors, canines, pre-molars, molars, decay, acid, sugar, vinegar carbohydrates, protein, vitamins and minerals, fats and oils, fibre, water food, air, water,</p> <p>life cycle, offspring, Caterpillar, moulting, chrysalis, metamorphosis, pupa,</p>

			<p>Know the human life cycle and describe what a human needs and can do at each stage.</p> <p>Describe the change as they observe the lifecycle of a butterfly. Compare the life cycles of different animals to the lifecycle of a butterfly.</p> <p>Match animals and their young, including the animal chosen by their class for WWF Week and for Around the World Week.</p> <p>Name the offspring and explain the differences between the adult and the baby.</p>	
Uses of everyday materials	<p>Identify a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard.</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular use (Best for the Job lesson). (WS: Performing simple tests Using their observations and ideas to suggest answers to questions)</p> <p>Identify objects which are transparent and debate if it would be a good or a bad thing for all objects to transparent.</p> <p>Investigate the suitability of a variety of materials , including foil, j cloth, felt, card, bubble wrap and big bag, to make a parachute for Santa's elves. Write a conclusion about the results.</p>	<p>Investigate how the shapes of solid objects (plastic bottle, pipe cleaner, sock, drinking straw, playdough, bath towel, sponge and elastic band) made from some materials can be changed by squashing, bending, twisting and stretching. (WS: Performing Simple tests)</p>	<p>Create a sculpture using clay understanding that the material can be moulded by pushing, pulling, pinching, poking, rolling and twisting.</p>	<p>material, wood, metal, plastic, glass, brick, rock, paper, cardboard</p> <p>hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy/not bendy, waterproof/not waterproof, absorbent/not absorbent, opaque/transparent</p>
Living Things and their habitats	<p>Identify and name a variety of animals (using small world animals) and their habitats (using sand, ice, dead leaves and twigs etc to recreate the habitat). Describe how different habitats provide for the basic needs of different kinds of animals.(WS: asking simple questions, identifying and classifying)</p> <p>Identify and name a variety of minibeasts at the Wetland Centre. Describe how different the wetlands provide for the basic needs of different kinds of animals.</p>	<p>Explore and compare the differences between things that are living, dead, and things that have never been alive. (WS: Identifying and classifying)</p> <p>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>	<p>Using the book, Hummingbird by Nicola Davies, understand that in spring, hummingbirds fly from Mexico and Central America to the United States and Canada. They build their nests and have their babies there. In autumn they fly to Mexico and Central America to spend their winter there because it is warm.</p> <p>During WWF Week, write a persuasive letter to the other children in the school to encourage them to vote for their class</p>	<p>habitat, ocean, polar, savannah, woodland, giraffe, spotted coat, black tongue, long legs, camouflage, predators, owl, wings, head, woodland, predators, prey, camouflage,</p>

	<p>Create an minibeast hunt book for younger children which names minibeasts and where they can be found in the school grounds.</p> <p>Design and create a Bug Hotel for minibeasts so they can have a safe place to shelter, lay their eggs, raise their young and hide from predators.</p> <p>Using the book The Journey Home, understand that some animals habitats are being destroyed and know what we can do to help them.</p> <p>Write an animal poem which matches the animal to its habitat e.g. Can you....ROAR like a leopard on the green rainforest?</p> <p>Draw and write about a new animal, and explain why it is suited to its habitat.</p>		<p>animal. Children will include information about the animal's habitat and how it provides basic needs for their animal.</p> <p>During Around the World Week, research animals and their habitats from their chosen class country.</p>	<p>penguin, polar, webbed feet, fat, shark, ocean, gills, fin, teeth</p> <p>food chain, herbivore, carnivore, omnivore, energy, prey, predator, producer, consumer</p> <p>living, once alive, never been alive,</p>
<p>Working Scientifically</p>	<p>Ask simple questions, identify and classify (animals and their habitats)</p> <p>Use their observations and ideas to suggest answers to questions (how an animal or plant is suited to its habitat)</p> <p>Perform simple tests. Use their observations and ideas to suggest answers to questions (materials)</p> <p>Identify and classify (food chains)</p> <p>Use their observations and ideas to suggest answers to questions ('Elf and Safety)</p>	<p>Observe closely using simple equipment, perform simple tests (bread/germs experiment, teeth experiment,</p> <p>Use their observations and ideas to suggest answers to questions (basic needs of humans and animals for survival)</p> <p>Identify and classify (living, dead, and things that have never been alive)</p> <p>Observe closely, perform simple tests, using their observations and ideas to suggest answers to questions. (melting and freezing chocolate, Wonka's Chocolate River</p> <p>Perform simple tests (materials)</p>	<p>Observe plants closely, using simple equipment.</p>	<p>hypothesis, result, conclusion, waterproof, clay, wood, transparent,</p>