

Northfields Infants and Nursery School- Science Curriculum Overview

Building on learning from the previous year

ELG/ National Curriculum statements

Book suggestions – to encourage writing

Science

Nursery

ELG - The Natural World Children at the expected level of development will: Explore the natural world around them, making observations and drawing pictures of animals and plants.
ELG - 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.
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
ELG - Communication and Language ELG: Listening, Attention and Understanding Children at the expected level of development will: - 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; - Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.
ELG: Speaking Children at the expected level of development will: - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; - Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.
Working scientifically:
 1. Ask questions- Demonstrate curiosity about the world around them.
 2. Make predictions- With support or prompting, talk about what they think might happen based on their own experiences.
 3. Decide how to carry out an enquiry- Respond to prompts to say what happened to objects, living things or events.
 4. Take measurements- Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses.
 5. Record data- Talk to an adult about what has been found/found out.
 6. Present data- Talk to an adult about what has been found/found out.
 7. Answer questions using data- With support, explain why some things occur.
 8. Draw conclusions- With support, talk about what they have found out or what they think might happen next/ change based on their own experiences.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Seasonal changes Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields) - Autumn.</p> <p>Science Children showing respect and care for their environment. Children talking about their home environment and school environment. Children exploring their world and environment through their senses.</p>	<p>Seasonal changes Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields) - Autumn</p> <p>Children exploring the changing weather and seasons, Children continuing to explore using their senses.</p> <p>Asking questions. Modelled by Teacher - link to Elklan.</p>	<p>Seasonal changes Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields) - Winter</p> <p>Science Talk about 'how' and 'why' things happen/work. Children exploring a range of materials and natural objects. Children to explore the texture of snow, ice and why it melts.</p>	<p>Seasonal changes Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields) Spring.</p> <p>Science Develop an understanding of healthy food. Showing care and concern for living things and the environment. (Chicks, tadpoles, Caterpillars lifecycle). Planting cress seeds. around Spring time</p> <p>Working scientifically</p>	<p>Seasonal changes Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields) - Spring.</p> <p>Science Develop an understanding of growth/ changes over time. Showing care and concern for living things and the environment. (Insects, plants). Planting and observing changes to seeds. Children growing plants from seeds and caring for them</p>	<p>Seasonal changes Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields) - Summer.</p> <p>Science: Developing knowledge of animals and their young. Exploring habitats within the school grounds for mini beasts.</p> <p>Introduce science STEM challenges.</p>

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	<p>Exploring and learning about germs and handwashing. Exploring magnets in their play. Whole class Science floor book</p>			<p>Linking to Science week</p>	<p>Introduce science STEM challenges.</p>	
<p style="text-align: center;">Reception Understanding of the world</p>	<p><i>ELG - The Natural World Children at the expected level of development will: Explore the natural world around them, making observations and drawing pictures of animals and plants.</i></p> <p><i>ELG - 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.</i></p> <p><i>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</i></p> <p><i>ELG - Communication and Language ELG: Listening, Attention and Understanding Children at the expected level of development will: - 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; - Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.</i></p> <p><i>ELG: Speaking Children at the expected level of development will: - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; - Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.</i></p> <p><u>Working scientifically:</u></p> <ol style="list-style-type: none"> 1. Ask questions- Demonstrate curiosity about the world around them. 2. Make predictions- With support or prompting, talk about what they think might happen based on their own experiences. 3. Decide how to carry out an enquiry- Respond to prompts to say what happened to objects, living things or events. 4. Take measurements- Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses. 5. Record data- Talk to an adult about what has been found/found out. 6. Present data- Talk to an adult about what has been found/found out. 7. Answer questions using data- With support, explain why some things occur. 8. Draw conclusions- With support, talk about what they have found out or what they think might happen next/ change based on their own experiences. 					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Science Children will know their 5 senses.</p> <p>Children will learn about the season autumn and understand the changes that happen. Whole class Science floor book</p>	<p>Science Forces- magnets, floating and sinking, pull and push</p> <p>States of matter</p> <p>Light and dark</p>	<p>Science Children will identify and name a variety of everyday materials and begin to understand what recycle means and why we should do it.</p> <p>STEM activity- Children will explore the strength and type of materials to make</p>	<p>Science Healthy eating and teeth care (link to PSED).</p> <p>Children will begin to learn about the season Spring and understand the changes that happen.</p> <p>Working scientifically - science week</p>	<p>Science Signs of Spring continued. Observations of animals and plants Seeds /Growth Predicting Frogs/ Caterpillars</p> <p>Develop understanding of growth and decay.</p>	<p>Science Children will learn about the season Summer and understand the changes that happen.</p> <p>Encouraging children to ask questions and think scientifically.</p> <p>Develop language and scientific writing</p>

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			<p>a bridge for Billy Goats Gruff.</p> <p>Children will learn about the season winter and understand the changes that happen.</p>		<p>Show care and concern for living things and the environment.</p> <p>Build on from nursery</p> <p>Introduce individual Science books - children's' scientific pictures and drawings.</p>	<p>(linked to Phonics) - introduce individual Science books.</p>
	<p>Revisit Seasonal changes through the year building from Nursery. Explore the outdoor areas in school (e.g. Wildlife Area, Sensory Garden, Nursery garden, school fields).</p> <p>Forest School sessions every Friday afternoon in Autumn 1st term, Spring 2nd term, Summer 1st and 2nd term.</p>					
	<p><u>Working scientifically</u> Linking to ongoing Science STEM challenges</p>					
	<p><u>Working scientifically:</u> <i>During years 1, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</i></p> <ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways - Ask simple questions stimulated by their exploration of their world. • observing closely, using simple equipment - Observe objects, living things, events and the world around them closely, using their senses and simple equipment. • performing simple tests - Perform simple tests to explore a question or idea suggested to them, with support. Make measurements using nonstandard units of measure. • identifying and classifying - Present evidence they have collected in simple templates provided for them to help in answering questions. Draw or photograph evidence and label with support. • using their observations and ideas to suggest answers to questions - Respond to suggestions to connect what has been observed with possible further actions or observations. • gathering and recording data to help in answering questions. - Use their ideas to suggest answers to questions. Say what has changed when observing objects, living things or events. 					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Year 1</p> <p>Individual Science books</p>	<p>Seasonal changes Autumn. Building from Reception. <i>Observe changes across the four seasons.</i> <i>Observe and describe weather associated</i></p>	<p>Seasonal changes Winter. Building from R. <i>Observe changes across the four seasons.</i> <i>Observe and describe weather associated with the seasons and how day length varies.</i></p>	<p>Seasonal changes Winter/ Spring Building from Reception. <i>Observe changes across the four seasons.</i> <i>Observe and describe weather associated with the seasons and how day length varies.</i></p>	<p>Seasonal changes Spring Building from Reception. <i>Observe changes across the four seasons.</i> <i>Observe and describe weather associated</i></p>	<p>Seasonal changes Summer Building from Reception. <i>Observe changes across the four seasons.</i> <i>Observe and describe weather associated with the seasons and how day length varies.</i></p>	<p>Seasonal changes Summer Building from Reception. <i>Observe changes across the four seasons.</i> <i>Observe and describe weather associated</i></p>

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	<p><i>with the seasons and how day length varies.</i></p> <p>Animals including humans 1 Building from Reception. The human body and 5 senses. Senses investigations/ walks. Identify, name and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Everyday materials Building from R. Materials and their properties. Distinguish between an object and material from which it is made. Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock -sorting, naming and describing properties of different materials - developing vocabulary Investigations on waterproof, magnetic, comparing, using resources.</p>	<p>Animals including humans 2 Observations, researching, looking for clues, sorting, grouping. 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>	<p><i>with the seasons and how day length varies.</i></p> <p>Plants Developing vocabulary from Reception on parts of plant Walks, observational drawings, using resources. Identify and name a variety of wild and garden plants including deciduous and evergreen trees.</p> <p>Working scientifically Linking to Science week</p>	<p>Plants Developing vocabulary from Reception on parts of plant Identify and describe basic structure of a variety of common flowering plants, including trees.</p> <ul style="list-style-type: none"> - Naming parts - Seeds - Local plants - Shedding leaves - Fruit/ vegetables 	<p><i>with the seasons and how day length varies.</i></p> <p>Everyday materials Everyday materials building from vocabulary in Reception. 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> <p>Working scientifically Linking to Science challenges</p>
Year 2	<p>Working scientifically: During year 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways - Ask simple questions about their experiences and observations and with support use these observations to suggest ways to discover an answer or solve a problem, recognising that some can be answered in a variety of ways. Use their observations and ideas to make predictions. Use understanding of what has been observed or own experience to predict outcomes of further actions or observations. • observing closely, using simple equipment - Identify things to measure or observe that are relevant to the questions or ideas they are investigating using a simple test. Suggest a practical way of how to find things out, or collect data to answer a question or idea they are investigating. • performing simple tests - Observe closely and use equipment provided for observation and measuring correctly. Make measurements using non-standard and standard units of measure. Gather and record data in appropriate ways with increasing independence to help in answering questions. • identifying and classifying - Report on and record findings as drawings, photographs, labelled diagrams, orally, as displays or in simple prepared tables or charts. • using their observations and ideas to suggest answers to questions - Use understanding of what has been observed or own experience/ideas to answer questions. • gathering and recording data to help in answering questions - Respond to suggestions to identify some evidence needed to answer a question. Use their ideas to suggest answers to questions. Say what has changed when observing objects, living things or events. 					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

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<p>Individual Science books</p>	<p>Animals including humans Teeth and healthy eating. Basic needs & hygiene. Basic needs and hygiene Linked to PSHE healthy eating and hygiene and PE health related exercise. <i>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.</i></p>	<p>Uses of Everyday Materials Uses and properties Build on from Year 1 <i>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.</i></p>	<p>Uses of Everyday Materials Uses and properties Build on from Year 1 <i>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.</i></p>	<p>Plants Build on from Year 1 <i>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.</i> Working scientifically Linking to Science week</p>	<p>Plants <i>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.</i> Living things and their habitats <i>Explore and compare the differences between things that are living, dead and things that have never been alive. Identify and name a variety of plants and animals in their habitats, including microhabitats.</i> Revisit Seasonal changes Build on Y1 topic Observe living things in their habitats during different seasonal changes. Explore climate change.</p>	<p>Living things and their habitats <i>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. 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.</i> Working scientifically Linking to Science STEM challenges</p>
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KS1 Forest School (Linked to seasonal changes)	Autumn	Winter	Spring	Summer
	<ul style="list-style-type: none"> • Pond dipping • Den building • Whittling - Hazel • Bark and leaf rubbings • Magic spots and story telling • Autumn hunt 	<ul style="list-style-type: none"> • Fire lighting • Campfire songs • Toasting marshmallows • Pond dipping - winter survival • Games, games, games • Pine cone birdfeeders and make a bird stencil 	<ul style="list-style-type: none"> • Fire lighting • Campfire songs • Cooking dampers • Den building using Forest School knots • Forest School knots and square lashing • Fox walking/ Owl eyes 	<ul style="list-style-type: none"> • Whittling - Hazel • Making Elder necklaces • Make an Elder whistle • Make a Willow dreamcatcher • Mud slide • Snail racing

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	<ul style="list-style-type: none"> • Observation space and Kim's Game • Leaf crowns, firework creations and leaf storm • Make a hedgehog, hungry hedgehog & make a hedgehog home • Spiders and webs • Colour cards and sticky pictures • Journey sticks/ journey strings • Colour bingo • Nature Gods eyes • Learn to identify our local Flora & Fauna and their relationships 	<ul style="list-style-type: none"> • RSPB Big birdwatch • Build a nest/ pirate ship • Keeping warm (and ants eyes) • A brush for painting • Make a clay creature • Welly wanging • Mud kitchen • Tug of war • Winter homes for wildlife • Snowy day activities • Twig towers 	<ul style="list-style-type: none"> • Tree spirits • Sensory scavenger hunt • Pond dipping and life cycle of a frog • Make a grass caterpillar • Build a giant nest • Caterpillar hunt • Spring school tree ID and spring flower hunt • Natural art - Andy Goldsworthy • Hobby Horse Run 	<ul style="list-style-type: none"> • Pond dipping - study a micro habitat • Minibeast hunt • Sew a flower • Leaf and flower prints • Make a sunflower • Camouflage games/ trail laying • Make a butterfly, butterfly hunt and decorate a butterfly • Leaf boats and twig rafts • Shadow play
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