



OVERCHURCH INFANT SCHOOL

PROGRESSION IN SCIENCE - EYFS TO YEAR 2

A child with secure, age-related scientific knowledge and skills will show evidence of attainment set out for the end of each unit:

EYFS	EXPLORERS (Never Give Up)	PLANET PROTECTORS (Be Kind)	HEROES (Work Hard)	EXPLORERS (Never Give Up)	PLANET PROTECTORS (Be Kind)	HEROES (Work Hard)
By the end of EYFS	Plants Seasonal Change	Animals, inc humans Seasonal change	Everyday materials Seasonal change	Living things and their habitats	Everyday materials	Animals, including humans / Plants
<p>ELG: The Natural World</p> <p>I can explore the natural world around me, making observations and drawing pictures of animals and plants;</p> <p>I know some similarities and differences between the natural world around me and contrasting environments, and I can draw upon my own experiences and what has been read in class,</p> <p>I can understand some important processes and changes in the natural world around me, including the seasons and changing states of matter.</p>	<p>I understand that Science is finding out about ourselves and the world around us.</p> <p>I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>I can identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>I can begin to observe and talk about changes across the seasons, especially thinking at this time of year about summer and autumn.</p>	<p>I can identify and name a variety of common animals, including fish, amphibians, reptiles, birds and mammals and I can link this to animals we may visit at Chester Zoo.</p> <p>I can identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>I can describe and compare the structures of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p>	<p>I can distinguish between an object and the material from which it is made.</p> <p>I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>I can describe the simple physical properties of a variety of everyday materials.</p> <p>I can compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>I can explore and compare the differences between things that are living, dead, and things that have never been alive. I can explore living things and their habitats.</p> <p>I can identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>I can describe simple food chains, and identify and name different sources of food.</p>	<p>I can identify and compare the suitability and uses of everyday materials.</p> <p>I can find out how the shapes of solid objects made from some materials can be changed.</p>	<p>I can notice that animals, including humans, have offspring which grow into adults.</p> <p>I can find out about and describe the basic needs of animals, including humans, for survival.</p> <p>I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>I can observe and describe how seeds grow into mature plants.</p> <p>I can observe and describe how bulbs</p>

<p>I might begin to work scientifically by: Observing and sorting things carefully using all my senses, Finding similarities and differences between things, Asking questions, Predicting what might happen next, and Testing to see what happens.</p>	<p>I can begin to observe and describe weather associated with the seasons and how day length varies.</p>	<p>I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>I can observe and talk about changes across the seasons, especially thinking at this time of year about winter and spring.</p> <p>I can observe and describe weather associated with the seasons and how day length varies.</p>	<p>I can observe and talk about changes across the seasons in more detail, especially thinking at this time of year about spring and summer.</p> <p>I can observe and describe weather associated with the seasons and how day length varies.</p>			<p>grow into mature plants.</p> <p>I can find out about and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>
<p><i>I can behave like a scientist by learning and being encouraged to:</i></p>	<p>‘Working scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how ‘working scientifically’ might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. ‘Working scientifically’ will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.</p>					
<p><i>Observe and sort things carefully using all my senses, Find similarities and differences between things, Ask questions, Predict what might happen next, and Test to see what happens.</i></p>	<p>During years 1 and 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 ▪ observing closely, using simple equipment ▪ performing simple tests ▪ identifying and classifying ▪ using their observations and ideas to suggest answers to questions ▪ gathering and recording data to help in answering questions <p>These opportunities for working scientifically should be provided across years 1 and 2 so that the expectations in the programme of study can be met by the end of year 2. Pupils are not expected to cover each aspect for every area of study. These opportunities will be built into each topic where they fit the most naturally, and to ensure a fair coverage over the key stage.</p>					

Fiction and Non-fiction books to support learning:

EYFS	EXPLORERS (Never Give Up)	PLANET PROTECTORS (Be Kind)	HEROES (Work Hard)	EXPLORERS (Never Give Up)	PLANET PROTECTORS (Be Kind)	HEROES (Work Hard)
<p>Animals/minibeasts The Gruffalo by Julia Donaldson The Hungry Caterpillar by Eric Carle. Creature features – Natasha Durlay The Bug Collector – Alex G Griffiths Titch - Pat Hutchins Let's Make Faces - Hanoch Piven Izzy Gizmo – Pip Jones and Sara Ogilvie Snail Trail – Ruth Brown Superworm – Julia Donaldson Aaaargghh, Spider! – Lydia Monks Minibeasts- Ladybird First Fabulous Facts – Jaclyn Crupi and Ladybird Yucky Worms – Vivian French and Jessica Ahlberg</p> <p>Growing Eddie's Garden – Sarah Garland Oliver's Vegetables – Vivian French and Alison Bartlett I Really Wonder What Plant I'm Growing (Charlie and Lola) – Lauren Child The Enormous Potato – Aubrey Davis Jasper's Beanstalk – Nick Butterworth and Mick Inkpen</p> <p>Weather Snowballs -Lois Ehlert Little Cloud – Anne Booth and Sarah Massini Elmer and the Rainbow – David McKee The Wind Blew- Pat Hutchins Maisy's wonderful weather – Lucy Cousins</p> <p>Ourselves What are germs? (Lift the flap Very First questions and answers) by Usborne</p>	<p>Science What do scientists do all day? Jane Wilsher</p> <p>Seasonal change The Owl who was afraid of the dark – Jill Tomlinson Tree: Seasons Come, Seasons Go – Patricia Heggarty and Britta Tekentrup The Snowflake Mistake – Lou Treleaven and Maddie Frost Secrets of Winter – Carron Brown and Georgina Tee (Shine a Torch) Why do leaves fall from the trees? Ruth Owen The Squirrels busy year – Martin Jenkins</p> <p>Plants The Big Book of Blooms – Yuval Zommer A Little Guide to Wild Flowers- Charlotte Voake Katie and the sunflowers – James Mayhew The Things That I Love about Trees – Chris Butterworth The true story of How One Tree-Loving Woman changed a city forever – H Joseph Hopkins A nature poem for every day of the year – Fiona Waters and Frann Preston- Gannon Fundamental Science – Roots, Stems, Leaves and flowers by Ruth Owen</p> <p>Animals, including humans Dragon Doctor by Joan Procter Funnybones - Janet & Allan Ahlberg The Growing Story - Ruth Krauss and Helen Oxenbury Dolphin Boy -Michael Morpugo Look Out! How We Use Our Five Senses! -Leon Read and Sean Sims You're called what?! – Kes Gray and Nikki Dyson Rescue Zoo chapter books by Amelia Cobb Fundamental Science – Wings, Paws, Scales and Claws – by Ruth Owen</p> <p>Seasonal change Storm – Sam Usher A Year in Nature: A Carousel Book of the Seasons – Hazel Maskell and Eleanor Taylor First facts- Seasons DK Bringing the Rain to Kapiti Plain – Verna Aardema</p> <p>Seasonal change Sun – Sam Usher The Weather Girls – AKI Lift-the flap Questions About Weather – Katie Daynes and Marie-Eve Tremblay Out and About – A first Book of Poems – Shirley Hughes Project Weather – Phillip Steele</p> <p>Materials Everyday Materials - Ways into Science – Peter Riley How things work – Materials (Science in action) – Anna Claybourne Everyday Materials – Fundamental Science by Ruth Owen</p>			<p>Animals, including humans / Living things and their habitats Garden Birds – RSPB – by Sarah Whittle and Mike Unwin Wolves by Emily Gravett Shark Lady: The story of Eugenie Clark became the ocean's most fearless scientist by Jess Keating <i>Your Heart and Lungs (Science in Action) - Sally Hewitt</i> <i>Turn and Learn: Our World – Isabel Otter</i> The Human Body (Shine a Light) by Carron Brown and Rachael Saunders Little People: Big Dreams 'Marie Curie' & 'David Attenborough' Habitats and food chains – Fundamental Science by Ruth Owen Little kids first big book of science - National Geographic Kids Kaleidoscope of Creatures – Cath Ard The Last Wolf- Mini Grey Secrets of the Vegetable Garden – A shine a light book – by Carron Brown The Big Book of Blue- Yuval Zommer The Storm Whale – Benji Davies Professor Astro Cat's Human Body Odyssey- Dominic Walliman and Ben Newman A story about hope for us and our planet by Michael Morpugo and Emily Gravett The Big Book of Bugs – Yuval Zommer Diary of a fly – Doreen Cronin and Harry Bliss A Butterfly is Patient – Dianna Hutts Aston & Sylvia Long The Bee Book – Charlotte Milner Harry the Poisonous Centipede – Lynne Reid banks and Tony Ross The Giant Jam Sandwich -Janet Burroway and John Vernon Lord Mad about minibeasts – Giles Andreae and David Wojtowycz</p> <p>Materials A Super Sticky Mistake by Alison Donald and Rea Zhai Ada Twist, Scientist by Andrea Beaty A Planet full of plastic by Neal Layton Materials Science Kids by Clive Gifford The great paper caper by Oliver Jeffers</p> <p>Plants Upside down seeds and other science questions Jim and the beanstalk – Raymond Briggs Ten seeds – Ruth Brown The Little Gardener – Emily Hughes It starts with a seed – Laura Knowles and Jennie Webber Bonkers about Beetroot – Cath Jones and Chris Jevons Plants (Amazing Science) – Sally Hewitt RHS Ready, Steady, Grow – Royal Horticultural Society A Seed is Sleepy – Dianna Aston and Sylvia Long Wangari's Trees of Peace: A True story from Africa – Jeanette Winter The Boy Who Grew Dragons – Andy Shepherd The Bee Book – Charlotte Milner All about plants- Ways into Science – Peter Riley</p>		



OVERCHURCH INFANT SCHOOL

PROGRESSION IN SCIENTIFIC VOCABULARY - EYFS TO YEAR 2

A child with secure, age-related scientific knowledge and processes will show evidence of understanding the vocabulary detailed for each unit:

EYFS	EXPLORERS (Never Give Up)	PLANET PROTECTORS (Be Kind)	HEROES (Work Hard)	EXPLORERS (Never Give Up)	PLANET PROTECTORS (Be Kind)	HEROES (Work Hard)
By the end of EYFS	Plants Seasonal Change	Animals, including humans Seasonal change	Everyday materials Seasonal change	Living things and their habitats	Everyday materials	Animals, including humans / Plants
Leaves, trees, plants, soil, water, grow, sun, rain, puddles, weather, water, ice, Day, night, shadows, Light, dark, Senses, Animals names, baby animals, life cycles, egg, chick/duckling, chicken/duck, frogspawn, tadpoles, frogs, caterpillars, pupa, butterflies, change, Body part names, Materials, Similarities, differences, Push/pull Float/sink Explore, feel, observe, Experiment, Predict, Record, Explain	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Deciduous (Oak, Sycamore, Beech, Horse Chestnut) Evergreen (Holly, Fir) Names of garden and wild flowering plants, especially any in the local area – Daisy, Daffodil, Crocus, Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length Observe, discuss, identify, compare, explain, sort, group, draw labelled diagrams, gather and record data.	*Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves *Names of animals from each animal group (Mammals, inc humans and pets, Reptiles, Amphibians, Birds and Fish) *Parts of the body including those linked to PSHE teaching *Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue *Herbivore, Carnivore, Omnivore Weather (sunny, rainy, windy, snowy etc.) • Seasons: winter, summer, spring, autumn) • Sun, sunrise, sunset, day length Observing over time, pattern seeking (making tables and charts), identifying, classifying, comparing and grouping, research using secondary sources.	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through Weather (sunny, rainy, windy, snowy etc.) • Seasons (winter, summer, spring, autumn) • Sun, sunrise, sunset, day length Observing, exploring, discussing, asking questions, identifying, classifying and grouping, performing simple tests, presenting data, evaluating.	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed • Names of local habitats. • Names of micro-habitats Criteria, recording and reporting findings (charts.) Exploring, observing, recording, pattern seeking, raising questions, observing over time, identifying, comparing, contrasting, sorting, classifying and grouping, research using secondary sources.	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching, suitable/unsuitable. Scientists, e.g. John Dunlop, Charles Macintosh or John McAdam. Identifying and comparing suitability. Comparative and fair testing. Research using secondary sources. Collecting, analysing and presenting data.	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy Bulbs, seeds, mature, light, shade, sun, warm, cool, water, grow, growth, temperature, germination, reproduction, healthy, conditions, survival, store. Observing over time, Asking own questions, comparative and fair testing. Similar/different stages. Comparative and fair testing, variables. Measuring accurately. Collecting, analysing and presenting data. Predicting, hypothesising, evaluating, talking in scientific terms. Rulers/measuring equipment.

EXTENDING HIGHER ATTAINING CHILDREN IN CORE SUBJECTS - SCIENCE

PROGRAMME OF STUDY	KEY STAGE TWO	KEY ENQUIRY AREAS AND SPECIFIC WS VOCABULARY TAUGHT IN YEAR THREE
<p>WORKING SCIENTIFICALLY</p> <p>to be taught within the Year 3 PoS:</p> <ul style="list-style-type: none"> *Animals, including humans *Rocks *Light *Forces and magnets 	<p>Taken from the NC:</p> <p><i>The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.</i></p> <p><i>‘Working scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.</i></p> <p><i>During years 3 and 4, 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 relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> *Ask relevant questions when prompted. *Set up simple and practical enquiries, comparative and fair tests. * Set up comparative tests. * Make systematic observations, using simple equipment. (thermometers) * Use standard units when taking measurements. (cm) * Record findings in various ways. * With prompting, suggest how findings may be tabulated. * With prompting, use various ways of recording, grouping and displaying evidence. * With prompting, suggest conclusions from enquiries. *Suggest how findings could be reported. * Gather and record data about similarities, differences and changes. * With prompting, suggest conclusions that can be drawn from data. * Suggest possible improvements or further questions to investigate.

Notes and guidance (non-statutory)

Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.

With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected, and finding ways of improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.

Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.

These opportunities for working scientifically should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4. Pupils are not expected to cover each aspect for every area of study.

During Years 3 and 4 the children will learn/continue learning about:

- ✓ ANIMALS, INCLUDING HUMANS (Y3) and (Y4)
- ✓ ROCKS (Y3)
- ✓ LIGHT (Y3)
- ✓ FORCES AND MAGNETS (Y3)
- ✓ LIVING THINGS AND THEIR HABITATS (Y4)
- ✓ STATES OF MATTER (Y4)
- ✓ SOUND (Y4)
- ✓ ELECTRICITY (Y4)