

Science Curriculum Overview

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Preschool	<i>I wonder...</i> All about me Bodies What do I like? What am I capable of? Engaging in their environment- explore natural materials Baby/family photos to see how they have changed and grown overtime	<i>I wonder...</i> How things move? People/Dance Animals/Wind Trajectory/ Transportation schematic play Transport Physical Challenge Force/Flow Solar System Signs of Autumn	<i>I wonder...</i> Who can help me? Occupations Community	<i>I wonder...</i> How does it grow? Planting Gardening What we need to grow? Nourishment Healthy bodies Measuring Life cycle Mini Beasts Farms/Farmer	<i>I wonder...</i> How it is made? Construction Building Instructions Cooking Potions Experiments	<i>I wonder...</i> Where I could go? Investigations Holidays – exploration of sand and water Talk about the differences between materials and changes they notice
Reception	<u>- Signs of Autumn</u> Observe changes in materials, seasons, and living things Activities: Going on nature walks, collecting leaves and pine cones Vocabulary:	<u>Signs of Winter (ice: changing states)</u> Observe changes in materials, seasons, and living things Activities: Going on nature walks, Colour mixing Observing ice	<u>Animals from around the world and their Habitats</u> Talk about living things and non-living things Vocabulary: observe, change, grow, animal, living, non-living, Shrove Tuesday	<u>Signs of Spring</u> Observe changes in materials, seasons, and living things Activities: Going on nature walks, collecting leaves and pine cones Vocabulary: observe, change, weather, season,	Science Oxford workshop inventing with Isobel Science Week Observe changes in materials, seasons, and living things Begin to ask questions and describe what they notice	<u>- Signs of Summer</u> Observe changes in materials, seasons, and living things Activities: Going on nature walks, Vocabulary: observe, change, weather, season,

	observe, change, weather, season, <u>Nocturnal animals</u> Talk about living things and non-living things. Activities: Bring in baby pictures to compare themselves Reading books with nocturnal animals Vocabulary: grow, animal, living, nocturnal	Vocabulary: observe, change, weather, season,		<u>Life Cycles</u> Observe changes in materials, seasons, and living things Begin to ask questions and describe what they notice Activities: Hatching chickens/ducklings Mini beasts hunt Farm Visit (at Preschool site) Planting and growing Vocabulary: observe, change, grow, plant, animal, living, Lunar New Year	Use simple tools and equipment safely to explore Vocabulary: observe, change, grow, plant, animal, living, non-living	<u>Investigations</u> Observe changes in materials, seasons, and living things Begin to ask questions and describe what they notice Use simple tools and equipment safely to explore Activities: Experiments Shadows and light Obseving nature in Forest school. Vocabulary: observe, change, grow, plant, animal, living, non-living - Space and the solar system (planets) Know that the planet earth is located in the solar system. Activities: Planetarium visit
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						Trip to the moon/venus Vocabulary: v
Early years	Provision ● Through stories and non-fiction books ● High quality reading books ● Wildlife garden and Forest school ● Water and sand tray ● Malleable materials ● Junk modelling – links to STEM ● Making playdough ● Exploring each season ● Science week and experiments, both planned and incidental. ● Trips: Science Oxford and the Farm. ● Small world play (animals) ● Walks around the local environment					
Year 1	Seasonal change Children learn about the four seasons and the weather associated with each. Cover: daylight hours, change in plants, suitable clothing. Book: A Year in Nature: A Carousel Book of the Seasons by Hazel Maskell Everyday Materials Scientist: Charles Macintosh (waterproof material) Books: Little Red Hen	Seasonal change Children learn about the four seasons and the weather associated with each. Cover: daylight hours, change in plants, suitable clothing. Animals Including humans: Scientist: David Attenborough and Jane Goodall Book: ‘Dear Zoo’ by Rod Cambell and ‘Little People, Big Dreams’- Jane Goodall	Seasonal change Children learn about the four seasons and the weather associated with each. Cover: daylight hours, change in plants, suitable clothing. Plants: Introduction to Plants - Identifying the key features of a plant. - Identify and name a variety of common wild and garden plants,			

	- 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.	- 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) Humans: - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	including deciduous and evergreen trees		
	Pupils use investigative skills to record the growth of a plant over time and begin to reflect on factors that will affect its development.				
Year 2	Living Things: Habitats and Microhabitats Scientist: Jane Goodall Book: Super Worm -Recap animal classification. -Recap animal diets. - Identify and name a variety of plants and animals in their habitats, including microhabitats. -Classify objects into alive, was once alive or has never been alive.	Materials Scientist: John McAdam (roads) -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	Animal Life cycles -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)	Healthy living Scientist: Rosalind Franklin (DNA Double helix) -Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	Plants: Plant Growth Scientist : Beatrix Potter (botanist) -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.

	- Learn how a range of different living things depend on each other for food or shelter. -Food chains		materials can be changed by squashing, bending, twisting and stretching. -Compare the suitability of materials through experimentation.			
Year 3	Energy: Light and shadow Scientist: Patricia Bath Book: Luminous: Living Things That Light Up the Night The Dark Jon Klassen & Lemony Snicket -Understand the properties of light and how it enables sight. - Recognise that they need light in order to see things and	Forces and Magnets Scientist: C.V. Raman or Hideki Yukawa Book: Step Into Science: Forces and Magnets By Peter Riley -Investigate contact and non-contact forces. -Understand the properties of magnets. -Compare how things move on different surfaces	Materials: Rocks and Soils Scientist: Mary Anning Book: The Fossil Hunter: How Mary Anning unearthed the truth about the dinosaurs by Kate Winter -Classify and understand the properties of rocks. -Understand how fossils are formed. -Pupils should be taught to: -Compare and group together different kinds	Plants: Plant reproduction Book: A Year in Nature: A Carousel Book of the Seasons By Hazel Maskell -Explore the factors which affect the growth of plants. -Understand roles of flowers and seeds and the variety of ways seeds are dispersed -Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	Animals including Humans: Movement and nutrition: Scientist: Leonardo Da Vinci Book: We are All Animals Ben Hoare, Christopher Lloyd -Understand the role of the skeleton, muscles and how energy is used by the body, what constitutes a balanced diet in humans -Identify that animals, including humans, need the right types and amount of nutrition, and that 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	

	that dark is the absence of light -Notice that light is reflected from surfaces -Recognise that light from the sun can be dangerous and that there are ways to protect their eyes -Recognise that shadows are formed when the light from a light source is blocked by an opaque object -Find patterns in the way that the size of shadows change	notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles	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	-Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant -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	
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		predict whether 2 magnets will attract or repel each other, depending on which poles are facing			
Year 4	Energy: Sound and Vibrations Scientist: James West Book: Heroes of Light and Sound Alan Brown & Joy Lin Listen: How Evelyn Glennie, a Deaf Girl, Changed Percussion Devon Holzwarth & Shannon Stocker -Explore sound, its relationship to vibration and how it	Energy: Electricity and Circuits Book: Human 2.0: A Celebration of Human Bionics by Patrick Kane -Explore appliances that use electricity, simple circuits, insulation and conductivity.	Materials: States of Matter Book: The Fantastic Journey of Little Particles: A book about the States of Matter by Bailee Younce -Understand the different states of matter, including changes of state. -Compare and group materials together, according to whether	Living Things: Classification and changing habitats Scientist: Sylvia Earle Book: The Big Picture: Living Habitats by Jon Richards Fourteen Wolves: A Rewilding Story Book by Catherine Barr -Group living things using classification keys and look at how habitats may change over time.	Animals: Digestion and Food Scientist: George Washington Carver Book: It Takes Guts: How Your Body Turns Food Into Fuel (and Poop) by Dr Jennifer Gardy -Using models, Understand the parts of the digestive system including teeth and compare between humans and animals. -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

	travels through different materials. -Identify how sounds are made, associating some of them with something vibrating. -Recognise that vibrations from sounds travel through a medium to the ear -Find patterns between the pitch of a sound and features of the object that produced it -Find patterns between the volume of a sound and the strength of the	-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	they are solids, liquids or gases -Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) -Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	-Recognise that living things can be grouped in a variety of ways -Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment -Recognise that environments can change and that this can sometimes pose dangers to living things	-Construct and interpret a variety of food chains, identifying producers, predators and prey
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	vibrations that produced it -Recognise that sounds get fainter as the distance from the sound source increases	whether or not a lamp lights in a simple series circuit -Recognise some common conductors and insulators, and associate metals with being good conductors			
Year 5	Properties and changes of materials Scientist: Marie Curie Scientist: Harry Bhadeshia Book: The Great Paper Caper By Oliver Jeffers The Tin Forest Helen Ward & Wayne Anderson -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	Forces Scientist: Mae Jemison Book: Fantastic Forces and Incredible Machines by Nick Arnold You Wouldn't Want To Live Without Gravity! - You Wouldn't Want to Live Without by Anne Rooney	Earth and Space Book: The Moon: Discover the Mysteries of Earth's Closest Neighbour By Dr. Sanlyn Buxner, Dr. Pamela Gay & Dr. Georgiana Kramer -Describe the movement of the Earth, and other planets, relative to the Sun in the solar system	Living Things: Life Cycles and Reproduction Scientist: Charles H. Turner Book: Tiny Floating Coral by Mary Auld -Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Animals: Human Timelines -Describe the changes as humans develop to old age. -Studying human development and changes -Describe how puberty affects girls and boys

	separated, including through filtering, sieving and evaporating -Demonstrate that dissolving, mixing and changes of state are reversible changes -explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. -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 -Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic					-Explain that unsupported objects fall towards the 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.		-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.		-Describe the life process of reproduction in some plants and animals.		
Year 6	Living Things: Evolution and Inheritance Scientist: Har Gobind Khorana Book:	Energy: Light and Reflection Scientist: Donna Theo Strickland Book: The Speed of Starlight by Colin Stuart	Living Things: Classifying big and small Book: Darwin’s Super-Pooping Worm Spectacular by Polly Owen	Energy: Circuits, Batteries and Switches Scientist: Walter Lincoln Hawkins Book: The Extraordinary Life of	Animals: Circulation and Exercise Book: -Understand the human circulatory system. Understand how lifestyle choices affect our health.							

	Squished by Megan Wagner Lloyd -Understand inherited characteristics and environmental characteristics. Understand variation and natural selection. -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	- Prove the properties of light including: reflection, shadows and the laws of reflection. Understand how the eye functions. -Recognise that light appears to travel in straight lines -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 -Explain that we see things because light travels from light sources to our eyes	-Group vertebrates and invertebrates using shared characteristics. -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 -Give reasons for classifying plants and animals based on specific characteristics	Alan Turing Michael Lee Richardson -Draw conventional circuit diagrams and use models to explain current, resistance and voltage. Design and produce their own practical devices. -Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit -Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches	-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
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	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	or from light sources to objects and then to our eyes -Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them		-Use recognised symbols when representing a simple circuit in a diagram	
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