Science Curriculum Overview

Flexibility in the science curriculum - At Burrough Green, we expect all aspects of the science curriculum covered over the year. Investigations and observations can take place over several weeks, or even across the year (this is especially relevant for Year 1 and 2)

Science within EYFS is linked primarily to 'Understanding of the World' and 'Physical Development'.

Children in EYFS have opportunities throughout the year to be able to observe, play and question scientific phenomena through activities instigated by teachers or provided as part of provision.

Questions are modelled and encouraged using scientific vocabulary and stimulated through practical experiences as well as literary and mathematical ones. Examples include, but are not limited to: growing their own fruit and vegetables, observing the lifecycle of a butterfly and observing the incubation and birth of baby chicks.

EYFS/YEAR 1

Cycle A	Year	Autumn 1	Autumn 2	Spring 1	Spring 2 Science Week	Summer 1	Summer 2
	EYFS/Year 1	**Plants** *Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees* *Planting winter vegetables* **Seasonal Changes** *Observe changes across the four seasons – focussing on Autumn* *Observe and describe weather associated with the seasons and how day length varies*	**Materials** *Distinguish between an object and the material from which it is made* *Identify, name and describe simple properties of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock* *Compare and group together a variety of everyday materials on the basis of their simple physical properties* **Seasonal Changes**	**Animals including Humans** *Identify, name describe and compare a variety of common animals including fish, amphibians, reptiles, birds and mammals including pets and farm animals)* **Seasonal Changes** *- focussing on Winter and then Winter into Spring*	**Plants** *Identify and describe the basic structure of a variety of common flowering plants, including trees.* *Planting fruit and vegetables* **Seasonal Changes** *focussing on Spring*	**Animals including Humans** *Identify and name common carnivores, herbivores and omnivores* **Materials** *Distinguish between an object and the material from which it is made* *Identify, name and describe simple properties of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock* *Compare and group together a variety of everyday materials on the*	**Animals including 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.* **Plants** *Planting fruit and vegetables (salad vegetables)* **Seasonal Changes** *focussing on Summer*

			-focussing on Autumn into Winter			*basis of their simple physical properties* **Seasonal Changes** *- focussing on Spring into Summer*	
	Visits:			**Visit from farmer**		**Visit from farmer**	**Parent and Baby**
	Scientists:	**Visit from gardener**	**Visit from a builder**		**Visitor from RSPB**		
	Enquiry **Plan** **Do** **Review**		**Floating and Sinking** **Biscuits in different liquids**	**Incubator Chicks** **Light bug boxes**	**Butterflies** **Growing flowers from seeds**	**Animal Classification**	**Observing tadpoles**

Cycle B	Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	EYFS/Year 1	**Plants** *Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees* *Planting winter vegetables* **Seasonal Changes** *Observe changes across the four seasons – focussing on Autumn* *Observe and describe weather associated with the seasons and how day length varies*	**Materials** *Distinguish between an object and the material from which it is made* *Identify, name and describe simple properties of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock* *Compare and group together a variety of everyday materials on the basis of their simple physical properties* **Seasonal Changes** *-focussing on Autumn into Winter*	**Animals including Humans** *Identify, name describe and compare a variety of common animals including fish, amphibians, reptiles, birds and mammals including pets and farm animals)* **Seasonal Changes** *- focussing on Winter and then Winter into Spring*	**Plants** *Identify and describe the basic structure of a variety of common flowering plants, including trees.* *Planting fruit and vegetables* **Seasonal Changes** *focussing on Spring*	**Animals including Humans** *Identify and name common carnivores, herbivores and omnivores* **Materials** *Distinguish between an object and the material from which it is made* *Identify, name and describe simple properties of a variety of everyday materials, including wood, plastic, glass, metal, water, and rock*	**Animals including 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.* **Plants** *Planting fruit and vegetables (salad vegetables)* **Seasonal Changes** *focussing on Summer*

						Compare and group together a variety of everyday materials on the basis of their simple physical properties **Seasonal Changes** *- focussing on Spring into Summer*	
	Visits		**Visitor from farmer**				Parent and Baby
	Scientists:	**Visit from gardener**				**Visit from a builder**	
	Enquiry **Plan** **Do** **Review**	**Shadows through the day investigation** **Scavenger Sort**	**Mixing Materials** **Shades of Colour** **Observing winter ice**	**Caring for a beetle** **Garden birdwatch**	**Where do plants grow best?**	**Incy Spider Investigation** **Frozen Balloons** **Mud Kitchen Menu**	**Properties of water investigation** **Taste Test**

YEAR 2/YEAR 3

Cycle A	Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Year 2/Year 3	**Uses of everyday materials** *Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses*	**Light** *Recognise that they need light in order to see things and 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*	**Plants** **Focus on Growing** *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 (air, light, water, nutrients from soil, and room to*	**Animals Including Humans** **Focus on Pets** *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)*	**Living things and their Habitats** **Focus on Habitats** *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*	

			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.*	*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.*	*Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.*	*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 different sources of food.*
	Visits:				**Visit from a Veterinarian**	
	Scientists:	**John Dunlop**	**Patricia E. Bath**	**Beth Chatto**		**Rachel Carson**
	Enquiry **Plan** **Do** **Review**	**Bubble Snakes** **Waterproof Materials**	**Making Shadows**	**Compare Plant Growth**	**Planting a tree**	**Woodlice Habitat** **Owl pellets**

Cycle B	Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Year 2/Year 3	**Rocks** *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.*	**Forces and Magnets** *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*	**Uses of everyday materials** *Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.*	**Plants** **Focus on life Cycle** *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 (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant*	**Animals including humans** **Focus on 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.*	

			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 two poles* *Predict whether two magnets will attract or repel each other, depending on which poles are facing.*		*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.*	
	Visits:					**Visit from nutritionist/dietician**
	Scientists:	**Mary Anning**	**Michael Faraday**	**Ruth Benerito**	**Mary Agnes Chase**	
	Enquiry **Plan** **Do** **Review**	**Reporting Rocks**	**Cars Down a Ramp** **Rocket Mice** **Balloon Rockets**	**Strongest Magnet**	**Function of plant stem**	**Compare Handspans**

YEAR 4/ YEAR 5/ YEAR 6

	Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A	**Year 4/5/6**	**States of Matter** *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 this*	**Light** *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*	**Sound** *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*	**Animals including humans** *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*	**Living things and their habitats** *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.*	

		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.*	*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* *Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them*	*features of the object that produced it* *Find patterns between the volume of a sound and the strength of the vibrations that produced it* *Recognise that sounds get fainter as the distance from the sound source increases.*	*Construct and interpret a variety of food chains, identifying producers, predators and prey*	
	Visits:					
	Scientists:	**Joseph Priestly**	**Ibn al-Haytham**	**James Edward Maceo West**	**William Beaumont**	**Maria Merian**
	Enquiry **Plan** **Do** **Review**	**Sugar Cubes**	**Light questions**	**Muffling Sound(adapt)** **String Telephones** **Pitch**	**Teeth (eggs) in a liquid**	**Create adapted animals**

	Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle B	**Year 4/5/6**	**Properties and changes of materials** *Compare and group together everyday materials on the basis of their properties.* *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.* *Give reasons, based on evidence from comparative and fair tests, for the*	**Electricity** *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*	**Living things and their habitats** *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.*	**Forces** *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*	**Animals including Humans** *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.*	

		particular uses of everyday materials. *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.*	*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* *Recognise some common conductors and insulators, and associate metals with being good conductors..*		*Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.*	
	Visits:					
	Scientists:	**Lillian Gilbreth**	**Edith Clarke**	**Jane Goodall**	**Isaac Newton**	**Marie M. Daly**
	Enquiry **Plan** **Do** **Review**	**Growing Yeast**	**Bulb brightness**	**Life Cycle Acting** **Invertebrate Research**	**Lolly stick Catapults** **Spinners**	**Heart Rate Poses**

	Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle C	**Year 4/5/6**	**Electricity** *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*	**Earth and space** *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*	**Living things and their habitats** *Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals*	**Animals including humans** *Describe the changes as humans develop to old age.*	**Evolution and inheritance** *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.*	

		Use recognised symbols when representing a simple circuit in a diagram.	*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.*	*Give reasons for classifying plants and animals based on specific characteristics*		
	Visits:					
	Scientists:	**Thomas Edison**	**Katherine Johnson**	**David Attenborough**	**Nettie Stevens**	**Charles Darwin**
	Enquiry **Plan** **Do** **Review**	**Changing Circuits**	**Solar System Research**	**Creating Keys**	**Growth Survey**	**Reaction Catches**