Science Policy

National Curriculum

The national curriculum states: “A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world’s future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.”

Curriculum Intent

At Haydn Primary School we are scientists! We want our children to love science. We want them to have no limits to what their ambitions are and grow up wanting to be astronauts, forensic scientists, toxicologists or microbiologists. We want them to embody our core values; to be ready, resilient, resourceful, reflective and respectful. The intent is for our Science teaching to equip our children with not only the minimum statutory requirements of the science National Curriculum, but to prepare them for the opportunities, responsibilities and experiences of later life. Our Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe Science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the ‘Working Scientifically’ skills are built-on and developed throughout children’s time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

Our aim is to ensure that all children:

- Develop an active interest in Science and enjoy Science based activities
- Gain a secure foundation in scientific knowledge, understanding and skills.
- Develop the confidence and ability to apply their scientific knowledge and skills to everyday life and to all areas of the curriculum.
- Develop confidence, initiative and perseverance when tackling problems and exploring new situations
- Gain experience of working co-operatively towards a common goal giving consideration to others.
- Gain knowledge and understanding of the world and understand the effects of their actions on the environment.

Planning

We carry out the curriculum planning in Science in three phases (long-term, medium-term and short-term).

We empower our staff to organise their own year group curriculums under the guidance of our subject leaders. Teachers are best placed to make these judgements. Staff develop year group specific long-term curriculum maps which identify when the different subjects and topics will be taught across the academic year. The vast majority of subjects are taught discretely but staff make meaningful links across subjects where appropriate. They link prior knowledge to new learning to deepen children’s understanding and to ensure new concepts and skills are committed to their long term memory. For example, in Year 1 when the children explore ‘Earth and Space’ they also tackle; *the lives of significant individuals in the past* - Neil

Armstrong in History, use the text 'Beegu' by Alexis Deacon in English and use Starry Night by Vincent Van Gogh as inspiration for their Art and Design. Our children are taught the right, connected knowledge.

The Foundation Stage

The long term plan and medium term plan is from the curriculum objectives outlined in the Early Learning Goals (ELG) with links made to appropriate subject areas. **Appendix 1**

Short Term planning identifies taught sessions, focussed activities and provision in the environment (weekly) for the goals identified.

Key Stage 1 and 2

The whole school long term planning gives an outline of which Science topics are taught in each year group, and when these are taught alongside other areas of the National Curriculum. **Appendix 2**.

Our medium-term curriculum plans, give details of the teaching objectives for each term in each year group, and define what we teach. These are reviewed yearly by each year group, and are designed to ensure appropriate links are made for a cross-curricular approach and have considered the linking of topics where appropriate. **Appendix 3**.

Weekly planning is completed for either a unit of Science learning, or individual lessons within a weekly 'Topic' plan. This must include: clear objectives / teaching sequence / differentiated activities / key Questions (Highlighted in Yellow)/ and ICT opportunities.

Planning across the key stages is developed to offer opportunities for pupils to learn and revisit, promoting the acquisition of new skills, opportunities to explore and problem solve, build scientific vocabulary and enquiry skills, and retain the knowledge and skills taught over time. Planning will reflect the teacher's knowledge of and response to common misconceptions, and opportunities to engage with alternative strategies. The progression of knowledge and understanding, and skills can be seen in the Progression Ladder document. **Appendix 4.**

<u>Curriculum Implementation</u>

Teaching

Foundation Stage

The majority of Science teaching and learning comes through the goal Understanding the World in the EYFS. Children must be supported in developing the knowledge, skills and understanding that help them to make sense of the world. Their learning must be supported through offering opportunities for them to use a range of tools safely; encounter creatures, people, plants and objects in their natural environments and in real-life situations; undertake practical 'experiments'; and work with a range of materials. Focussed activities are planned fortnightly to incorporate these opportunities, linked to a topic or theme of learning. Provision in the environment is planned weekly where children have the opportunity to engage in self-initiated activities in order to develop their scientific, curiosity and problem solving skills.

Key Stage 1

In Key Stage 1, science teaching is taught weekly through a topic based approach, making as many meaningful cross-curricular links as possible. This ensures that children are immersed in the topic and language, developing their enquiry skills and making learning meaningful and purposeful. For example, when learning about plants in year 1 through the 'Rainforest' topic, children are immersed in high quality fiction and non-fiction texts through literacy, developing subject specific vocabulary; making links between geography objectives when looking at climates and different types of plants, as well as local geography exploring their local environment in comparison, and identifying common plants; links with Art through observational drawing and closer study of plants; children are fully immersed in the world of plants! The main focus of Science teaching in Key Stage 1 at Haydn, is for all children to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them, and have real WOW moments, becoming curious and asking questions in order to develop their understanding of scientific ideas. Most scientific learning should be done through the use of practical first-hand experiences, with the use of secondary sources where appropriate, such as books, photographs and videos.

Key Stage 2
In Key Stage 2, Science is taught weekly for one afternoon per week or equivalent (approximately 3 hours) through discreet Science lessons, however cross curricular links are made where appropriate. The main focus of Science teaching 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 fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use scientific language, first, to talk about and, later, to write about what they have found out. As much as possible, teaching should be through hands-on, practical experiences, and should begin to use a wider range of secondary sources, to include diagrams and graphs. As children progress through the Key Stage, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. Teaching encourages children to be enthusiastic and excited about their new scientific discoveries, leaving Haydn confident in their scientific knowledge, and excited at the prospect of broadening this throughout their learning journey.

Teaching science to children with special needs
We teach science to all children, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education for all children. Through our science teaching, we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against age related levels. Our work in science takes into account the targets set in the children's EHCP (education healthcare plan), IPM (individual provision map) or PSP (pupil support plan). Appropriate adaptations are made eg. Use of specific or specialist equipment

The Environment
Each classroom at Haydn reflects the rich and broad curriculum on offer to our children. Classroom and corridor displays serve as a celebration of children's work, as well as an invaluable teaching aid and resource for encouraging independent learners. The classroom as an environment for the teaching of Science not only celebrates children's scientific learning through a dedicated Science display in each classroom, it provides children with the vocabulary needed for the current science topic, and particularly in the Early Years, offers children independent access to equipment for independent exploration of science, such as a wide variety of resources to explore the movement and travel of water; various materials for exploring properties; outdoor learning environments to explore and discover nature. Wherever possible, teachers are encouraged to use the outdoor learning environments for the teaching of science, with a dedicated 'garden' area for the planting and nurturing of plants and wildlife.

Contribution of Science to teaching in other curriculum areas:

Literacy
Science contributes significantly to the teaching of Literacy at Haydn by actively promoting the skills of thinking, reading, writing, speaking and listening. This starts at the earliest levels of children's scientific learning, in the Early Years, contributing to children's language acquisition. Children develop their vocabulary throughout their Science career, constantly developing their scientific vocabulary through experiences in which scientific terms are introduced and used by the children as they discuss and talk about what they have learnt. The children develop oral skills
in science lessons through discussions and through recounting their observations in scientific experiments. This understanding of scientific language allows them to develop their writing skills through creating appropriate written accounts of an activity. They learn to record their work 'scientifically' for example in the year 3 forces topic, children investigate the effect of friction by testing how far a toy vehicle can travel on different surfaces. In order to conduct this experiment, children write a detailed prediction, using scientific vocabulary, recorded their results using tables, and used these findings to write a detailed, scientific conclusion. As in all areas of the curriculum at Haydn there are opportunities for children to develop their reading skills; children are exposed to a wide variety of texts in science, and teachers ensure that appropriate non-fiction topic books are available to children for each new unit of learning. Where appropriate, science learning may be linked to a fiction book, as a stimulus for learning. For example the use of 'Jack and the Beanstalk' in early years, to hook children into the exploration of seeds and plants.

Maths
Science contributes to the teaching of mathematics in a number of ways. There are many opportunities for children to apply mathematical knowledge and skills through the science curriculum, for example; the children use weights and measures and learn to use and apply number skills; applying problem solving skills when planning and conducting investigations and experiments; they learn to estimate and predict as well as collecting and recording data; they develop the skills of accurate observation and recording of events; they use numbers in many of their answers and conclusions.

Computing
Where appropriate, teachers are encouraged to make meaningful links to computing when planning and teaching Science. Children use computing to support their work in science by learning how to find, select, and analyse information on the internet. Children use computers to record, present and interpret data and to review, modify and
evaluate their work and improve its presentation.

Personal, social and health education (PSHE) and citizenship
Science makes a significant contribution to the teaching of personal, social and health education through the teaching of healthy eating and exercise, as well as the children benefitting from opportunities to enjoy nature. Children contribute to the school garden when learning about plants, and have a responsibility for nurturing the life within our school grounds. There are opportunities within science lessons for children to take part in debates and discussions. Science at Haydn promotes the concept of positive citizenship in our dedication to sustainability. Sustainability objectives are included alongside the objectives of the national curriculum, in order to ensure all children learn about their environmental responsibility on a global level.

Spiritual, moral, social and cultural development
Science teaching at Haydn offers children many opportunities to examine some of the fundamental questions in life, for example, the evolution of living things and how the world was created. Through many of the amazing processes that affect living things, children develop a sense of awe and wonder regarding the natural world. Science raises many social and moral questions. Through the teaching of science, children have the opportunity to discuss, for
example, the effects of pollution, or genetic engineering and the moral questions involved in this issue. We give them the chance to reflect on the way people care for the planet and how science can contribute to the way we manage the Earth's resources, linking to the schools commitment to incorporating sustainability into our curriculum. Science teaches children about the reasons why people are different and, by developing the children's knowledge and understanding of physical and environmental factors, it promotes respect for other people and the environment, on both a local and global level.

Geography
Science, in its very nature, has close links with Geography. Both seek to discover and explore the world around us, moving us towards a better understanding of our world. The Working Scientifically strand links closely with enquiry-based learning in the Geography curriculum and through topics such as Plants and Rocks, appropriate geographical learning and enquiry occurs as part of the comprehensive science learning. The teaching of sustainability at Haydn encourages children to make meaningful links between Scientific and Geographical thinking and skills for example in the F2 topic 'Reduce, Reuse, Recycle' where clear links are made between materials and their properties, as well as the environment and the impact of human behaviour on the world.

Impact
Our Science Curriculum is high quality, well thought out, deliberate and is planned to demonstrate progression.
We have set out our expectations for each year group in the progression document in **Appendix 4.**
Through the curriculum planning and delivery of science at Haydn, we expect the vast majority of children to reach age related expectations or better by the end of each key stage. At the end of EYFS we expect the children to achieve the Early Learning Goal, achieving a 2 (expected) or 3 (exceeding) in the Understanding the world strand. By the end of KS1 we expect pupils to achieve age related standards (secure) or better (mastery) in the strands taught in Science and to be demonstrating an interest and curiosity about the world, with an enthusiasm to question and investigate. By continuing to make the expected progress, by the end of KS2 we expect pupils to achieve age related standards (secure) or better (mastery) in all strands of the Science curriculum. We expect children to leave Haydn with not only the

necessary skills and knowledge, but an ever growing inquisitiveness and enthusiasm to continue their Science career throughout their learning journey and beyond.
We measure the impact of our curriculum through assessment of pupil attainment and progress, and through ongoing monitoring and reviewing of the subject through the role of the subject leader, as outlined below.

Assessment
Throughout the school teachers will assess children's work formatively in Science, through observations, questioning and marking. Teacher's planning encapsulates the key principles of assessment for learning; active pupil involvement and responsive teaching. These assessments inform the teachers planning for future lessons, to ensure progression of all children. At the end of a unit, teachers assess whether children are working at, above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Each child's progress and attainment is tracked through the assessment framework on SIMS on an ongoing basis, at the end of each unit of learning. Progress and attainment are reported to parents through parents' evenings.

Monitoring and review
Monitoring of the standards of children's work and of the quality of teaching in Science is the responsibility of the Senior Management team and Science subject leader. The work of the Science subject leader also involves supporting colleagues in the teaching of Science, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The headteacher allocates leadership time to the Science subject leader so that s/he can review samples of children's work and undertake lesson observations of Science teaching across the school. The subject leader builds a comprehensive portfolio of pupils work in science across the age range which demonstrates typical progression through the strands of science at Haydn. A named member of the school's governing body is briefed to oversee the teaching of Science. This governor meets with the subject leader to review progress termly and receives a written commentary which reports on:
-recent development work
-performance analysis
-pupil outcomes in relation to development priorities, their impact on teaching and learning, and future developments.

Governors are also invited to monitor the effectiveness of the school through a variety of other activities including learning walks and classroom observations as per the Monitoring and Evaluation framework in the School Improvement Plan.

Appendix 1; EYFS Long Term Plan

EY Long Term Plan									
F1	**Term**	**Themes**	**PSED**	**Physical**	**C and L**	**Literacy**	**Maths**	**UW**	**EAD**
	Autumn 1	Me and My Nursery Autumn	Rules and Routines, Settling In, Getting to know each other. New Beginnings (SEAL)	Fine motor assessment. Learning to use tools, including pencil control Gross motor assessment and next steps	Daily story times including	Shark in the Park The Gingerbread Man – oral storytelling	See long term Maths Planning	Goose Fair Autumn Visit to Woodthorpe Park	Painting in response to Goose Fair
	Autumn 2	Festivals	Christmas performance Getting on and Falling Out (SEAL)					Bonfire Night Diwali Christmas Rosh Hashanah Food Prep Nocturnal animals Dark and light Lantern Walk	Transient Art Clay divas Performance, Singing Construction projects
	Spring 1	Winter Chinese New Year Cold Lands Cafe			Question of the day				
	Spring 2	Spring Easter						Our bodies The senses	

	Summer 1								
	Summer 2								
F2	**Term**	**Themes**	**PSED**	**Physical**	**C and L**	**Literacy**	**Maths**	**UW**	**EAD**
	Autumn 1	Me and My School Autumn The Three Little Pigs	Rules and Routines, Settling In, Getting to know each other. New Beginnings (SEAL)	Fine motor assessment. Learning to use tools, including pencil control. Gross motor assessment and next steps.	Introduction to oral storytelling – The Three Little Pigs. Daily story times incl. poem of the day. Speech in stories.	The Three Little Pigs Autumn Information books Pumpkin Soup	See long term maths plan	Goose Fair Autumn Visit to Woodthorpe Park	Printing Models Construction
	Autumn 2	Festivals Little Red Riding Hood	Christmas performance Getting on and Falling Out (SEAL)	Introduce fasteners – split pins, treasury tags Gross motor – throwing and catching large balls	Preparing sentences, story maps, Story sequencing. Daily story times incl. poem of the day.	Little Red Riding Hood Owl Babies Non fiction books about nocturnal animals		Bonfire Night Diwali Christmas Food Prep Nocturnal animals Dark and light	Transient Art Clay models Performance, Singing Construction projects
	Spring 1	Winter Chinese New Year Cold Lands Getting to Know an Author (Oliver Jeffers)	Keeping warm Going for Goals (SEAL)	Fine motor assessment and next steps Gross motor assessment and next steps	Daily story times incl poem of the day.	One Snowy Night Oliver Jeffers Books – Lost and Found Non-fiction books		Chinese New Year Polar animals and lands Freezing and melting water Magnets Food prep Chinese food Café visit	Colour mixing Colour wash Dragon dancing Drumming Large modelling dragon head

	Spring 2	Long Long ago… Goldilocks and the Three Bears Jack and The beanstalk Easter Spring and growing	It's Good To Be Me (SEAL)	PE Getting dressed for PE Haydn Mile Jumping, hopping	Daily story times incl poem of the day.	Goldilocks and The Three Bears Snow White		Mother's Day Easter Growing	Observation drawing – oil pastels and watercolours Making jewellery
	Summer 1	People who help us Families Our bodies	Relationships (SEAL) SRE	Go Ride sessions	Daily story times incl poem of the day.	Jack and The beanstalk Supertato The Jolly Postman		Lifecycle of a frog Castles and living in the past People Who Help Us and helped us in the past Maps and our local community. Our bodies Keeping Healthy Our senses	Vegetable printing
	Summer 2	Summer Minibeasts Arts Week	Changes (SEAL)	Final assessment	Daily story times incl. poem of the day. Retelling the	Non fiction books about minibeasts The Very Hungry		Eid-al-Fitr Lifecycle of a Caterpillar and other insects	Arts Week

					Very Hungry Caterpillar	Caterpillar Handa's surprise		Symmetry The Seaside	

Links to the National Curriculum Key	
Science	
Geography	
History	
Art and Design	
DT	
Music	
R.E	
PSED	

Appendix 2; Whole school Long Term Plan

LONG TERM PLAN

	TERM	Themes and Enrichments	Literacy	Numeracy	Humanities					ARTS				Science and Technology	
					MFL	PSHE & Citizenship	History	RE	Geography	PE	D&T	Art	Music	Science	ICT
Year 1	AUTUMN	Holidays / Myself & my world / Under the sea	Writing simple sentences Information texts Stories & Poems Recounts Simple instructions Key texts - Paddington bear – Micheal Bond It's the Bear – Jez Alborough The bear and The hare – John Lewis advert (visual literacy)	See Long Term Maths Planning	Greetings/ Colours/ Numbers	New beginnings Getting on and falling out	Changes within living memory – family trees Local history – goosefair / Robin Hood	Christianity- stories of Jesus Diwali Hanukah	Name & Locate UK and its countries Capital cities – London Compare & contrast cities and countryside Compare UK and non-european country (Peru) Simple fieldwork Ariel photographs Using maps	Games Gymnastics	Designing making & evaluating aquariums Selecting and using a range of tools and equipment	Use a rang oe materials creatively to design and make products Use drawing and painting to expres ideas, experiences and imagination	Singing for an audience – songs linked to topics on 'Ourselves' and Christmas performance	Myself – parts of the human body senses Seasonal change – Autumn and Winter Under the sea – Animals and habitats	Word processing Programming simple software, e.g. roamers and beebots. Retrieving digital content- using google
	SPRING	Polar regions / Space	Visual literacy Writing stories Recounts Instructions Diary entries Poems The Bear – Raymond Briggs Poles Apart – Jeanna Willis Lost and found – Oliver Jeffers Beegu – Alexis Deacon			Going for goals It's good to be me	Polar regions – significant individuals Robert Falcon Scott Space – significant people Niel Armostrong	Christianity Parables The Easter Story	Polar regions – Continents Compare weather Using maps and atlases	Gymnastics Dance	Designing making and evaluating Food technology – meringue icebergs	Using clay for sculpture Exploring new materials – chalk pasetls	Listening to music linked to topics on 'Winter' and 'Space. Also play untuned instruments musically	Polar regions – Animals and habitats Carnivores, herbivires and omnivores Properties of materials Space – everyday materials Working scientifically	Using 2 create to make a simple book linked to topic.
	SUMMER	Dinosaurs / Rainforests	Descriptive writing –setting descriptions Fiction writing Poetry Phonics / reading comprehension Key texts - Harry and the bucketful of dinosaurs – Ian Whybrow Sloth Slept On – Fran Preston-Gannon			Drug aware SRE Transitions	Dinosaurs – comparing ways of life to the prehistoric world	Other beliefs, e.g. Islam and Sikhism	Dinosaurs - Using vocabulary linked to key physical features – prehistoric world Continents – Pangea Rainforests – Continents Seasonal and daily weather patterns in the UK and other country related to the equator Using maps, atlases and globes		Designing and making 3D models – dinosaur landscapes	Drawing, painting and sculpture, observational drawing, exploring a range of materials	Experimenting with selecting and combining rhythms – introduction of rhythmic notation	Rainforests – Plants and animals	Word processing linked to literacy.

Year 2

SUMMER	SPRING	AUTUMN	TERM	
WW2/ Ahoy there! Sleepover/ Woodthrope Park.	Nonsense/ Venus Fly Trap *White Post farm.*	Where we live? What's in our local area? What different types of houses are there? *Blackwoods/Christmas*	**Themes and Enrichment**	
WW2 Nonfiction texts. Great Women in History Non fiction text and Jamaica. Amelia Earhart- Non fiction text- Talking story- Adventure story. Letter to David Attenborough- Jamaican animals. Birdfish- Animal description. Diary entry- Mary Seacole.	Non fiction- Venus Fly Traps. Nonsense poems- The Booktime Book of Fantastic First Poems. Michael Rosen. Acrostic poems- Animals. Instructions- How to plant a magic bean. Traditional tale- Twisted Jack and the Venus Fly Trap. Mr Gum- book review.	Welcome to NG5/ Into the woods. Tiger that came to tea- Invitation The Day the crayons quit- Letter Dragon Stoorworm- Description. Tidy - Story/ Poem Greenpeace- Letter Letter to Santa.		**Literacy**
See Long Term Maths Planning				**Numeracy**
	Numbers to 12		**MFL**	**Humanities**
SRE	Mindfulness- Being kind to others. Children's Mental Health Week.	New beginnings/ Getting on and Falling out/ Anti-bullying	**PSHE & Citizenship**	
Florence Nightingale/ Mary Seacole WW2- Submarines/ Spitfire/ Amy Johnson/ British Timeline./Nottingham Blitz. .		(WW1 – Remembrance Day & Centenary)	**History**	
Judaism – The Torah Festivals/ Hanukah /Christianity Belonging and Beliefs/	Buddhism	Christianity- The story of Jesus's birth.	**RE**	
Ahoy there! Comparing UK and Jamaica. Map work and climate/ population physical geography labelling.	Exotic plants around the world. Locate on a map.	Welcome to NG5- Different types of homes/ map labelling/ postcodes/ Sherwood/ Blackwoods	**Geography**	
Athletics/ games/	Dance	Swimming/ Games/Gymnastics	**PE**	**ARTS**
Submarines	Venus Fly Trap- levers and sliders,	Models of our homes.	**D&T**	
Sherwood Arts Week theme. Study of a local artist and international		Leaves and Autumn Colours- Blackwoods- Tidy book.	**Art**	
Playing Steel pans – Listening to Caribbean music and reggae	Play tuned instruments musically – introduce simple chords and play	production. Songs about animal habitats	**Music**	
Uses of everyday materials	Animals, including Humans Health & Growth- Venus fly traps/photosynthesis/ life cycle of a plant/ germination. The night flower book- Eating healthy	. Living Things & Their Habitats- Focus on Nocturnal / woodland animals.	**Science**	**Science and Technology**
Computing week- Jamaican PowerPoint/ Scratch Junior.	Unplugged activities/ Venus Fly Trap poster on word- focus copy and pasting/ saving/ opening document.	Entering text/Saving & Opening documents Google Earth – finding locations/ E- safety posters. Tour of the server room.	**Computing**	

Year 3

	TERM	AUTUMN	SPRING	SUMMER
	Themes and Enrichment/ Core Books	Romans/ Shakespere Julius Ceaser& Anhtony and Cleopatra / Escape from Pompeii C Balit	At the movies	In the Wild
Literacy		Myths Information Texts/reports Letters Boudicca – heroine or terrorist? 'Vacation Under A Volcano' Story Instructions Myths and legends Shape poems	Script writing Planning and editing Reports Poems to perform Dialogue and play Adventure and mystery	Hernan Cortes Stories with familiar settings Language play Information texts Explanations Authors and letters
Numeracy	See Long Term Maths Planning			
Humanities		See the national curriculum	See the national curriculum	See the national curriculum
Humanities	MFL	Spanish speaking countries, Greetings, Introducing ourselves, asking and answering simple questions- Numbers 1-20, playground games	What are you good at, months of the year, simple party games, respond to and write simple sentences and phrases, understand additional verbs, follow instructions	Day of the Dead – festival, Follow a simple story and respond to it. Understand descriptions (simple)
Humanities	History	Romans, timeline, Pompeii	Movie history	Aztecs/Incas/Mayans - Hernan Cortes/
Humanities	RE	Christian Symbols (linked to textiles)	Sikhism	Buddhism
Humanities	Geography	Volcanoes		Climate/change in environment
ARTS	PE	Swimming, cricket, basket ball, football	Gymnastic/ Swimming	Sherwood Arts Week
ARTS	D&T	Olive pot, Book front cover design	Stopmotion/claymation/ Food	Shelter building
ARTS	Art	3D casts and press mould, roman tiles,	Rangoli patterns	Printing
ARTS	Music	Introduction of stringed instruments technique needed for playing	Listen to and analyse music from GOE	Introduce written notation Performance
Science and Technology	Science	Light and dark Rocks and soils	Body Forces and Magnets	Light Plants
Science and Technology	Computing	Programming - Scratch		

			Literacy	Numera	Humanities					Arts				Science and Technology	
	TERMM	Themes and Enrichment/ Core Books			MFL	PSHE & Citizenship	History	RE	Geograph	PE	D&T	Art	Music	Science	Computing
Year 4	AUTUMN	Ancient Egypt/Electricity The Egg/ Egyptian Cinderella Wheer the poppies now grow.	Narrative – Issues and Dilemmas/ Reports (Newspaper) Tuesday Poetry (Exploring Form)	See Long Term Maths Planning	How do we travel, written and oral sentences Memorise and present short texts. Writing to a travel agents/ read and respond to email.	Changes/ Feelings/ New beginnings	Egypt	Judaism (Moses)		See Matt's Plans	Circuits/ Cooking- Egyptian flatbread/ Make Shaduf	Collage/tactile elements Dragons eyes Scarab Beatkles- 3 D and impression Masks, Sarcophgus masks Cartoiuches	Ancient Egypt - understanding and playing chords	Sound Electricity	Stykz- animation/ Cut and paste tools
	SPRING	Anlgo Saxons/ Beowolf- historical narrative/	Historical Narrative Recount – revisit report Persuasive writing Poetry Kennings Cinquains		Listen and respond with actions to story- (Beauty and the Beast) Recognise adjective and nouns and write simple sentences/ Apply simple agreements to adjectives. Perform story in front of audience	Relationships SRE	Anglo Saxons	Christianity - Miracles and teachings of Jesus	Rivers		Anglo Saxon Village- weaving and plaiting	Anglo Saxon helmets/ shields/ jewelery	Learning songs, rehearsing and performing for an audience – Year 4 production	Digestion/ Teeth Changes of State/Solids and liquids/ Gases	Dance Mat Word skills- word processing- create newsletter
	SUMMER	Rwanda /Habitats Living Islands Live Rivers Castleton Camp Wind in the Willows	Poetry – descriptive and explanatory (Castleton)		Carnival of the Animals Name animals/ habitats Listen for sounds rhyme and rhyme	Caring for our world and others Drug Aware		Islam	Rivers/ China		Wheels and Axles- design a car for Toad	Water colours- use Monet- wind in the willows watercolours/ sketching from life Hockney ipad Art- Optical patterns	Compositions to tie in with literacy topic – rehearsing, evaluative and performing	Food chains and Habitats	Programming (Kodu)

Year 5

SUMMER	SPRING	AUTUMN	TERM	
Street Child	'The Merchant of Venice' William Shakespere	'The Exploreres' Katherine Rundell 'Where the forest meets the sea' 'The Hidden Forest'.	Themes and Enrichment/ Core Books	
Street Child Berlie Docherty Recount Film Narrative (Dickens)	Ted Hughes - Key Author Classical Poetry Instructions	Myths and legends (Greek) Play scripts Persuasion		Literacy
Pattern - rangoli	Practical measuring opportunities related to DT food work Statistics - co-ordinates link to orienteering	See Maths Plans		Numeracy
Months of the year/ Seasons/ Weather Short pieces of writing about the weather/ seasons/ planets	Pronunciation / intonation of alphabet/ features in the locality/ journey to school/following directions	Food, packed lunch, ordering food, food for celebration/ local area/	MFL	Humanities
Relationships Changes SRE	Going For Goals Good to be Me Drug Aware	New Beginnings Getting on and Falling Out	PSHE & Citizenship	
Victorians local Study Queen Victoria Victorian Railways	Local History- Tudors/ Wollaton Hall	Ancient Greeks	History	
Hinduism	Christianity	Judaism	RE	
		Forests	Geography	
Athletics Striking & Fielding	Dance/ Ice Skating Invasion Games	Gymnastics/ Swimming Net & Wall	PE	ARTS
Moving Toys Cam mechanisms Product Improvement and development Use	Cook food - investigating taste , flavour and texture changes		D&T	
Mastery of Techniques Great Artists (William Morris)	Materials and processes using craft and design. The roles and purposes of artists working in different times and cultures	Record from experience, imagination and first hand observation. Collect visual examples to develop ideas. (Goldsworthy	Art	
Victorians : composition using rhythm. Focus on Classical and Romantic composres	Performance to tie in with Shakespeare Project	Space – focus on Holst Planet's Suite – tempo, dynamics, orchestration. Mars – focus on rhythm	Music	
Properties and Chnages of Materials	Living Things and their Habitats	Earth & Space Forces	Science	Science and Technology
Digital Media Computing Theory	Presentations Databases	Scratch Including switches (link to DT objectives)	Computing	

Year 6

SUMMER	SPRING	AUTUMN	TERM	
Narrative Fiction: The Long Walk Residential to Caythorpe Transition/ School Visits	Class novel: Letters from the Lighthouse	Street Aware Cinema Visit Baking The Highway man Class novel: Wonder	Themes and Enrichment/ Core Books	
Narrative Fiction: The Long Walk The Arrival Information texts Recounts Grammar Comprehension	Class novel: Letters from the Lighthouse Non-fiction: Arguments Biography Information texts Journalistic writing Persuasion (letters) Narrative: Evacuation Grammar Comprehension	Class novel: Wonder Narrative genres: Journey Shakespearean play Poetry - The Highwayman Non-fiction: Instructions Grammar Comprehension		Literacy
See Long Term Maths Planning				Numeracy
Fluency, problem solving and reasoning. Consolidation of all topics Times tables Arithmetic 5 a day Plus circles and extended algebraic concepts.	Fluency, problem solving and reasoning. Consolidation of all topics Times tables Arithmetic 5 a day Plus circles and extended algebraic concepts.	Fluency, problem solving and reasoning. Consolidation of all topics Times tables Arithmetic 5 a day Plus circles and extended algebraic concepts.		Numeracy
Understand places in the town centre. Writing, reading and speaking in more complex sentences and phrases. Turist guides	Food/ recipes/ celebrations/ planning a celebration. Creating a café/ visiting the café Whats in the news? Read and understand main points? Express opinion about new story.	Languages and cultures in school Where is spain? Classroom objects Translation of short converstaions-/ undersatdnding of short written passages/ where things are/ simple directions Attitudes towards everyday life Continents and rivers/ Amazon/ Weather/ Explorers	MFL	Humanities
Great Project SRE	Enterprise project	Street Aware Peer Mediation	PSHE & Citizenship	
Late Neolithic hunter gatherers Or The Bronze Age Or Iron Age **hill** forts	WW II linked to local history and class novel	Goose Fair British History: 20th Century leisure and entertainment	History	
Islam	Christianity/Islam	Buddhism	RE	
		Extreme Earth	Geography	
Athletics Striking and fielding Net/wall	Invasion games	Dance Swimming Tag rugby	PE	ARTS
Dyson Project		Fairground rides linked to history and Goose Fair	D&T	
Art Week SAW plus celebration event	Linked to topic	Linked to topic	Art	
Performance – singing with confidence, expression and control – performing for an audience	History of music: Classical (Beethoven's 5th symphony, focussing on rhythm) Romantic (Mussorgsky) detailed analysis	History of music: listening and appraising – Renaissance and Baroque - Handel, Mozart's 4th horn concerto	Music	
Light	Body Pump	Evolution and inheritance	Science	Science and Technology
Dyson Project		Programming HTML Crumble	Computing	

Appendix 3; Example Medium Term Plan

Foundation Subjects Medium Term Planning

Year Group: 1 Subject/ topic: Science/ My world, Autumn Term: Autumn 1

Week	Key Questions Theme	Objective/ Learning Outcomes	Input	Activity	Differentiation	Resources/ including ICT
1	My world – seasons Autumn What are the seasons? What season are we in now? How do you know?	To identify the season Autumn. Identify seasonal changes.	Show pictures of trees. Which seasons are they? How do you know? Which is autumn? Explain in Autumn that some leaves on some trees change colour. What kind of colours to the leaves turn? Where can we find them? What happens to the leaves on the trees in Autumn? Take chn outside to find autumn leaves and non-autumn leaves. Children sort into autumn and non-autumn. Then sort their autumn leaves into different colours. Back inside, each child to have a leaf and discuss the different textures and patterns. Model using wax crayons to create leaf rubbings. Model technique of using the side of the crayon and putting the leaf underneath the paper. What happens? Why? Which colours do you think I should use?	Choose their favourite autumn leaves for leaf rubbings, selecting colours carefully and using max crayon techniques.	Outcome/support	Wax crayons leaves
2	My world – seasons Autumn What happens in autumn?	To compare different seasons. To identify the features of Autumn.	Discuss the autumn walk we went on yesterday. What types of things did we find? What types of things do we see in autumn? Look at a selection of natural autumn objects – pine cones, conkers, acorns, leaves etc. Model creating leaf rubbings.	Chn sort a selection of pictures into those which are showing autumn and those which are not.	Pictures provided Support	Pictures Scissors glue

3	My world – My body	Identify, name, draw and label basic parts of the human body	Paddington's body has got all jumbled up! Which parts can you see? Discuss the names of these body parts. Which parts of the body are the same/different to ours? Discuss that Paddington doesn't have hands, he only has paws! Model making labels for Paddington puppet for parts of the body.	Chn make a split pin Paddington Puppet and label with parts of the body – Arm, leg, head, body, foot, eyes, nose, mouth etc. Bring chn back to the carpet. Sit in a circle and chose a volunteer to lay down in the middle of the circle. Show chn extra word cards for body parts – elbow, shoulder, knee etc. Can chn come and place these word cards on the child in the correct place.	Support LA – labels with pictures HA – write own labels	Split pins Paddington puppets
4	My world – My body What is a skeleton? What is the bone down our back called?	Identify, name, draw and label basic parts of the human body	Read Funny Bones and sing the song...the neck bone is connected to…do the actions and point to these parts of the body. Show children labels of the skeleton. Practice reading them. Sing funny bones song and learn actions	Using art straws on black card make a skeleton of the human body.	Extend to labelling for HA	Art straws
5	My world – My body/ Autumn	To say which part of the body is associated with each sense. To name the five senses.	Recap the parts of our body and their jobs. Explain that there are jobs that our bodies do that we can't see - talk about our senses. Name the five senses and ask chn to name the part of the body that the sense is associated with. Explain that we will be going outside and finding out what our senses notice. What do you think we might smell in autumn? What do you think the leaves might feel like? What will we see? Hear?	Outside learning. Children to go on an Autumn senses experience and complete a senses trail of what we can see, hear, smell, taste and touch. (bring in some bonfire toffee for taste) ask the children to describe what they can see, hear, smell and touch.	Extend to writing sentences for HA	Toffee clipboards

Appendix 4; Science Progression ladder

EYFS	KS1		KS2			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge and understanding the world Explore creatures, people, plants and objects in their natural environments. Observe and manipulate objects and materials to identify differences and similarities Use senses, feeling materials or listening to sounds in the environment, such as sirens or farm animals. Ask questions about why things happen and how things work Answer questions about what they think will happen to help them communicate, plan, investigate, record and evaluate findings Reduce, Reuse, recycle	**Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.	**Plants** 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.	**Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Explore the requirements of plants for life ar growth (air, light, water, nutrients from soil, a room to grow) and how they vary from plant 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.	**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 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.	**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 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. Understand the effects of climate change and changes to the earths atmosphere	**Evolution and inheritance** 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 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.
Physical Development Recognise changes that happen to the body when they are active. Learn about the importance of keeping healthy and the things that contribute to this by, for example, cooking or identifying fruit and vegetables.	**Animals including humans** 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) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	**Animals, including humans** 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.	**Animals, including 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. Understand how our food is produced, transported, and its impacts on the environment as a hugely important aspect of sustainability.	**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 Construct and interpret a variety of food chains, identifying producers, predators and prey.	**Animals, including humans** Describe the changes as humans develop to old age.	**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.
Creative development Explore and respond to a variety of sensory experiences Explore materials. Explore colour, texture, shape, form and space by mixing colours, painting, modelling and moving. Learn about sounds - how they can be changed and how to imitate sounds they hear.	**Everyday materials** 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 materials that are recyclable and understand the importance of recycling	**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 Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**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 Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the size of shadows change.	**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 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.	**Properties and changes of materials** 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 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, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 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	**Light** 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 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.

					kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
	Seasonal changes Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies.	**All living things and their 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 Identify and name a variety of plants and animals in their habitats, including micro-habitats 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. Understand the importance of biodiversity to sustainability	**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.	**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. Explore the impacts of human induced climate change on changes to animals habitats	**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.	**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 micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.
		▪	**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 describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing. 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	**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 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.	**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 Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	**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 Use recognised symbols when representing a simple circuit in a diagram. Explore the effects of energy consumption, renewable versus non-renewable energy, CO2 emissions, fuels, and climate change.

Working Scientifically

	Year 1 & 2	**Year 3 & 4**	**Year 5 & 6**
	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.	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	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Taking measurements, using a range of scientific equipment, with increasing accuracy and precision Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs Using test results to make predictions to set up further comparative and fair tests Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments.

		processes Using straightforward scientific evidence to answer questions or to support their findings.	

	EYFS	KS1		KS2			
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
What Science looks like at Haydn (topics)	• **Bonfire night/Diwali/Christmas –** food prep, light and dark, nocturnal animals • **Cold lands –** freezing and melting, magnets, animals • **Growing –** life cycles, our bodies, keeping healthy, our senses,	• **Our world** – Seasonal changes, animals including humans • **Under the sea** - animals • **Polar regions** – animals • **Space** – everyday materials • **Dinosaurs –** everyday materials, animals including humans • **Rainforests -** plants	• **Into the woods –** living things and their habitats • **Nonsense –** animals, plants • **WW2 –** everyday materials	• **Vesuvius –** rocks • **Chinese new year –** light and dark • **Lights, camera, action!** – magnets • **Really wild –** animals • **Aztecs/ Magnas -** Plants	• Sound • Electricity • Habitats	• **The earth and beyond -** Space • Forces • Life cycles • Properties and changes of materials	• Evolution and inheritance • Living things and habitats • Human body • Light • Electricity
Key Vocabulary These are the basics and by no means a definitive list.		**Animals including humans** Fish, Reptiles, Mammals, Birds, Amphibians, Herbivore, Omnivore, Carnivore, Leg, Arm, Elbow, Head, Ear, Nose, Back, Wings, Beak **Plants** Deciduous, Evergreen trees, Leaves, Flowers (blossom), Petals, Fruit, Roots, Bulb, Seed, Trunk, Branches, Stem **Everyday Materials** Wood, Plastic, Glass, Paper, Water, Metal, Rock, Hard, Soft, Bendy, Rough, Smooth **Seasonal Changes** Summer, Spring, Autumn, Winter, Sun, Day, Moon, Night, Light, Dark	**Animals including humans** Survival, Water, Air, Food, Adult, Baby, Offspring, Kitten, Calf, Puppy, Exercise, Hygiene **Plants** Seeds, Bulbs, Water, Light, Temperature, Growth **Living things and their habitats** Living, Dead, Habitat, Energy, Food chain, Predator, Prey, Woodland, Pond, Desert **Everyday materials and their uses** Hard, Soft, Stretchy, Stiff, Shiny, Dull, Rough, Smooth, Bendy, Waterproof, Absorbent, Opaque, Transparent Brick, Paper, Fabrics, Squashing, Bending, Twisting, Stretching Elastic, Foil	**Animals including humans** Movement, Muscles, Bones, Skull, Nutrition, Skeletons, **Plants** Air, Light, Water, Nutrients, Soil, Reproduction, Transportation, Dispersal, Pollination, Flower **Rocks** Fossils, Soils, Sandstone, Granite, Marble, Pumice, Crystals, Absorbent **Light** Light, Shadows, Mirror, Reflective, Dark, Reflection **Forces and magnets** Magnetic, Force, Contact, Attract, Repel, Friction, Poles**,** Push, Pull	**Animals including humans** Mouth, Tongue, Teeth, Oesophagus, Stomach, Small Intestine, Large Intestine, Herbivore, Carnivore, Canine, Incisor, Molar **Living things and their habitats** Vertebrates, Fish, Amphibians, Reptiles, Birds, Mammals, Invertebrates, Snails, Slugs, Worms, Spiders, Insects, Environment, Habitats **States of Matter** Solid, Liquid, Gas, Evaporation, Condensation, Particles, Temperature, Freezing, Heating **Sound** Volume, Vibration, Wave, Pitch, Tone, Speaker **Electricity** Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators	**Animals including humans** Foetus, Embryo, Womb, Gestation, Baby, Toddler, Teenager, Elderly, Growth, Development, Puberty **Living things and their habitats** Mammal, Reproduction, Insect, Amphibian, Bird, Offspring **Properties and changes of materials** Hardness, Solubility, Transparency, Conductivity, Magnetic, Filter, Evaporation, Dissolving, Mixing **Earth and Space** Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, constellation **Forces** Air resistance, Water resistance, Friction, Gravity, Newton, Gears, Pulleys	**Animals including humans** Circulatory, Heart, Blood Vessels, Veins, Arteries, Oxygenated, Deoxygenated, Valve, Exercise, Respiration **Living things and their habitats** Classification, Vertebrates, Invertebrates, Micro-organisms, Amphibians, Reptiles, Mammals, Insects **Evolution and Inheritance** Fossils, Adaptation, Evolution, Characteristics, Reproduction, Genetics **Light** Refraction, Reflection, Light, Spectrum, Rainbow, Colour, **Electricity** Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators**,** Amps, Volts, Cell
Non-negotiable – what must they know	Chn must know the four seasons Chn can observe and talk about the seasonal changes around them. Chn understand that things melt when they get warm.	Chn must know key features of each season. Chn must know the parts of the body. Chn must know the parts of a plant; stem, leaves, flower, roots Chn must recognise the difference between an object and its material.	Chn must know what plants need to grow and stay healthy. Chn must know the basic needs of animals and humans and their effect on growth. Chn must identify the properties of different materials. Chn must be able to compare different types of habitat.	Chn must know the h2o is transported in plants. Chn must know the role of the skeleton and muscles. Chn can explain how a shadow is made. Chn can name 3 rock types and explain their formation. Chn can name some magnetic and non-magnetic materials.	Chn must identify how sounds are made and reach the ear. Chn must know how humans digest food and the part played by different parts of the body. Chn must differentiate between a solid, liquid and gas. Chn must recognise how all living things adapt to their environment. Chn must know how electricity travels from a source.	Chn must know the placement of the earth and other planets and how the earth and moon move in relation to each other. Chn must be able to identify the changes to a human as they age. Chn must be able to compare materials and understand their changes. Chn must describe the life cycles and reproduction process of some animals and plants. Chn must be able to identify different forces and their effects.	Chn must know that the brightness of a lamp/volume of a buzzer changes as the voltage in a circuit changes. Chn must be able to describe how living things have adapted to the climate in which they live. Chn must be able to explain how light travels and why we can see things. Chn must name the components of blood and state their functions. Chn can describe the difference between inherited characteristics and environmental characteristics giving examples.
Key Question – how do you know they know**?**	What is the season now? How do you know? What happens when ice gets warm?	What happens to trees in autumn? (winter/spring/summer) Point to your… What are 4 parts of a plant? Is *(this)* and object of a material? How do you know?	What keeps us alive? What are the three things a seed needs to grow? What material would you use to make...? why? What habitat would suit a hedgehog? Why?	Where does the water go after it meets the roots? What is the job of the skeleton and muscles? How are shadows made? How is a (x) rock formed? What in this room might be magnetic? How could we test it?	Can you draw a diagram to show how sound reaches the ear? What happens to food as it travels through the digestive system? Why is a ___ suited to its environment? (plant or animal) Can you make an electrical circuit to make a bulb light up? Can you add a switch?	How are objects in this room reacting to the force of gravity? What are the stages of a human life cycle? Which stage of life are you in? What will change as you move into the next stage? Can you name the planets in order from the sun?	What happens to the lamp as we increase the voltage? Would a cactus survive in (x) environment? How do you know? Why do shadows change form? What are the jobs of our veins and arteries? How do we inherit characteristics from our parents?

Experiences – what helps them remember?	**Trips** **Woodthorpe park** – seasonal changes	**Trips** **Space centre** - materials **Twycross zoo –** animals	**Trips** **Blackwoods** – animals and habitats **Whitepost farm** – animals	**Trips** **Cadbury world –** plants (Aztecs) **Cinema –** Magnets **Trips to school garden –** sustainability	**Trips** **Yorkshire wildlife park –** living things and their habitats Visits **Artist who works in sound experiments, tuning forks and sound fountain** - Sound	**Space centre –** The Earth and beyond **Sherwood forest -** tr	