

Science Policy

This policy should be read in conjunction with Voyage Science Knowledge Progression Map, Working Scientifically skills Progression Map, Voyage Science Staff Handbook, Covid Catch-up Map 2021 -22.

Our Shared Vision & Values		
A S P I R E	We are ambitious to ACHIEVE ;	we aim high, anything is possible!
	We show SELF-RESPECT ,	we support each other with empathy, tolerance and quiet confidence.
	We are PROUD :	positive, practical and we persevere.
	We want to be INSPIRED ,	show our creativity, "Dream Big".
	We demonstrate RESILIENCE ;	we learn from our mistakes, are reflective and reciprocal, take responsibility for our actions.
	Everyone is EQUAL ;	there are exciting experiences at Carlton Road for all.

The Context of our School and its Curriculum

Carlton Road Academy is a two-form entry school with our own attached Nursery based in Boston, Lincolnshire. With a cohort drawn from the immediate area, the school serves a diverse community with a greater-than-average number of EAL and Pupil Premium students; mobility is high. As a result, it is key that our approach to teaching and learning is accessible to all children, regardless of their background. Our ethos "Aspire to Achieve" is embedded throughout the school, its curriculum and our knowledge expectations – we expect our children to "Aim High and "Dream Big".

Our "Aspire" curriculum brings to life the school's ethos and values. It embraces the whole child and their success in education – both

academic ambition, practical skills, and social achievements. At the same time, we expect the children to be proudly responsible of and for their own efforts, to persevere when the going is not always easy thereby making their individual contribution to the shared, equalitarian, and democratic learning experience at Carlton Road.

Curriculum Intent

At Carlton Road Academy, our children are ambitious Scientists! Our intent is to give every child a broad and balanced Science curriculum that aims to give all pupils a deeper understanding of the world around them. We want our pupils to 'think scientifically' whilst acquiring specific skills through the disciplines of Biology, Chemistry, and Physics. We want the children at Carlton Road Academy to love Science and find 'awe and wonder' in their Science lessons. We want our children to have cherished memories of Science lessons in our school and embrace opportunities they are presented with. At Carlton Road Academy we aspire to achieve, aim high and have no limits to our ambitions, aspiring to be the next generation of Forensic Scientists, Astrophysicists, Toxicologists, Microbiologists, or Astronauts.

Our aim is that these stimulating and challenging experiences help every child secure and extend their scientific knowledge and vocabulary, as well as promote love and thirst for learning. To achieve this, it involves exciting, practical hands-on experiences that encourage curiosity and questioning. Our aim is that these stimulating and challenging experiences help every child secure and extend their scientific knowledge and vocabulary, as well as promoting a love and thirst for learning.

At Carlton Road Academy, we have a coherently planned and sequenced curriculum that has been carefully designed and developed with the need of every child at the centre of what we do. We want 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.

The curriculum is designed as a spiralling model that allows the children to build upon prior knowledge. Topics are taught in Key Stage One and studied again in further detail throughout Key Stage Two. This model allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this procedural knowledge into their long-term memories.

At Carlton Road Academy, scientific enquiry skills are embedded throughout each topic and lesson, whilst being developed throughout their time at school through a clear progression. All children are encouraged to use a range of scientific enquiry skills running as a thread through all lessons and year groups with clear progression. Pupils are encouraged to question the world around them and become independent learners in exploring possible answers for their scientific-based questions.

Vocabulary is taught and built up through the topics and is encouraged through modelled oral sentence structuring together with effective questioning to communicate ideas and is also displayed on learning walls. Knowledge, built upon a Science curriculum that, enables children to become enquiry-based learners. We intend to provide all children regardless of ethnic origin, gender, class, aptitude, or disability, with a broad and balanced science curriculum.

The ambitions of our Curriculum

Our curriculum promotes	A	Achievement,	all learners are academically ambitious, aim high, maximising their own potential from their considerably different starting points. Everyone reads with enjoyment and enthusiasm. Anything is possible!
Our curriculum instils	S	Self-respect,	creating confidence, tolerance and mutual respect within the whole school community, children support and encourage each other upholding British Values.
Our curriculum promotes pupil's	P	Pride,	they feel part of something bigger, maintain positivity, take pleasure in their work, using both practical skills and their own mindset to help them persevere.
Our curriculum enables students to be	I	Inspired;	its varied content and wide-reaching subject matter offers a wealth of learning opportunities that encourage creativity, from close to home and further afield; we "Dream Big" at Carlton Road.
Our curriculum develops learners who are	R	Resilient	to be honest in their understanding and learn from their mistakes, overcome setbacks and challenges, to take responsibility for their own learning, to be reciprocal and reflective in lessons.
Our curriculum embodies	E	Equality;	everyone is entitled to exciting experiences, cultural, sporting and enriching and to have their views and voices heard.

What our intent looks like in *science*

<p style="text-align: center; font-weight: bold; font-size: 24px;">A</p>	<p style="text-align: center; font-weight: bold; font-size: 24px;">Achievement</p>	<ul style="list-style-type: none"> • Children should feel a sense achievement by making Science education available and accessible to all students, regardless of learning style or ability. • Science lessons at Carlton Road Academy promote Ingenuity and creativity allowing all learners to ‘aim high’ in a safe environment. • High standards and expectations demonstrated through skills and knowledge of pupils. • To give all pupils a strong understanding of the world around them, whilst acquiring specific skills through the disciplines of Biology, Chemistry, and Physics. • Encourage children to ‘think scientifically’, embrace challenges and enjoy working hard
<p style="text-align: center; font-weight: bold; font-size: 24px;">S</p>	<p style="text-align: center; font-weight: bold; font-size: 24px;">Self-respect</p>	<ul style="list-style-type: none"> • Give all pupils opportunities to work collaboratively in teams and groups. • Children to develop important social and personal dimensions by providing them with experiences they need to develop healthy social, psychosocial, and cognitive development. • Children are stimulated by having opportunities to hear opinions and ideas of others whilst having the opportunity to react to them. • Children learn through participation and are exposed to different perceptions of problems and/or situations. • Build Confidence, mutual respect, support, and encouragement underpinning British Values. <p><i>‘Most great learning happens in groups. Collaboration is the stuff of growth’</i> Ken Robinson</p>
<p style="text-align: center; font-weight: bold; font-size: 24px;">P</p>	<p style="text-align: center; font-weight: bold; font-size: 24px;">Pride</p>	<ul style="list-style-type: none"> • Children feel a deep sense of satisfaction derived from their achievements in Science through knowledge and skills which is celebrated through praise. • Take pride in their work, feeling part of something bigger within the school ethos and community. • They maintain a ‘growth mindset’ and take pleasure in their practical investigations as well as knowledge. • Children feel a sense of worth in the practical investigations and knowledge they acquire • Children want to share their newfound knowledge with parents/carers
<p style="text-align: center; font-weight: bold; font-size: 24px;">I</p>	<p style="text-align: center; font-weight: bold; font-size: 24px;">Inspired</p>	<ul style="list-style-type: none"> • Children develop a sense of ‘excitement & curiosity’ about natural phenomena. • Children demonstrate a real sense of ‘awe & wonder’ around Science lessons. • Pupils are inspired to look beyond the school curriculum and into the realms of ‘real world application’.

		<ul style="list-style-type: none"> Children’s attitudes towards studying Science reflect in their beliefs and that there is a whole world of possibilities in STEM related careers.
R	Resilient	<ul style="list-style-type: none"> Stresses the value of failure as learning exercise, which will enable pupils to embrace mistakes as part of the learning process. Children learn to value failure as part of the process that ultimately leads to success. Science lessons assist in giving the pupils opportunities to problem-solve and apply critical thinking whilst instilling a passion for innovation in a safe environment. Give opportunities to build confidence and resilience to keep going ‘when the going gets tough’.
E	Equality	<ul style="list-style-type: none"> offer an inclusive learning environment that teaches our children to celebrate their differences and support one another. Promote a culture of tolerance and mutual respect. All children become immersed and part of a supportive learning community and collaboration. A sense of ambition and self-esteem is nurtured allowing children to thrive and flourish.

Curriculum Implementation

How we deliver our curriculum:

Where possible, Science is linked to class topics. Science is taught as discrete units and lessons where needed to ensure coverage.

Planning for science ensures there is:

- A clear and comprehensive scheme of work in line with the National Curriculum where teaching and learning shows progression across all key stages within the strands of Science and where teaching and learning facilitates practical investigative opportunities.
- Children have access to key language and meanings in order to understand and readily apply to their written, mathematical and verbal communication of their skills through scientific study.
- Children will use a range of resources to develop their knowledge and understanding that is integral to their learning and develop their understanding of working scientifically.
- Children will reflect on previous learning and cross-curricular links will be made wherever possible.
- Children will be able to build on prior knowledge and link ideas together, enabling them to question and become enquiry-based learners.
- Attainment will be assessed each half term through ongoing teacher and pupil-led assessments.
- Where applicable links to Science will be made to develop the children’s ‘topic’ learning.
- Trips and visits from experts who will enhance the learning experience.
- Prepare our children for life in an increasingly scientific and technological world today and in the future.
- Develop the use of scientific language, recording and techniques.
- Develop the use of computing in investigating and recording.
- Make links between Science and other subjects.

Science is taught consistently, once a week for a minimum of 1.5 hours, but is discretely taught in many different contexts throughout different areas of the curriculum. We aspire to promote children’s independence and for all children to take responsibility in their own learning, therefore we have implemented pupil/teacher assessment

sheets, which the children use as a working document to track their achievements and progress throughout a topic. This is completed each lesson by pupils assessing against ‘I can statements’ that can be tracked throughout each topic to assess key performance indicators (KPIs). This gives the teacher a ‘running’ formative assessment whether each pupil is working at age related expectation.

KWL grids are completed both at the beginning (what I know and what I want to know -pre-learning task) and end (post-learning task – what I have learnt) of a topic in order to show clear progression and children’s new-found knowledge and understanding.

These tasks also enable the children to articulate scientific concepts clearly and precisely, assisting them in making their thinking clear, both to themselves and others.

Teaching and learning turns “thinking” (the task of the working memory) into “knowledge” (our long-term memories) that can be recalled and used again and again.

	Forms of Knowledge	What that knowledge looks like in school	What that knowledge looks like in Science
A	Academic Answers	Children encounter facts, learn knowledge that is “known”: number bonds, spellings, capital cities, the wives of Henry VIII, colours. Facts that can be straightforwardly shared, memorised and recalled.	Children encounter factual knowledge that is recorded in a manner of ways to help the children memorise and recall facts to aid future lessons and other areas of the curriculum. Methods of recording ‘knowledge’ are: Symbolic play, ‘small worlds’ model, Mind maps, written conclusions, tables, oracy - Science Talk 4 learning, subject specific vocabulary, Knowledge organisers linked to current subjects, working walls – focusing on key knowledge, exemplary vocabulary and terminology used throughout the teaching of Science.
S	Situational and Symbolic	Children interpret knowledge in the context of what they comprehend from the cultures they know/their context/ community/ heritage. This includes their understanding of symbols – written, gestures, body language, pictorial, coded such a computers or road signs etc.	The children come to Carlton Road Academy with their own schema and experiences of natural phenomena and ‘how the world works’. In EYFS, children are given opportunities to build upon their knowledge in the Prime Areas of Learning through symbolic play (mimicking the actions of others around them) and small worlds models, experiential learning, deconstructed role-play (give the children an area with objects related to topics), themed role-play (themed costumes and objects), adult and child-lead play, as well as modelled learning to enhance oracy, vocabulary, knowledge, personal, social and emotional development, communication and physical development. Through specific areas such as, ‘The World Around Us’ symbolic play exercises their independence, voice their own interests and fascinations towards ‘scientific Phenomena’ around them,

			<p>remain engaged in activities for increased periods of time. Children will record knowledge using written work and pictorial diagrams.</p> <p>In KS 1 & 2 pupils will build upon this through situational learning. Each pupil will continue to develop their own schema of scientific concepts and understanding of ‘natural phenomena’.</p> <p>Through Chemistry, Physics and Biology the pupils will have the opportunity to apply their schema as well as meta-cognition of scientific knowledge from the spiralling curriculum design and apply their ‘acquired knowledge’ through practical investigations/enquiry & Working Scientifically skills (see progression map). Students can learn from the knowledge taught and practise/apply it collaboratively in group dynamics with hands on experience as a ‘real practitioner of Science’ in the group or community.</p> <p><i>‘Learning is a matter of acquiring knowledge before one can participate effectively in the situation or real setting...’</i></p>
<p>P</p>	<p>Practical – the “How to?”</p>	<p>Children learn practical knowledge when they need to know the “How to...” e.g., ride a bike, read a map. The knowledge may come in steps or stages. It could be written down to follow like a recipe or automatically retrieved, once learnt, such as how to swim.</p>	<p>Practical ‘How to...’ application of Science is delivered through hands-on investigation and child-led investigation. Children plan and carry out enquires; this includes a specific area of enquiry to be able to carry out and develop. This should be developed through the progressive Working Scientifically skills map; Observations, grouping & classifying, questioning, communicating, using equipment, planning, and testing, describing patterns/results, explaining results & trusting results. Working Scientifically are the underpinning skills throughout the Science curriculum to bring together knowledge and practical skills.</p>
<p>I</p>	<p>Implicit and Incidental</p>	<p>Implicit knowledge often unconsciously obtained, and we may not recall learning it: such as how to walk or talk, it builds on past experiences. Incidental knowledge is similar in that we acquire it from experiences, but these are unplanned or unintended.</p>	<p>Implicit & Incidental knowledge: Children may have acquired and incidental knowledge acquisition from reading books (e.g., Science topic books), watching television, taking to a friend, travelling to different places/countries</p> <p>Subject specific Incidental knowledge:</p>

			<p>(Awareness of ...)</p> <p>Biology: Names of common animals; awareness of basic body parts, Human and animal diet, changes in relation to aging, recognise when something is alive & something is dead, awareness of teeth and their function. Awareness of Humans and animals having skeletons, recognise living things produce offspring</p> <p>Chemistry: Basic properties of materials, some materials can be manipulated, materials can melt; and some can freeze, dissolving and mixing, irreversible changes, materials change state when heated or cooled (melting, freezing, boiling, evaporating, condensing)</p> <p>Physics: Pushes and pulls, different ways of moving: speed up, slow down, change direction or change shape, unsupported objects fall towards the Earth because of the force of gravity, awareness of light and dark, electricity in the household and school, weather associated with the seasons, movement of the moon and sun in relation to the Earth</p> <p>Subject specific Implicit knowledge: (Unconscious knowledge of ...)</p> <p>Biology: Awareness of plants and trees in locality, Human and animal diet, changes in relation to aging, awareness of teeth, Awareness of living things produce offspring (siblings & relatives). Awareness of self and others.</p> <p>Chemistry: Basic properties of materials, some materials can be manipulated, materials can melt; and some can freeze, dissolving and mixing, irreversible change</p> <p>Physics: Pushes and pulls, different ways of moving: speed up, slow down, change direction or change shape, unsupported</p>
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R	Relationships and Real Life	<p>This is knowledge that supports children build relationships and understand how social interactions work; the knowledge behind “real life” skills such as empathy, friendship, honesty. For some it comes naturally, most children need a level of coaching to acquire it.</p>	<p>objects fall towards the Earth because of the force of gravity, awareness of light and dark, the weather changes, magnets attract and repel e.g. fridge door, fridge magnets, magnetic letters at school/home, sounds get fainter as the distance from the sound source increases, night and day .</p> <ul style="list-style-type: none"> • Taking turns and collaborating in a shared experience (co-operation/democracy) • Listening to the children’s opinions and sharing their ideas, offering advice & peer coaching • Valuing Others’ different views & beliefs • Knowing and respecting those beliefs can often compete with scientific understanding • Knowing there are risks and consequences if safety rules are not adhered to • Making their own choices when planning an investigation • Allowing children, the chance to choose their resources and have a say in their experiments • Researching famous scientists and understanding their backgrounds, where they came from, their home life and early childhood
E	Experiences and Experts	<p>This is knowledge built up from a range of experiences both undertaken or personally encountered such as a visit to a place of historical interest, it may be explicitly taught, or delivered by an “expert” such as a professor, or sensorily observed such as an experiment.</p>	<p>EYFS: Outdoor learning; seasons, weather, experience of incubation and hatching of chicks, visiting expert from Asda supermarket (baking).</p> <p>KS 1& KS 2: growing plants, visit from health practitioner (balanced plate), visit from planetarium, dissecting flowers, KS2 trip to Space Centre, KS2 trip to wind farm – linked to renewable energy topic, KS 2 Live question & answer session with Dr Zoë A. E. Waller CChem FRSC FHEA Associate Professor in Drug Discovery</p>

In Science we teach to secure that knowledge in the following ways:

	How the children will acquire their knowledge:	What that practice looks like in Science
A	<p><i>Active construction of knowledge, the acquisition of vocabulary, teacher articulation of learning processes and the asking and answering of questions.</i></p>	<ul style="list-style-type: none"> • Science topic specific vocabulary built upon each lesson • Develop the use of oracy through modelled sentence construction using topic vocabulary and specific words to each lesson • Use learner’s prior knowledge to connect ideas that build strong conceptual frameworks • Development of children’s own ability to learn through questioning and answering opportunities • the ability to explain concepts, methods, and practices; the ability to identify and articulate scientific understanding
S	<p><i>Staged development enables children to join up intertwined groups of meaningful knowledge into schemas. This comes semantically, through the senses, through skills and socially.</i></p>	<ul style="list-style-type: none"> • The Science curriculum is carefully structure and sequenced to ensure coverage and progression as the children move through the school. • The curriculum is broken down into knowledge building • blocks as the knowledge is sequenced and the built upon over time: what has been taught before • and what the pupil’s need to know to reach their end point – spiral progression. • making the association in Science between Chemistry, Biology and Physics. • To ability to be able to apply a range of scientific knowledge and skills in a variety of • contexts.
P	<p><i>Practically: children access a wide range of memorable learning through play, the power of stories pictures and print and through problem-solving activities.</i></p>	<p>Investigation – in Science this includes:</p> <ul style="list-style-type: none"> • small worlds models, experiential learning, deconstructed role-play (give the children an area with objects related to topics), themed role-play (themed costumes and objects), adult and child-lead play • asking relevant questions linked to topic. • knowing how to use different types of sources as a way of gathering information • Working collaboratively to investigate different lines of enquiry • Working collaboratively to investigate child-initiated lines of enquiry

		<ul style="list-style-type: none"> • Children use own meta-cognition to develop ingenuity and creativity problem solve
I	<p><i>Internalisation of learning through interaction, instruction, imitation and integration aids the movement of thoughts to long term memory.</i></p>	<ul style="list-style-type: none"> • Summary of new concepts (mind mapping/pictorial) • Synthesising of knowledge: inking significant features of history and Science together in a coherent pattern (combing multiple ideas together). • Help children to make/see connections – connecting new information to concepts that already exists (prior learning)
R	<p><i>Retrieval of knowledge through repetition, revision, recycling and routine prompts memory “muscle” to work, making knowledge “stick”.</i></p>	<ul style="list-style-type: none"> • Revisit taught concepts/knowledge through opportunities of problem solving and investigation • Bigger picture learning retrieval (asking the Why? What? When and How?) • Spaced repetition – revisit knowledge through retrieval activities (low stake; high reward) quizzes, questioning and quick-fire activities • Approaching problems from different angles/ cross curricular projects • KWL grid (what I know) children periodically update their KWL grid by synthesising, summarising acquired knowledge to put into note form
E	<p>Special <i>experiences</i> linked to learning objectives and opportunities in specific <i>environments</i> can enhance the probability of long-term memory retaining key messages.</p>	<ul style="list-style-type: none"> • Hooks/ Wow days – engage the children in the topic by introducing what’s interesting and attention grabbing up-front .e.g. video clip, problem solving, letter to class, real life experience, link to literacy or theme, story book, Google classroom, props linked to topic • Trips – E.g. (Y5) Space Centre. Guest speakers – specialists linked to topic or area of Science to provide inspiration and incidental knowledge, as well as curriculum content e.g. (Y6) with Dr Zoë A. E. Waller CChem FRSC FHEA Associate Professor in Drug Discovery.

The Science curriculum is divided into specific concepts of knowledge; successful learning requires the child to understand and know each concept within the subject to ensure their experience is a rounded and robust one. Understanding a single area in isolation will not develop the broad knowledge needed to acquire the cultural capital Science can offer.

Our Science Curriculum is high quality, well thought out and planned to demonstrate progression. If children are ‘keeping up with the curriculum’, they are deemed to be making age related expectation. In addition, we measure the impact of our curriculum through the following methods:

- A reflection on standards achieved against the planned outcomes.
- Pupil interviews about their learning.
- Most children should achieve age related expectations in Science at the end of their cohort year.
- Children will retain knowledge that is pertinent to Science with a real life context.

- Children will be able to question ideas and reflect on knowledge.
- Children will work collaboratively and practically to investigate and experiment.
- Children will be able to explain the process they have taken and be able to reason scientifically.
- A richer vocabulary which will enable pupils to articulate their understanding of taught concepts.
- Children will be able to use enquiry skills to become independent learners and make their own decisions regarding self-led enquiry.
- Children will become resilient problem solvers.

The impact and measure of this is to ensure children not only acquire the appropriate age-related knowledge linked to the Trust's Science Curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives. We aim to encourage all pupils to have high aspirations, which will see them through to further study, work, and a successful adult life.

Although the Science curriculum is delivered once a week, we also endeavour to implement it into our everyday practice to give the children the opportunity to embed their key skills and knowledge. This is done through the use of:

- Knowledge Organisers: Children have access to key knowledge, language and meanings to understand Science and to use these skills across the curriculum. These also include a range of key knowledge from other curriculum areas.
- Working Walls: Each classroom has a topic specific working wall which is updated weekly. This will be solely focussed on the term's area of learning. This will be kept up in the classroom so that the children can refer back to it at all times. It will include a variety of key words, examples of modelled work and key questions.
- Subject specific vocabulary: Identified through knowledge organisers and working walls and highlighted to the children at the beginning of and during lessons.
- EYFS: Reception children are given a secure grounding in the Prime Areas of learning, ensuring they have a good foundation on which to build through the specific areas, including Understanding the World. Areas of provision are enhanced to ensure vocabulary understanding and extension and develop understanding of the world around them.
- Books: Children will have access to a growing variety of subject specific fiction and non-fiction books, available during the school day, other lessons and in the class book area. Wherever possible, children will use a range of non-fiction books which include elements of the current Science topic.
- 'Hands on' practical activities for children to explore and investigate. We believe that handling real objects enhanced the children's knowledge, understanding and skills.
- Learning environment: The learning environment is designed to ensure children develop their Science knowledge and continue to know more and remember more. Working walls are key drivers to this, with teachers referring to them during lessons.
- Research: Children will research about their new topic to add to their schema. This allows the children to have ownership over their curriculum and lead their own learning.
- Basic skills -English, Maths and ICT skills are taught during discrete lessons but are revisited in Science so children can apply and embed the skills they have learnt in a purposeful context. The expectation is that standards in writing in Science are comparable with standards in English lessons.
- **Cultural Capital** - We plan visits, visitors, and in-school WOW days to provide first-hand experiences for the children to support and develop their learning, but a visit to the museum alone will not generate cultural capital. It is the *combination of knowing, what, how, why and seeing experts or specialised environments* that pulls knowledge together to create cultural capital.

Our curriculum is delivered in line with the National Curriculum. Although, the Voyage Trust introduces some concepts early in the pupil's curriculum, as well as moving some of the topics. The curriculum has been developed so it is a spiralling in design, which build upon prior learning. Forces & Light in Year 1, as well as Electricity & Forces in Year 2. This provides students will important concepts such as light and dark and simple physical contact forces such as push and pull forces early on. Materials is now taught in Year 3. Forces taught in Year 4, whereby the Working



Scientifically skill of Fair Testing is introduced sooner. Sound taught in Year 5 opposed to Year 4- Children have a greater knowledge of materials and their properties, which in turn helps with their knowledge and understanding when undertaking investigations in Year 5 Sound. Electricity has been moved to Year 6, as Year 4 pupils have shown they have a secure understanding of circuits, which is revisited through The Floating Garden project.

We encourage our pupils to ask themselves, their peers and their support staff questions which will widen and stretch their knowledge and thought processes. In addition to this, effective questioning is used by teachers and support staff as an assessment tool during each process of learning.

Teacher's pay heed to the Voyage Trust's Science Progression Map, as well as Working Scientifically Skills Map so they can see what knowledge the child should have already and what is to come in future years. I can statements are completed by both the children and teacher to show the child's understanding of each lesson during the topic. I can statement in green are key performance indicators, which are classed as the 'backbone' and are signposts that the children are working at age related expectation. Black statements are enrichment and are needed to provide more assessment to build a solid foundation, as well as providing opportunities for Working Scientifically Skills.

The map shows the specific curriculum areas of knowledge & skills that combine together to enable our children to become successful in all areas of Science.

Refer to Voyage Trust Science Progression Maps for Chemistry, Physics, Biology and Working Scientifically.

Curriculum Impact

Our Science Curriculum is high quality, well thought out and planned to demonstrate progression. If children are 'keeping up with the curriculum', they are deemed to be making age related expectation. In addition, we measure the impact of our curriculum through the following methods:

The impact and measure of this is to ensure children not only acquire the appropriate age-related knowledge linked to the Trust's Science Curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives. We aim to encourage all pupils to have high aspirations, which will see them through to further study, work, and a successful adult life.

A	Achievement	<p>Children... Depth of learning Form a relationship with their learning</p> <ul style="list-style-type: none"> • reflection on standards achieved against the planned outcomes. • Most children should achieve age related expectations in Science at the end of their cohort year. • A richer vocabulary which will enable pupils to articulate their understanding of taught concepts.
S	Self-respect	<ul style="list-style-type: none"> • Children will be able to question ideas and reflect on knowledge. • Children will be able to use enquiry skills to become independent learners and make their own decisions regarding self-led enquiry.
P	Pride	<ul style="list-style-type: none"> • Children will be able to explain the process they have taken and be able to reason scientifically with confidence in their knowledge beyond their primary experience
I	Inspired	<ul style="list-style-type: none"> • Children will be able to explain the process they have taken and be able to reason scientifically. • Pupils share positive interviews about their learning. • Children will retain knowledge that is pertinent to Science with a real life context and passion for Science
R	Resilient	<ul style="list-style-type: none"> • Children will be able to use enquiry skills to become independent learners and make their own decisions regarding self-led enquiry. • Children will become resilient problem solvers.
E	Equality	<ul style="list-style-type: none"> • Children will work collaboratively and practically to investigate, and experiment underpinned by British Values.

Assessment

Assessment is used to monitor progress and to identify any child needing additional support as soon as they need it.

- **Assessment for learning** is used:
 - In the actual lesson by children and Teachers – ‘I can’ statements and Working Scientifically skills
 - Weekly - Do the children have any missing prior knowledge? Any misconceptions?
 - At the end of a unit of work – Have the children met the KPI (Key Performance Indicators) to be working in line with ARE.
- **Summative assessment** is used:
 - Every Term – Knowledge (Topic in Biology, Chemistry and Physics) and WS Skills
 - by SLT and scrutinised – Agreement Trialling
 -

Ongoing assessment for catch-up

- Covid Catch-up document 2021 -22 (To be reviewed at the end of each academic year).

This policy was most recently updated in:

January 2022