Science Subject Statement

Subject	Science *'The good thing about science is that it's true whether or not you believe in it.' – Neil deGrasse Tyson*		
Purpose and aims	At Ashmount, we follow the National Curriculum for Science. As set out in the National Curriculum, the aims of teaching science are to ensure that all pupils: • Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. • Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. • Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. Our Science lessons at Ashmount aim to ensure pupils have regular opportunity to work scientifically and have varied experiences in 'doing' science through different types of enquiry such as: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations). We also plan for and encourage other key skills required in science such as collaboration, scientific oracy, and asking questions. We utilise our local context e.g. being situated within the Parkland Walk, to experience the natural world and the bounty of scientific learning it can provide e.g. investigating living things and their habitats. Morally and socially, we aim for all pupils to: • Recognise the value and importance science has in all of our lives. • Recognise that they are scientists and see themselves as scientists. • Recognise themselves within the field of science.		
Core values	<u>Community</u> Children are given opportunities to work collaboratively in every science lesson. Our families and community are encouraged to deliver bespoke workshops and talks to our children during theme weeks.	<u>Responsibility</u> The science curriculum contributes to children's personal development in independence, judgement and self-reflection. They take responsibility for using their resources respectfully. In group work, the children understand that everyone needs to participate and have a role so that their group can be successful. Our children actively take part in discussions, enabling them ask	<u>Growth</u> The science curriculum encourages children to become resilient and life-long learners, enthusing budding future scientists and creating a generation of knowledgeable citizen scientists. It is evidence based, and teaches children that science changes based on what is learnt.

	Experts deliver workshops to support our community in their own understanding of science.	and answer question to further their understanding.	As the field of science grows and develops, so do our children.
Knowledge and skill progression	In EYFS, our aim at Ashmount is for all children to develop firm scientific foundations in a way that is engaging and age appropriate. In Reception, science is taught discreetly and children have the opportunity to develop the scientific skills they have learned in guided activities and independent play. During science lessons, children may use senses to understand their bodies and explore the natural world, they may practise grouping and sorting, they may observe changes over time such as water to ice to water, or conduct investigations such as sinking and floating. All the while they are developing a rich vocabulary to support their future journey in science learning. Being natural scientists, they have the opportunity to engage in these skills during their child-initiated time, and this is enhanced through continuous provision and well thought out classroom resources. The topic-based role play often supports children's engagement with science e.g. it has been a space station, a veterinary surgery, a wild wood, and a coral reef. Children are frequently given the opportunity to take science outside and beyond to explore the local environment e.g. the Parkland Walk and go further afield to the Science Museum. Children are put in good stead through their early experiences and development of scientific language to support their beginnings of science in the National Curriculum. Lessons are sequenced clearly so that firm scientific understanding is constructed and built upon. Our lessons are designed to have a balance of knowledge, skill, and working scientifically. In Years 1 to 6, all teachers use Switched on Science, supplemented with additional resources or content (e.g. Explorify) to suit the needs of our learners. At Ashmount, we have carefully sequenced our teaching of the National Curriculum to ensure the programmes of study are taught in a logical order to build upon prior knowledge and maximise progression. Additionally, the sequencing provides opportunity for pupils to retrieve prior knowledge and help embed it into their long-term memory by ensuring past skills and knowledge learnt are not lost. Furthermore, the sequencing allows the programmes of study to be taught in a way that makes contextual sense in regards to the natural world e.g. the scheduling of teaching of plants and light. We follow the Switched On Science scheme, supplemented where necessary to best meet the needs of our learners, to learn the National Curriculum is a creative and flexible investigation-based programme with a clear focus on working scientifically. Teachers understand that it is not the pace at which National Curriculum statements are taught, but that genuine knowledge and understanding of a programme of study has taken place before children move on to the next programme of study. Those who are not sufficiently fluent with earlier material will be supported to consolidate their understanding, including through additional practice before moving on. Where appropriate, children's learning will be delivered at the appropriate developmental stage rather than their age.		

Characteristics of effective learning	<u>Engagement</u> Children are regularly exposed to practical applications of their science learning, using a range of high-quality science equipment, so that they foster a passion for the subject. Lessons are designed with an element of challenge in mind so that children are engaged to persevere and succeed. During all of our science lessons, the children take part in regular discussions about their science learning, developing important skills such as teamwork, collaboration and oracy. Our children are happy to take risks in lessons because teachers give specific praise to identify and highlight when a child has overcome a certain difficulty.	<u>Motivation</u> As a Growth Mindset school, the children at Ashmount are taught to value the 'good mistakes' they make and see them as a further opportunity to develop their knowledge and skills. As children experience problem-solving and investigation in science, they are building their resilience. Our children are encouraged to reflect on their own progress so that they have a sense of what they need to work on next to continue developing their understanding. Furthermore, children learn that there have been many mistakes in science and these can be used to further learning and understanding within the field.	<u>Thinking</u> Scientific thinking is developed in all science lessons at Ashmount. Children are actively encouraged to reason around their Scientific predictions, arguing and justifying based on the evidence, with this being explicitly modelled by the teacher so they are exposed to high-quality answers. The use of repetition around key scientific vocabulary and key scientific concepts, as well as opportunities to retrieve key scientific facts, are embedded in our lessons so that the key knowledge and skills the children need are retained in their long-term memory, as well as ensuring they are developing as scientists. Teachers use effective questioning to develop our children's metacognition.
Communication and vocabulary	At Ashmount, we value the importance of oracy and our children being able to communicate. Therefore, we explicitly teach key vocabulary in every science lesson to give children the tools they need to communicate effectively about their learning. Our vocabulary progression document ensures that children are being taught age-appropriate language that is built on as they progress in their learning journey at Ashmount. Our science lessons are designed allow regular opportunities for discussion. so that children are discussing their understanding with their peers and adults in every lesson. Stem sentences are a key feature of our Maths lessons so children are fully equipped to use the key vocabulary to discuss their learning.		
Cultural capital "the essential knowledge pupils need to become educated citizens"	Planning and resources will be thought-out and reflective of diversity and imagery so that pupils feel represented. This might be within science lessons themselves but also incidentally and referentially in other areas of learning e.g. 'Mae Amongst The Stars' as a Reception core text. Planning will ensure that during their time at Ashmount, pupils will learn about a range of scientists showcasing a range of diversity and protected characteristics e.g. people of colour, people with disabilities, LGBTQ+ people, women. Pupils have the opportunity to capitalise on living in London and experience areas of value locally e.g. Parkland Walk, Hampstead Heath; and further afield e.g. Science Museum, London Zoo, Natural History Museum.		

"introducing them to the best that's been thought and said" "engendering an appreciation of human creativity and achievement"	Pupils have access to green space within the school grounds that supports their scientific learning such as planting beds for produce, a bug hotel, plants for pollinators, which is continuing to evolve and develop. Pupils have opportunities to engage in citizen science through school participation in national citizen science projects such as the Big Butterfly Count and RSPB's Big Garden Birdwatch. Events such as British Science Week are celebrated, promoting science on a national level to pupils, and making it more accessible to them. High expectations of science learning aim for pupils to be well versed in using, understanding, and writing scientific vocabulary, and be familiar with the processes of working scientifically.
Learning experiences	Pupils have the opportunity to engage in: • Citizen science projects. • British Science Week. • Clubs, including a community Gardening Club. • Black History Month and LGBT+ fortnight. • Educational workshops and trips e.g. Hampstead Heath, The Science Museum etc.
High quality resources	• Switched on Science resources • Explorify resources • Resources utilising renowned scientific institutions in the UK including but by no means limited to: The Wellcome Trust, The Science Museum, The Natural History Museum, The Wildlife Trust, The RSPB etc. • Scientific equipment including petri dishes, anatomical models, safety goggles, microscopes, density cubes etc. • Natural history resources such as: fossils, rocks, plants, the school grounds and local environment • Requested resources from the Islington Education Library