Science

Intent

- We have designed a science curriculum which inspires children and ignites curiosity of the world around them.
- We have carefully considered the design of the curriculum to encourage spaced practice and flexibility.
- We ensure that children acquire the key knowledge, vocabulary and skills set out in the National Curriculum and have taken care to ensure there a clear progression from EYFS to Year 6 .
- We understand the importance of both substantive and disciplinary knowledge and strike a careful balance between teaching new knowledge and Working Scientifically.
- The right amount of knowledge has been carefully identified for each topic, we refer to this as sticky knowledge.
- Through the 5 types of enquiry, children develop key scientific skills which increase in complexity and independence through the key stages.
- We have selected ambitious and relevant vocabulary for each topic, which is built upon through the years.
- In KS2, children are specifically taught Physics, Biology and Chemistry.
- Our Science curriculum is enhanced through first hand experiences, visitors and trips.
- Across school, we explore the work of diverse, famous Scientists and challenge stereotype.
- By the end of KS2, our aim is that children have acquired the necessary scientific knowledge and skills to design, carry out and evaluate their own scientific enquiry to answer their own questions.

Implementation

- Science is taught across the year and there is a minimum of one taught lesson per week in KS1 and KS2.
- Topics are carefully ordered across the years to ensure spaced practice. There is flexibility around the length of time spent on each unit. This allows for additional lessons to address misconceptions, gaps in children's learning and pupils interests.
- At the beginning of every lesson, children bridge back to prior knowledge with a range of retrieval tasks.
- Teachers use the 5 types of enquiry logos to support children when Working Scientifically. These are seen on displays and on notebooks.
- Children's Working Scientifically targets increase in complexity every two years . This ensures the children have the opportunity to apply their skills in different contexts and show an increase in independence. These are stuck in books for KS2 children to identify at the end of each unit of work.
- Knowledge organisers are used to identify key knowledge and vocabulary for each topic. These are shared with children and include previous years learning to bridge back to. They are referred to in lessons and are used as an assessment tool at the end of each unit.
- Sticky knowledge is displayed in every class on a 'washing line'. It is referred to throughout the topic and then used across the year to provide regular opportunities for retrieval of key facts.
- Misconceptions are pre-empted using PLAN and lessons are planned to include these. When further misconceptions arise, teachers have the flexibility to teach additional lessons to address them.
- We use concept cartoons to encourage pupil talk and discussion. These also help to identify and address key misconceptions in Science.
- Teachers enhance their planning using PLAN, Explorify and STEM and have access to CPD to support their teaching.
- Adaptations are made to lessons where appropriate to support the needs of all learners, including the use of widget.
- We provide many WOW opportunities to inspire the children's love of Science and take part in British Science Week every year. We include parents and members of our local community to demonstrate the many different jobs that Scientists do. We learn about the work of famous scientists and how they have impacted our lives today.
- Opportunities to further enhance children's science learning is promoted through home learning tasks
- We work with Chorlton High School to aid the transition into KS3 Science.

Impact

- Our curriculum fosters a love of Science. Children ask questions and have an appreciation of the world around them. Pupil Voice Spring 2023 (Year 1) "I love Science. It is where we learn about the world around us and the people and animals that live in it"
- Children acquire the key skills and knowledge set out in the NC and make excellent progress (End of KS2 78% on track)
- Through the use of knowledge organisers and metacognitive strategies, the children are confident, resilient learners
- Through working scientifically and hands-on experiences, children are immersed in their learning.
- Staff are clear and confident on how to deliver the curriculum for their year group and know prior and future learning. This was shown during a learning walk in February 2022 and through a staff questionnaire.
- Children are able to define science and in KS2 are aware of the terminology Physics, Biology and Chemistry
- Children understand how we work scientifically and can identify where they have achieved their targets in their learning.
- Children aspire to be future Scientists

Science in Early Years

- Science is seen throughout different areas of our Early Years provision
- We follow Development Matters to plan for Understanding of the world.
- Science is taught explicitly and key learning, experiences and vocabulary have been identified and mapped out throughout Nursery and Reception
- We ensure children are exposed to all the different types of enquiry
- Attention has been made to the transition between EYFS and KS1 so there is clear progression in skills and knowledge for the children.
- Visitors and trips have been selected to enhance children's understanding.
- Teachers use Explorify, Play, observe, ask and PLAN documents to support Science teaching

Assessment in Science

- In EYFS we assess the Natural World at baseline and at the end of every term. We use observations and questionning of the children to inform assessments. This informs future planning.
- Teachers use AFL and end of unit reflection tasks to assess whether children remember substantive and disciplinary knowledge they have learnt
- Teachers assess children's prior knowledge from previous school years at the beginning of a topic to identify next steps, adapt planning and address key misconceptions or missed learning
- Throughout topics, teachers use AFL strategies, including targeted questions, to identify struggling and exceeding learners.
- Throughout topics, teachers regularly provide retrieval tasks to bridge back to prior lessons and build on learning
- Teachers assess against the Working Scientifically skills, which feeds into planning. The curriculum is designed with flexibility which allows teachers to create additional lessons to address gaps.
- Pupils are assessed through a reflection task at the end of the topic. This is adapted to suit the needs of all learners.
- Staff Assess pupils at the end of each unit, using their teacher assessments and the reflection task. The teachers' final assessment is then recorded.
- At the beginning of a new topic, teachers bridge back to prior learning to assess the children's current understanding and address any misconceptions or gaps.
- We use TAPS and PLAN to support our assessment judgements