Science Curriculum Policy

At St Maxentius CE Primary School, we strive to give children the best possible education. The curriculum is designed to build on prior learning, with relevant and engaging learning experiences, which supports the development of resilient learners, and creative and critical thinkers. As a school, we passionately believe that every child is made by God to be unique with their own skills, talents and innate potential to achieve. We celebrate and welcome the differences within our school community and we strive to ensure that every child can reach their potential, without exception. The curriculum is underpinned by our Christian Values of hope, faith and love and our ethos is driven by the parable of the lost sheep:

"And when he finds it, he joyfully puts it on his shoulders and goes home.
Then he calls his friends and neighbours together and says
"Rejoice with me; I have found my lost sheep" Luke 15: 5-6

At St Maxentius, we provide a high-quality science education that is well planned and progressive aligned with the national curriculum. The science curriculum that we offer provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Through the teaching of key knowledge and concepts, pupils are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. The curriculum at St Maxentius supports pupils in understanding how science can be used to explain what is occurring, predict how things will behave, and analyses causes.

Intent

At St Maxentius we have high academic ambition for all pupils and the intended curriculum is aligned with the National Curriculum (2014). The curriculum is sequenced so that learners revisit concepts over time and build on previous learning. (Appendix 1 - curriculum overview) The subject intent clearly identifies the knowledge and skills that pupils will gain at each stage; leaders have ensured that end points are clear (learning destinations). The curriculum is rooted in the solid consensus of school leaders about the knowledge and skills pupils need in order to take full advantage of opportunities, responsibilities and experiences in later life. Reading is high profile and embedded in all curriculum subjects, pupil engage with academic literature at an age-appropriate level to support their understanding.

The intended curriculum at St Maxentius addresses social disadvantaged by ensuring teachers address gaps in pupil's knowledge and skills. Leaders have identified the knowledge and skills required to enable pupils to be educated citizens, introducing them to the best that has been thought and said, helping them to engender an appreciation of human creativity and achievement.

The science curriculum at St Maxentius is designed to give all pupils particularly the most disadvantaged and those with Special Educational Needs or Disabilities (SEND) the knowledge and cultural capital they need to succeed in life. The curriculum builds cumulatively sufficient knowledge and skills over time so that all pupils can develop their knowledge, skills and abilities with increasing fluency and independence.

Implementation

Science is taught discreetly each week to pupils. Over the course of study, pupils gain the intended knowledge alongside developing the skills of working scientifically. Pupils will have regular opportunity to explore different kinds of scientific enquiry, we have identified 5 areas that pupils which are:

Research and using secondary sources

Identifying, classifying and grouping

Pattern seeking

Observing over time

Comparative and fair testing

Teachers present new information clearly and in manageable chunks to support pupils to build their knowledge. At St Maxentius, teachers have expert knowledge and the subject leader offers continuing professional developments and enhancements so that no pupil is disadvantaged by ineffective teaching. Teachers have strong content and pedagogical knowledge so that pupils are supported and any gaps in their knowledge can be appropriately addressed.

Concepts

The intended curriculum identifies key concepts for science and these are revisited so that pupils embed key concepts in long term memory and then can apply them fluently. The concepts in science are:

- Classification
- Properties
- Growth
- Environment
- Change
- Function
- System
- Material
- Light

Long Term Memory

In every unit of science work there is a knowledge organiser and an overview which is presented in pupils books. The knowledge organiser includes key concepts, vocabulary, key facts and visuals/diagrams to support pupils acquisition of new knowledge. Throughout the course of study, there is regular opportunity for pupils to revise their knowledge organiser and self-test facts. The unit overview (learning destination) that is also presented in books, depicts the intended end points for the science unit. The overviews also refer to the appropriate elements of 'Working Scientifically' by stating 'A Good Scientist..'.

Leaders have also developed a retrieval plan for science and foundation subjects to ensure that pupils regularly retrieve knowledge. This occurs in each session (see Teaching & Learning).

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Vocabulary focus	Knowledge focus	Knowledge focus	Vocabulary focus	Knowledge focus	Knowledge Assessment
Quizlet or loop cards in science to retrieve vocabulary.	Children self-test first 3 knowledge facts from knowledge organiser.	Children self-test final 3 knowledge facts from knowledge organiser.	Quizlet or loop cards in science to retrieve vocabulary.	Children review all of knowledge organiser and self-test.	Children complete blank knowledge organiser and take vocabulary assessment.

Assessment/Marking & Feedback

In each science lesson, there is a set learning objective know as WALT (We Are Learning To), this clearly states the focus for the session and explains what pupils will be able to know, understand or be able to do by the end of the lesson. There is also a success criteria, known as WILF (What I am Looking For), which explains how pupils can fully achieve the WALT. These objectives are printed onto labels and presented in science books so that no learning time is wasted in recording these.

Pupil's work is marked in line with the school marking and feedback policy. The WILF is highlighted in either green, yellow or pink to evidence how well the pupil achieved towards the criteria in the session. Teachers may give feedback to improve work in pink and pupils can respond in purple pen. Feedback in science should be weighted more towards pupil's scientific development however teachers may occasionally ask pupils to address spellings, punctuation, presentation or handwriting if work is not at the standard expected for that pupil or if it supports their development. The school utilises a verbal feedback model at the point of learning so that pupils gain the high quality, precise feedback when they need it the most.

Ongoing assessment is evident in science through the highlighting of the WILF and through the use of feedback. Teachers routinely and systematically check pupils understanding through the course of study and assessment is formative. At the end of each science unit teachers record assessments on the school tracking system 'Insight'. Pupils are assessed for knowledge, skill and vocabulary.

Teaching & Learning

Each teaching session in science, follows the agreed school policy of teaching and learning, and is planned to support pupils long term memory development. There are 5 stages in each session:

Activate- teachers activate the appropriate schema and make long term links to learning that occurred in the past.

Vocabulary – teachers explicitly teach vocabulary that pupils need a deep understanding of to support their learning.

Retrieve – pupils complete a retrieval task relating to more recent learning such as self-testing key information from their knowledge organisers. (See retrieval plan)

Teach – The teacher presents new information clearly and in manageable chunks.

Apply – pupils apply their learning by demonstrating their skills gained.

Reading

Pupils have regular opportunity to engage with texts which are academic and support their knowledge acquisition. Teachers ensure texts are age appropriate and teachers explicitly clarify any new vocabulary to support pupils learning.

Impact

The high-quality teaching of science at St Maxentius will ensure pupils are well prepared for the next stage of their education, with pupils meeting the standards expected of them, in line with national averages for the end of the key stage.
Through a well-planned and sequenced curriculum children will have made good progress in terms of knowing, remembering and being able to do more. Pupils who are disadvantaged or with SEND will have acquired the knowledge and cultural capital they need to succeed. Children will be able to work both collaboratively and independently within different disciplines of science, with a solid understanding of the world around them, demonstrating the skills required to be confident, logical and critical thinkers. They will be able to make firm connections between knowledge gained and their experiences in life which will inspire them to question and test new concepts.

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Appendix 1

St Maxentius C.E. Primary School
Part of Archbishop Temple Trust

Science Curriculum Overview 2021-2022

	Autumn		Spring		Summer	
Year 1	Everyday materials	Everyday materials (properties and application)	Plants	Animals including humans (Animal groups)	Animals including humans (Bodies and senses)	Seasonal changes
Concepts	Classification	Properties Classification	Growth Classification	Classification	Senses	
Year 2	Using Everyday Materials	Animals including humans	Living things and their habitats	Living things and their habitats	Plants	Animals including humans
Concepts	Properties Classification	Growth	Environment	Classification	Growth	
Year 3	Plants	Rocks	Forces and Magnets	Light	Animals including humans	Animals including humans
Concepts	Growth	Properties Classification	Force Properties	Light		
Year 4	Animals including humans	Animals including humans	Sound	Electricity	Living things and their habitats	States of matter
Concepts			Senses	Properties	Environment Classification	Properties Classification
Year 5	Earth & Space	Forces	Properties and changes of materials		Living things and their habitat	Animals including humans
Concepts		Force Properties	Properties Classification		Environment	Growth
Year 6	Animals including humans	Living things and their habitats	Electricity	Evolution and Inheritance	Light	Revision
Concepts		Environment Classification	Properties	Environment	Light	