Curriculum Offer for Science.

INTENT

How is your curriculum set up and what it the rationale behind it?

Context:

Market Town:

Raise aspirations for all of the children
All children to achieve (21.7% PP – increased over time)
Children starting school with low level of speech, language and communication, including lower vocabulary and many have limited experience.

Driving the curriculum:

Our Mission

Underpinned by our Christian values, we create a happy, caring environment. This empowers each and every unique person to dream, believe, achieve and flourish.

'In the same way you should be a light for other people. Live so that they will see the good things you do' **Matthew 5:16 (ICB)**

Our Vision

At St Peter's CE Primary and Nursery School children and their learning are central to everything we do. As a church school we aim to serve our community by providing an education of the highest quality within a framework of Christian belief and values. We encourage an understanding of the meaning and significance of faith, and promote Christian values through the experiences we offer to all of our children.

Our school values underpin our day to day lives:

• **Fairness**: We act without bias and provide equal opportunities for everyone.
'For we are taking pains to do what is right, not only in the eyes of the Lord but also in the eyes of people.' (2 Corinthians 8:21)

• **Honesty**: We always tell the truth, whilst showing respect for the feelings of others.
''For we are taking pains to do what is right, not only in the eyes of the Lord but also in the eyes of people.' (2 Corinthians 8:21)

• **Teamwork**: We work together to achieve shared goals.
'For the body is not one member, but many' (Corinthians 12:14)

• **Ambition:** We work hard to achieve our aspirations and never give up.
'You did not choose me; I chose you and appointed you to go and bear much fruit, the kind of fruit that endures.' (John 15:16a)

• **Care**: We look after each other, ourselves and our environment.
'A new commandment I give to you, that you love one another, even as I have loved you, that you also love one another. By this all men will know that you are My disciples, if you have love for one another' (John 13:34-35)

• **Respect**: We are thoughtful and considerate to ourselves, others and the environment. 'Do to others whatever you would like them to do to you. This is the essence of all that is taught in the law and the prophets.' (Matthew 7:12)

Our Values are visible around the school as a constant reminder to us all. We are proud to display our Christian values, but strongly encourage a sensitivity to difference and the faiths and cultures of others. We are an inclusive school.

Members of St Peter's school community work together to provide a vibrant and creative learning experience for our children. A safe and secure environment encourages children to be happy, confident and enthusiastic learners and enables them to take risks in their learning. Within a climate of high expectation and challenge, all children are guided, supported and inspired to fulfil their true potential, emotionally, physically, spiritually and intellectually, both during their time at school and in their life ahead.

We value the partnership with parents and carers very highly and encourage them to take an active role in all aspects of school life. We aim to develop a culture of inclusion and diversity in which everyone feels comfortable and welcome.

In order to achieve our vision we aim to ensure that our children understand the importance of being:

• **Respectful**: Each child is thoughtful and considerate to themselves, others and the environment.
• **Ready to learn**: Each child has a positive, confident attitude to learning. They are both physically and emotionally ready to learn.
• **Resourceful**: Each child shows initiative, asks good questions and is prepared to use a variety of strategies to learn.
• **Reflective**: Each child is curious, able and willing to learn from their mistakes and can describe their progress
• **Able to Reason**: Each child is able to make careful decisions based on an ability to explain their thinking, consider all the evidence and choose the most appropriate method. They are encouraged to have lively and enquiring minds which will help them to become good investigators and communicators.
• **Resilient**: Each child is prepared to persevere and stay involved in their learning, even when the process is challenging.

In support of these visions and values within science we aim to develop:

- **A curious and questioning mind.**
- **An enjoyment and understanding of science throughout the school.**
- **A knowledge and understanding of science concepts linked to real life experiences.**
- **An ability to plan and steer our own learning to suit our needs. Building on pupil's natural curiosity.**

- **Develop the skills of investigations and practical activities through both independent and group work.**
- **An understanding of and ability to use scientific vocabulary.**
- **Self-assessment to monitor and review our learning.**
- **Children's ability to discuss, observe and investigate further scientific issues.**
- **Skills in order to collect, retrieve, present and communicate their findings to others in a variety of ways.**
- **ICT, Literacy and Numeracy skills through scientific investigation and questioning.**
- **Prepare our children for life in an increasingly scientific and technological world.**

Vocabulary Development

In order to develop children's vocabulary we have identified subject specific vocabulary (which we call tier 3 vocabulary) to support a child's conceptual knowledge and improve their 'cultural capital'. Cultural capital is the background knowledge of the world pupils need to infer meaning from what they read. It includes vocabulary, which, in turn, helps pupils to express themselves in a sophisticated, mature way.

Ambitious curriculum for all

Our Pupil Premium strategy states we will maximise all children's potential by offering them an exceptional quality of education through a curriculum that is ambitious and designed to give all pupils, particularly disadvantaged pupils, the cultural capital they need to succeed in life. We will consistently promote the extensive personal development of disadvantaged pupils, going beyond the expected, and giving pupils access to a wide and rich set of experiences. We will provide opportunities for disadvantaged pupils to build their cultural capital in accordance with our vision to enable all of our pupils to dream, believe, achieve and flourish**.**

SEND children will have full access to the curriculum, fits in with our aims.
Within science we aim to maintain an inclusive learning environment. Offer for SEN children: · To reduce reliance on memory, during practical lessons, use a digital camera to capture each stage of an investigation for children to call on later to support write up. · Use of knowledge organisers providing children with new vocabulary and key ideas. Pre- tutoring for SEN children to ensure understanding prior to discussing with class as a whole. · Mind maps at beginning of units to establish prior knowledge and recap prior learning – lessons building on what they already know and prior learning. · Differentiated activities to reach the same learning outcomes. Differentiated via task support (word banks, structured worksheets) or differentiated by adult support - use of an adult (teacher or TA) to support discussions and prompt ideas. · Word cards and word banks provided to support each science unit.

IMPLEMENTATION

Our progression documents match objective set out in the National Curriculum documentation. Science is a core subject of the National Curriculum (for England, Wales and Northern Ireland). Depending upon how Science is taught by individual teachers, Science may be taught every week or blocked alongside topic sessions and linked to other aspects of the curriculum wherever possible.

Lessons will be planned using objective clearly set out in the science skills and knowledge progression documents to ensure appropriate coverage. We use the Plymouth Science scheme as a framework to structure our lessons in science but allow teachers the flexibility to utilise a range of resources available to them to help best deliver the science curriculum within their year group.

CURRICULUM STRUCTURE

Curriculum breadth

Making links – Wherever possible meaningful links are made to topics within each year group in order to enhance the learning. e.g. Science Y5 = Earth and Space – Writing focus = The Darkest Dark By Chris Hadfield text.
- mathematical data handling taught across both the subjects of maths and science.

Recording –
Every year group from Y2-Y6 have a separate book (Yellow) for their science learning. EYFS display their learn through floor books which includes pictures and quotes from the children. Year 1 use floor books during the Autumn term and then move to yellow individual books from Spring term.

It is expected that science should be timetabled for 1.5hours per week KS1 and 2 hours KS2 – to ensure coverage of all units in depth as well as working scientifically and scientific skills. This should include a piece of written recorded work/photographs for each science lesson.

At the beginning of each unit children have a unit sheet and knowledge organiser stuck in including key curriculum objectives, key words and these are discussed with the children and used to support the delivery of the unit.

Children begin each unit with a know more/remember more ask to challenge and embed prior learning and make meaningful links to previous learning.

All pupils are supported to access our curriculum through adaptive teaching. There will be evidence within books of more support for SEN (e.g. adapted tasks, scaffolds, TA/T support) to ensure access to the curriculum and more challenge for HA/GD children.

Teaching approaches/Pedagogy
Teachers will encourage our children to have skills of observation, discussion, debate and research. In order to ensure the children, receive a balanced science curriculum it is essential that elements from the National Curriculum are taught alongside the 'Working Scientifically' aspect.

Through our science teaching we aim to develop a sense of awe and wonder about the world around us. Science is taught in units through a combination of whole class teaching, group and individual work.

Foundation Stage
Throughout nursery and reception classes, children have access to science skills and learning through both adult led activities and child initiated learning. Science is mainly covered through understanding of the world in early years planning although it features in most strands. It is mainly achieved through exploration and investigation of resources, real life experiences and questioning and investigation with teachers modelling the use of appropriate scientific vocabulary.

Key Stage 1
During KS1, children observe, explore and ask questions about living things, materials and phenomena. They begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They evaluate evidence and consider whether tests or comparisons are fair. They use reference materials to find out more about scientific ideas. They share their ideas and communicate them using scientific language, drawings, charts and tables.

Key Stage 2
During KS2, children learn about a wider range of living things, materials and phenomena. They begin to make links between ideas and to explain things using simple models and theories. They apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They begin to think about the positive and negative effects of scientific and technological developments on the environment and in other contexts. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources in their work. They talk about their work and its significance, and communicate ideas using a wide range of scientific language, conventional diagrams, charts and graphs.

Progression in Science.

Sitting below each of these is the progression document from Nursery to Year 6.
Document: Progression Document (Skills progression, Knowledge progression)

IMPACT

Assessing Progress formative – At the start of each lesson we carry out 'quick quizzes' these could be in the format of a picture, a concept cartoon, a couple of questions and they recap children's prior learning in a particular area they have cover previously in their learning. Providing opportunity for teachers to identify misconceptions, challenge prior learning and also for children to recall information. Supporting them to know more and remember more quizzes.

Assessing Progress summative – At the beginning of each unit children will have a knowledge objective grid stuck into their books. Children can self assess following the coverage of an objective.

Each unit is assessed by means of a short assessment, the results of which are added to a whole class grid. The children will be assessed as working at or below year group expectations.

Each lesson is taught carefully considering the WS and SE skills covered and these objectives are included below the knowledge objectives and include work evidence for each lesson.

Supporting staff/Training: How do you support staff in your subject? What can they expect?

Subject Leads:
Attending network meetings and CPD opportunities and feeding back to staff within school.
Teachers

Feedback provided through book looks/pupil voice and support offered.
CPD training opportunities.
Staff meetings.
Ongoing discussions with staff regarding planning, resources and delivery of curriculum.

Teachers new to school/ECTs
Support from science lead regarding implementation.
PPA and planning support offered where necessary.
Team teaching where needed.

Learning Support Assistants
CPD training opportunities offered
Support and training delivered through TA meetings

Development point:
To continue to develop staff subject knowledge and confidence following the introduction of a new scheme of learning.

Consider the effective use of assessment within science.