

**LOVE, TRUST, COMMUNITY**



**WICKHAMBREAUX CHURCH OF ENGLAND  
PRIMARY SCHOOL**

**Science Policy**

Issue date: Sept 2020

Review Date: Sept 2023

# Science Policy

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## 1. Science Vision Statement

Wickhambreaux CEP's vision for Science teaching and learning is integral to our approach to learning across the curriculum and stated aims for learning.

The Science policy will set out how we implement and provide our children with a Science curriculum fit for the 21st century, through the enhancement of skills and experiences that will lead to building learning in every child's future.

Our curriculum map for science sets out how it will enable our pupils, whenever possible from first-hand experience, explore and discover the world around them; resulting in a deep knowledge and understanding on which to build future learning.

Our innovative approach involves exciting, practical hands-on experimentation and experience that actively encourages curiosity, questioning and a problem-solving approach all necessary for scientific enquiry.

Our aim in providing these stimulating and challenging tasks, is to secure and extend our pupils' scientific knowledge and vocabulary. We believe that the opportunities and experiences, set out in this policy, will ensure, and enable our children to become confident learners, who will then explore their environment by posing insightful and inquisitive questions, about what they observe in the world around them.

Science places no limits on the acquisition of knowledge, or the possibility for discovery, we therefore do not believe in putting a ceiling on our children's learning or limiting their creativity by outlining a too prescriptive programme of study for Wickhambreaux Children.

Using the National Curriculum as its starting point, an outline (see curriculum map) of what will be taught, relevant to age and stage, will be set out to demonstrate how our pupils will be encouraged

to question and use their imagination to extend their knowledge, in preparation for their next stage of learning and for their future lives.

## 2. Aims, Intentions and the National Curriculum

At Wickhambreaux School, we intend to create curious children, who can apply and transfer the skills and knowledge acquired in science and apply them to their life experiences.

Using the National Curriculum as a basis, we will encourage all children to reach their full potential and instil a love of scientific exploration and discovery.

The National Curriculum is mapped by knowledge and skills, then separated into broad topics. In KS2 each term has a new knowledge topic from a science discipline; Autumn term will be Chemistry; Spring term Biology and Physics in the Summer term.

In KS1 the disciplines are Biology and Chemistry based, with an introduction to Physics included in the cycle to prepare the children for KS2 topics and learning.

The scientific skills (or “working scientifically”) are also mapped and separated into broad skills: planning, data and evaluation skills. Each term has a focus, however this will be flexible and dependant on the activity, as some experiments lend themselves better to certain skills (for example collecting data for a friction experiment may be more appropriate than planning the experiment.) Autumn term is data; Spring is evaluation and Summer is planning.

Where appropriate, we teach beyond the national curriculum, when it would benefit the children in their understanding and when children display a particular interest or ability in a topic.

## 3. Implementation and Resources

Our practical approach to science, ensures that all our children will participate, regardless of ability, prior knowledge, or barriers to accessibility.

Scientific knowledge will be acquired through a variety of taught sessions that use media and, practical activities if the topic allows. This will be achieved by both planned investigations and those suggested by pupils, experimentation, modelling, observing and through imitation. Scientific skills will be taught through practical experiments and theoretical experiments. Class discussions will be used, to build confidence throughout the years and reinforce learning and threshold concepts; by the end of primary school, children will be able to hypothesize, plan, collect data, conclude, evaluate independently, and offer suggestions for further study.

### a. EYFS

### b. KS1

At KS1 children are given the opportunity to explore science in a hands-on practical way. Knowledge is built by guided discovery. Questioning is encouraged throughout.

Skills are acquired through practical sessions and discussed as a class, this builds the children's confidence to share their findings and become aware that there is no such thing as a 'bad' experiment.

Experiments are recorded as a class, this allows the children to visualise what scientific data and reports look like. The children progress to KS2 with these solid foundations, ready for formal recording.

### c. KS2

In KS2 we continue to adopt a fully practical approach to science allowing the children to discover by doing.

Each term we have a knowledge topic and a skill focus. The knowledge is taught using multi-sensory resources allowing all children to access it. All of KS2 is taught the same topic in the same term. The knowledge is not differentiated as a mastery approach is taken, with compensatory learning for pupils who do not progress; the national curriculum states that it should be completed by the end of KS2. This allows us to deepen the children's knowledge and reach their full potential. The year is organised into 3 terms, the first being biology, the second chemistry and the third physics. Arranging the curriculum this way allows the children to repeat important aspects of the national curriculum in a different context, thus securing threshold concepts and deepening their knowledge.

"Working scientifically" or the acquisition of science skills are taught alongside the knowledge units. Each term has a different focus; Autumn is data, Spring is evaluating, and Summer is planning. Skills are progressed through the years so by the time the children leave they are capable of writing full science reports for any experiments they undertake. In lower KS2 reporting is largely discussion based, with the children recording findings when some consolidation has been achieved. In upper KS2 the children are encouraged to take a more independent approach to their reporting and discussions happen both before and after reporting depending on the activity. By the end of KS2 the children are able to write full reports, using all the skills they have built up through the years.

## 4. Measuring Impact

In KS1 the children's experiments are recorded on a large scale as a class so the children are able to view how their experiments should look and understand how scientists tell others what they have found out. Child voice is recorded regularly and kept in the 'teacher's notebook' this is a record of the experiments carried out.

KS2 children receive a progress test at the end of each academic year, this allows the science lead to monitor any gaps the children have and give the opportunity to teach any topics that need revisiting. The way the topics are set out over the 4-year rolling curriculum allows revisiting of key concepts and therefore the opportunity to address gaps or deepen knowledge as required.

Formative is integral to lessons and mini plenaries and the correcting of misconceptions are ongoing alongside learning by all adults connected to the children's learning.

Scientific Skills are assessed each experiment by observing the children's practical skills and assessing their reporting skills in their books. Each experiment will have a skill focus to assess.

Pupil voice is important in measuring impact. The practical nature of our approach to science is popular among children and parents and the children are given opportunities to voice their opinions on the science curriculum.

External standardised tests are used to measure progress and potential when deemed necessary and are used as part of the school's evaluating progress and tracking pupils.

## 5. Cross Curricular

The science curriculum is interleaved into all subjects at school, from graphs and statistics in maths; physical processes in geography; scientific equipment and scientists in history; science and religion working in harmony in RE; the human body in RSHE; the human body in P.E; science in other languages; mechanisms in design technology and artistic techniques in art and design etc. Science is present in all subjects and the transferable skills the children gain in science lessons are invaluable to many subjects. This includes threshold concepts such as chronology, where science has an opportunity to map discoveries and inventions over time and point out what was happening elsewhere in the world.

Upper key stage 2 has STEM lessons timetabled into their week and the school has a STEM week in March, where the whole school has a project to complete that supports their current topics in class.

## 6. Home Learning

Many opportunities are sought and provided, for the children to complete projects at home and extend their learning by engaging parental participation. One is set each term (5 per year – excluding summer holiday) and others are set as appropriate to the topic and the children's interest.