

MERE SCHOOL

Science Policy

Rationale – The Importance of Science

Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is a spur to critical and creative thought. Through science, pupils understand how major scientific ideas contribute to technological change- impacting on industry, business and medicine and improving quality of life. Pupils recognise the cultural significance of science and trace its worldwide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

AIMS

In our school we want our children to look at the world as a scientist. This means that:

- we want them to look carefully at the world they live in and make simple predictions about what might happen if
- we want them to look carefully at the world around them and use their 5 senses to say what it is like.
- we want them to be able to use observations to sort and measure things.
- we want them to record their findings in drawings, words, tables and charts (what happened).
- we want them to explain how to make their test fair and explain why it is fair.
- we want them to say why that happened and explain trends in their results.
- we want them to have an everyday working knowledge of science so they can apply it to their everyday lives.
- we want pupils to tell each other how they could make their 'science' better.
- we want them to make use of ICT, literacy and numeracy skills.
- we want them to work safely.
- we want them to work with independence once they are secure in using the individual Sc1 skills.

The attitudes we want to foster are:

- enjoyment.
- getting the pupils to understand that producing their best is important (high expectations).
- independence and confidence.
- respect (sharing, listening to each other, listening to the teacher).
- co-operation.
- curiosity and imagination.

- respect of the world around them (being aware that living things are alive and need care and that the place we live in is important).
- self motivation and independent learning.

SCHEME OF WORK

KS1 and KS2

We use our own scheme of work based on the Wiltshire Science Scheme of Work and the National Curriculum programmes of study as a basis to develop the National Curriculum for science.

Sc1 skills development and progression form the basis of our scheme of work and is therefore taught continually through all science concepts.

The concept/ knowledge element of our scheme of work has been developed to ensure continuity and progression. It splits Sc2, 3 and 4 into a spiralling cycle linked to year group termly themes. Specific topics and areas from the programme of study are allocated to each year group, and many are covered more than once in different contexts to enhance learning.

Where strong links cannot be made with our themes science is taught discretely. All new concepts and skills are taught by the Spring term of Year 6 so pupils may consolidate and revise their knowledge, understanding and skills for.

Foundation Stage - Reception Children

We use our own scheme of work based on the Wiltshire Science Scheme of Work and update with new curriculum the Foundation Stage Curriculum Guidance science element of KUW (pages 86 -89) to teach science in the Reception Year. The content emphasis for each term links to the class themes and includes breadth and balance of science concepts over the year.

PLANNING

The curriculum overview (long term plans) identifies the science topics to be taught each term to each year group (see Appendix ii).

The medium term plans identify the science objectives for Sc2, 3, and 4 to be taught to each year group every term (see Appendix iii).

Sc1 is taught continually and individual skills taught are tracked on teachers tracking sheet (Appendix iv).

The medium term plans are used to plan weekly science lessons. Sc1 skills to be taught are identified in the weekly plans.

TRACKING COVERAGE of curriculum

Teachers highlight content of science as it is taught on the medium term plans. Teachers 'tick' Sc1 skills as they are taught each term by using the Sc1 teacher tracking sheet. This will naturally include repetitions.

What do we get the children to do in the classroom to promote effective learning?

- We get the children to observe, listen, talk to each other, make drawings, write reports, talk about what they have done (evaluate).
- We get them to think by asking them questions, and we get them to ask questions.
- We apply mathematical skills to science, eg measuring, bar charts, etc.
- We encourage the children to read science-based texts.
- We encourage children to develop research skills.
- We encourage children to use ICT where appropriate.
- We celebrate what they do well.
- We point the children in the direction they need to go in order to learn more.

DIFFERENTIATION

We differentiate by:

- dialogue.
- giving extra time to some groups.
- setting up a task that has a variety of levels associated with it.
- asking different level questions to match ability.
- giving different tasks to different groups.
- giving different resources to different groups.
- varying the level of adult support to groups.
- by outcome.

RECORDING IN SCIENCE

We record science as a way of enhancing children's learning rather than the narrow focus of accruing evidence.

When appropriate our literacy and numeracy work will be linked or integrated to science concepts being studied.

When children write about their science we expect the standards of written work to be consistent with the written work in literacy.

We teach children new scientific vocabulary and expect them to use the words correctly when they talk and write.

ASSESSING, TRACKING, MONITORING AND EVALUATING

ASSESSMENT FOR LEARNING (AFL)

- We share the learning objective (when appropriate) with the pupils by telling or asking them what they are going to learn and what they are going to do; by writing it on the board and in the children's books when appropriate.
- We assess our children by talking to them and asking them questions (open and closed) during the lesson.
- We look at their work and observe the children carrying out practical tasks.
- We mark sensitively against the learning intention (see 'Marking Policy').
- We plan for further development based upon what we have found out about the child by using the Scheme of Work to inform our planning.
- We discuss pupils work with the child.
- We monitor pupils' progress and attainment by completing lesson assessments in weekly planning.
- We celebrate pupil's success by giving them stickers, oral praise, certificates, displaying their work, showing the head teacher and the parents.

SUMMATIVE ASSESSMENT

KS1 and KS2:

- Class teachers carry out a summative assessment to show the NC level for SC1 and Sc2/3/4 each child has attained at the end of each term. (This is done with rigour but should not be a long task.) We record every pupil's level on the class record sheet (see Appendix v).

Foundation Stage – Reception Children:

- Class teachers assess the children against the FSCG level descriptors and record their attainment on the FS class record sheet (see appendix v) and in their Foundation Stage Profile.
- At the end of each academic year class teachers complete an individual SC1 attainment record showing the individual science skills attained by each child (Appendix vi).
- At the end of KS1 children are assessed by their teachers for the KS1 SATs.
- At the end of KS2 children are assessed in the KS2 SATs.

SUBJECT LEADER MONITORING/TRACKING

The subject leader monitors and tracks science by:

- work sampling in a staff meeting, for continuity and progression and moderation of teacher's assessments of attainment.
- monitoring a specific aspect of science e.g. planning, children's books, teaching.

- monitoring pupils progress by recording children's attainment and progress in SC1 on tracking grids and feeds back to teachers findings.
- completing termly audits; Evidence Trails/ 'So what sheets' and feeding back to staff at a staff meeting.
- **Head teacher** also monitors science by observing teaching and learning and monitoring planning and teachers assessments.
- **Governors:** The science link governor monitors science annually in school by liaising with the co-ordinator.
- The **policy** is reviewed in the light of findings in teaching and learning in science, in line with the SDP.
- Classroom practice is discussed and matched to the policy.

TARGETS

- To further raise Sc1 skills a school Sc1 target for science is set each term, this is layered for each year group as appropriate. Children in the foundation stage reception class will not have a science target until the Spring term.

RESOURCES

We organise our resources so it enables teaching and learning to be effective.

- Science resources are stored centrally (see appendix i).
- The Wiltshire Library resource centre is used to supplement our resources.
- Teachers support texts are kept with the science subject leader files in the library.
- Outside science area including pond and hard standing is being further developed as a resource for outside teaching and learning.

HEALTH AND SAFETY

Please refer to 'Mere School Health and Safety Policy'.

Teachers should be aware of potential hazards:

- handling glass,
- playing with sand,
- not exposing the children to mould,
- not having birds in the school,
- making sure pets brought into school are not infected,
- hot water and hot objects handled with care, and
- knives and scissors are handled with care.
- children with food allergies.

EQUAL OPPORTUNITIES

Scientific work of an appropriate level will be made available to each child, without prejudice, whatever their age, ability, sex or ethnic origin.

ROLE OF THE SUBJECT LEADER

Please refer to job description and policy on 'The Role of the Subject Leader'

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APPENDIX i

Centrally stored resources in corridor outside staff room

Humans – set of teeth, stethoscope, posters of internal organs and skeletons, X-rays, dental photos

Sound – tuning forks, (instruments in music trolley)

Light – torches, candles, prisms, coloured acetate sheets, mirrors flat/convex/concave

Electricity – batteries, battery holders, bulbs, buzzers, motors, propellers, wire, crocodile clips, switches.

Magnetism – various magnets, floating magnets, iron filings, compasses, magnetic pieces of metal, magnet set

Observation – magnifying glasses, binoculars, nature viewers, microscope

Measuring – cylinders, jugs, spoons, sand timers, thermometers, Newton measures syringes

Miscellaneous – funnels, Petri-dishes, plastic pots, plastic tubing, pooters, spring set, pipettes, filter paper, nature photos, cogs, pulleys, commercial ‘freebies’

Maths resources – bathroom scales, kitchen scales, stop watches, height measuring sticks.