

Science Policy



March 2020



Contents

1. Rationale	Page 3
2. Roles and responsibilities	Page 4
3. National curriculum	Page 5
4. Cross-curricular links	Page 7
5. Teaching and learning	Page 8
6. Planning	Page 8
7. Assessment and reporting	Page 9
8. Equipment and resources	Page 10
9. Health and safety	Page 11
10. Equal opportunities	Page 11
11. Monitoring and review	Page 12
Appendix 1: Coldean Primary's vision statement	Page 13
Appendix 2: Cross-curricular teaching and learning	Page 14
Appendix 3: Coldean's enrichment map	Page 15



This policy needs to be read alongside other school policies including:

- Effective Learning Feedback (ELF) Policy
- Assessment Policy
- SEND Policy
- Teaching and Learning Policy
- Curriculum Roadmap for Science
- Health and Safety policy

1. Rationale

Science is the study of everything! At Coldean Primary, we aim to inspire children and develop their curiosity whilst building a rich scientific vocabulary. This enables children to build upon their 'science capital' and actively further their own learning and understanding of the world.

We value science as a core subject and the creativity and problem solving that it brings. As a school, we aim to increase the time given to this critical subject and broaden opportunities for science-based activities. We aim to continue developing the 'Working Scientifically' skills throughout our creative curriculum.

We understand the importance of giving children the time to explore and to ask questions.

We believe that children should be taking part in practical investigations during each topic and these should include a variety of enquiry types.

Through adherence to this policy, Coldean Primary School will not only ensure statutory compliance with the national curriculum, but also that all pupils have a solid grounding in scientific thinking and a positive attitude towards scientific knowledge and experimental processes.

(See vision statement Appendix 1)

The aims of this policy include:

- Developing pupils' interest in, and enjoyment of, science. By building on children's curiosity, the science curriculum will help to instil a positive attitude towards science in pupils.
- Delivering all the requirements of the national curriculum in relation to science and covering major scientific concepts.
- Ensuring science lessons are purposeful, accurate and imaginative.
- Ensuring pupils have sufficient scientific knowledge to understand both the uses and implications of science, today and in the future. This will also give pupils an appreciation of



the changing nature of scientific knowledge.

- The development of pupils' ability to pose questions, investigate these using correct techniques, accurately record their findings using appropriate scientific language and analyse their results.
- Helping pupils develop the skills of prediction, hypothesising, experimentation, investigation, observation, measurement, interpretation and communication.
- Making pupils aware of and alert to links between science and other school subjects, as well as their lives more generally.

Coldean is an inclusive school and we set high expectations for all pupils. At our school we recognise the importance of accurate and regular assessment in order to support individuals at every part of their learning journey and in whatever circumstances.

To ensure all children excel we use one to one support, small groups and cross-phase work. We plan teaching opportunities to help those for whom English is an additional language and those with disabilities outlined in the SEND Code of Practice.

2. Roles and responsibilities

2.1 The science coordinator is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of science, providing support for staff where necessary.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an annual audit of all science resources.
- Liaising with teachers across all phases.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessment.



- Advising on the contribution of science to other curriculum areas, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for development of science in subsequent years.

2.2 The classroom teacher is responsible for:

- Acting in accordance with Coldean Primary School's Science Policy, ensuring that lessons are taught in line with the school's Health and Safety Policy at all times.
- Liaising with the science coordinator about key topics, resources and supporting individual pupils.
- Ensuring that all of the relevant statutory content is covered within the school year.
- Monitoring the progress of pupils in their class and reporting this on an annual basis on Target Tracker.
- Reporting any concerns regarding the teaching of the subject to the science coordinator or a member of the senior leadership team (SLT).
- Undertaking any training that is necessary in order to effectively teach the subject.

3. The national curriculum

- 3.1 The national curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit.
- 3.2 During **Reception class**, in accordance with the 'Statutory framework for the early years foundation stage', focus will be put on the seven areas of learning, with the scientific aspect of pupils' work relating to the objectives set out within the framework.
- 3.3 During **Years 1 and 2**, pupils will be taught to:
- Ask simple questions and recognise that they can be answered in different ways.
 - Observe closely, using simple equipment.
 - Perform simple tests.
 - Identify and classify.
 - Use their observations and ideas to suggest answers to questions.



3.4 During **Years 3 and 4**, pupils will be taught to:

- Ask relevant questions and use different types of scientific enquiries to answer these questions, setting up simple practical enquiries, comparative and fair tests.
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units and a range of equipment, including thermometers and data loggers.
- Gather, record, present and classify data in a variety of ways to help answer questions.
- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use straightforward scientific evidence to answer questions or to support their findings.

3.5 During **Years 5 and 6**, pupils will be taught to:

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of the results and the degree of trust in them. This should be in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas/arguments.



4. Cross-curricular links

Wherever possible, the science curriculum will provide opportunities to establish links with other curriculum areas (as modelled in Appendix 2).

4.1 English

- Pupils are encouraged to use their speaking and listening skills to describe what is happening.
- Pupils' writing skills are developed through recording their planning, what they observe and what they found out.
- Science based texts are sometimes used in English lessons and in guided reading sessions.

4.2 Maths

- Science will involve a degree of numeracy at all levels.
- Pupils use their knowledge and understanding of measurement and data handling.
- Where appropriate, pupils record their findings using charts, tables and graphs.

4.3 Computing/ICT

- Pupils will use ICT to locate and research information.
- ICT will be used to record findings, using text, data and tables.
- Pupils are encouraged to use data loggers and other electronic devices, gaining confidence throughout their school experience.

4.4 PSHE

- Health education is taught as part of the science unit about ourselves, which covers:
- Health and growing
- Teeth and eating
- Moving and growing
- Keeping healthy
- Life cycles



4.5 History

- Scientific discoveries and the contribution of individuals to science will be studied.

4.6 Spiritual development

- Pupils' development will be focussed on the vastness of science and the natural world, encouraging a sense of awe.
- Pupils are encouraged to think about the effect of scientific discoveries on the modern world.
- Current scientific developments and issues will be discussed in the classroom, where appropriate.

5. Teaching and learning

5.1 Pupils will be taught to describe associated processes and key characteristics in common language, as well as understand and use technical terminology and specialist vocabulary.

5.2 Lessons will allow for a wide range of scientific enquiry, including the following:

- Opportunities for outdoor learning will be provided wherever possible.
- Each year group will have the opportunity to undertake an external educational visit, which is science based, at least once a year (see enrichment map Appendix 3).

5.3 A science scheme of work is located in the PPA room in individual year group folders with other science resources and available to access on the shared drive; this can be used to promote progression throughout the school.

6. Planning

Coldean's Principles of learning will be used to assist the planning of lessons (see Appendix 4).

6.1 All relevant staff members are briefed on the school's planning procedures as part of staff training.

6.2 Throughout Coldean Primary School, science is taught as a discrete lesson and as part of cross-curricular themes when appropriate.

6.3 Teachers will use the key learning content in the DfE's 'Science programmes of study: key stages 1 and 2' and the national curriculum as a starting point for their planning.



- 6.4 Lesson plans will demonstrate the balance of visual, auditory and kinaesthetic elements used in teaching, ensuring that all pupils with different learning styles can access the learning experience.
- 6.5 Long-term planning will be used to outline the units to be taught within each year group.
- 6.6. Medium-term planning will be used to outline the vocabulary and skills that will be taught in each unit of work, as well as highlighting the opportunities for assessment.
- 6.7 Medium-term plans will identify learning objectives, main learning activities and differentiation.
- 6.8 Medium-term plans have been planned by the science coordinator. Any changes to topics must be shared with the science coordinator to ensure there is progression between years.
- 6.9 Short-term planning will be used flexibly to reflect the objective of the lesson, the success criteria and the aim of the next lesson.
- 6.10 Short-term planning is the responsibility of the teacher. This is achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.
- 6.11 Short-term plans and smart notes are solely for the benefit of the classroom teacher and do not need to be shared with the science coordinator.
- 6.12 All lessons will have clear learning objectives and a link to Coldean's Science Principles, which are shared and reviewed with pupils.

7. Assessment and reporting

- 7.1 Pupils will be assessed and their progression recorded in line with the school's Assessment Policy (teacher assessment) and the science coordinator will conference children throughout the phases across the year.
- 7.2 Pupils will be assessed continuously throughout the year. Pupil portfolios will assist teachers in their judgments.
- 7.3 Throughout the year, teachers will plan on-going creative assessment opportunities in order to gauge whether pupils have achieved the key learning objectives. TAPS could be used to assess the Working Scientifically skills.
- 7.4 Assessment in science is based upon scientific knowledge and understanding, rather than achievement in English or maths.
- 7.5 Assessment will be undertaken in various forms by the class teacher and science coordinator, including the following:



- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the learning objective
- Specific assignments for individual pupils
- Observing practical tasks and activities using the TAPS model
- Pupils' self-evaluation of their work
- Classroom tests and formal exams. Rising Stars assessment materials can be found on the school's network.

7.6 Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and informs their immediate lesson planning.

7.7 In terms of summative assessments, the results of end of year assessments will be passed to relevant members of staff, such as the pupil's future teacher.

7.8 Parents will be provided with a written report about their child's progress during the summer term every year. These will include information on the pupil's attitude towards science, progress in understanding scientific methods, ability to investigate, and the knowledge levels they have achieved.

7.9 Verbal reports will be provided at parent-teacher interviews during the autumn and spring terms.

7.10 Pupils with special educational needs and disabilities (SEND) are monitored by the special educational needs coordinator.

8 . Equipment and resources

8.1 Science resources for each unit are stored in the science cupboard in clearly labelled draws.

8.2 The subject leader, in liaison with the facilities manager, is responsible for ensuring that all resources and equipment are sufficiently maintained.

8.3 Equipment will be checked prior to each use and any damages or defects must be reported to the subject leader immediately.

8.4 The subject leader is responsible for maintaining an inventory of resources.

8.5 Staff members must inform the subject leader of any changes regarding science resources, such as broken items or when new resources are required.



- 8.6 Any equipment or resources that are a cause of concern will be removed from the science cupboard immediately.
- 8.7 The subject leader will carry out an annual audit of the science resources, reordering any consumables when necessary.
- 8.8 Class teachers can discuss the need for new resources with the subject leader.
- 8.9 The subject leader is responsible for negotiating requests from staff members and ensuring resources are bought within the amount allocated in the annual budget.

9 . Health and safety

- 9.1 Staff members will act in accordance with the school's Health and Safety Policy at all times.
- 9.2 Accidents and near-misses will be reported following the procedure outlined in the school's Accident Reporting Procedure Policy.
- 9.3 A risk assessment is carried out by teachers before conducting an experiment or undertaking practical activities. Copies of these are stored on the school's network.
- 9.4 All pupils will be shown how to correctly use equipment and will be monitored by staff members whilst using equipment.
- 9.5 All pupils will be made aware of how they are expected to behave, ensuring that they show respect to other people and the environment.
- 9.6 Pupils are made aware of the personal safety protocols and equipment needed when using different equipment or carrying out different tasks.
- 9.7 Staff members will be made aware of the COSHH and RIDDOR regulations as part of their Health & Safety training and will act in accordance with these whilst undertaking activities.
- 9.8 Any 'new' experiments or activities that a teacher has not used in the classroom before will be trialled prior to being demonstrated with pupils.
- 9.9 At the beginning of any experiment, the teacher will outline the purpose of the experiment to the class, and all hazards and safety precautions will be thoroughly outlined.

10. Equal opportunities

- 10.1 All pupils have equal access to the entire science curriculum, including practical experiments.



- 10.2 Gender, attainment, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all science lessons.
- 10.3 Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.
- 10.4 All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.
- 10.5 Coldean Primary school aims to provide more academically able pupils with the opportunity to extend their scientific thinking through extension activities such as problem solving, investigative work and research of a scientific nature.

11. Monitoring and review

- 11.1 This policy will be reviewed every two years by the subject leader, in collaboration with another member of the SLT.
- 11.2 The subject leader will monitor teaching and learning in science at Coldean Primary school, ensuring that the content of the national curriculum is covered.
- 11.3 Any changes made to this policy will be communicated to all teaching staff.

APPENDIX 1

Coldean Primary's Vision Statement

Science is the study of everything! At Coldean Primary, we aim to inspire children and develop their curiosity whilst building a rich scientific vocabulary. This enables children to build upon their 'Science capital' and actively further their own learning and understanding of the world.

We value science as a core subject and the creativity and problem solving that it brings. As a school, we aim to increase the time given to this critical subject and broaden opportunities for science-based activities. We aim to continue developing the 'Working Scientifically' skills throughout our creative curriculum.

Teachers and children develop their subject knowledge and learn together.	Our children are given time to explore and to develop their curiosity. Our children ask questions.	Children are given the opportunity to lead their own investigations.	Science is sometimes planned based on children's interests.	Time is given to one off investigations that are not always linked to the topic.	Working Scientifically skills are practised across the curriculum.	A range of resources are used to measure and record.
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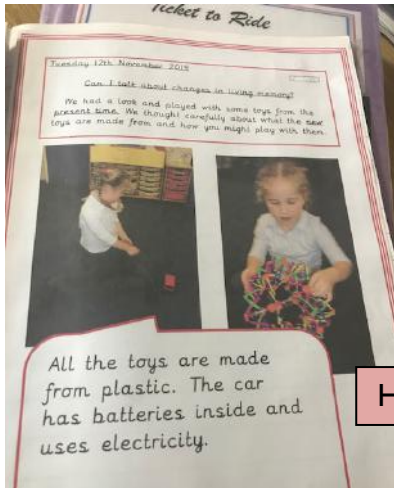
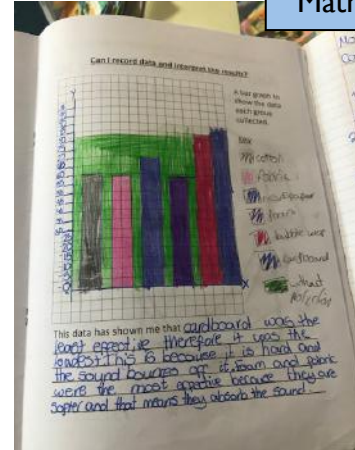
Science learning and teaching is good when...

We understand the importance of giving children the time to explore and to ask questions.
We believe that children should be taking part practical investigations during each topic and these should include a variety of enquiry types.

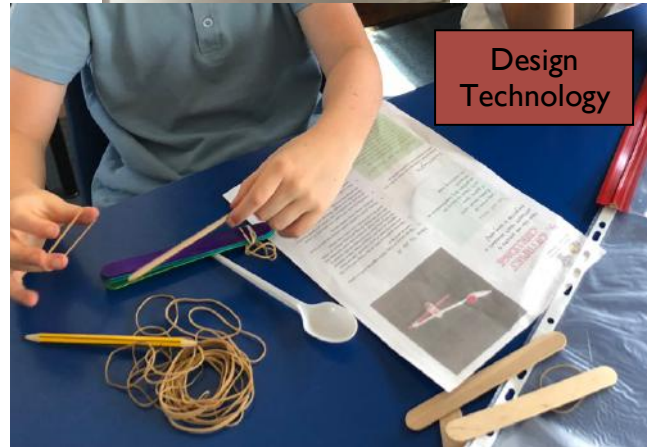
APPENDIX 2

Linking science across the curriculum

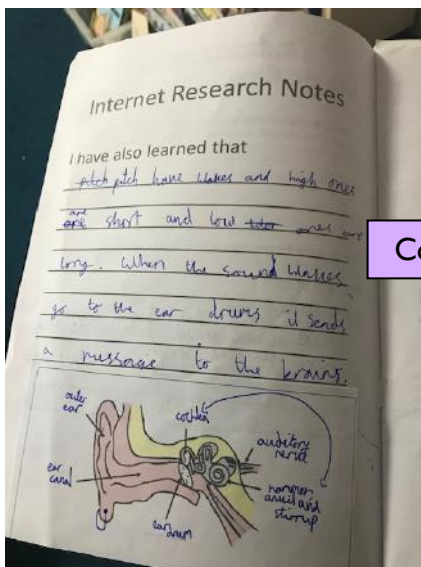
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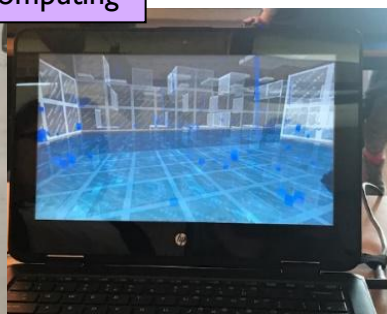
History



Design Technology



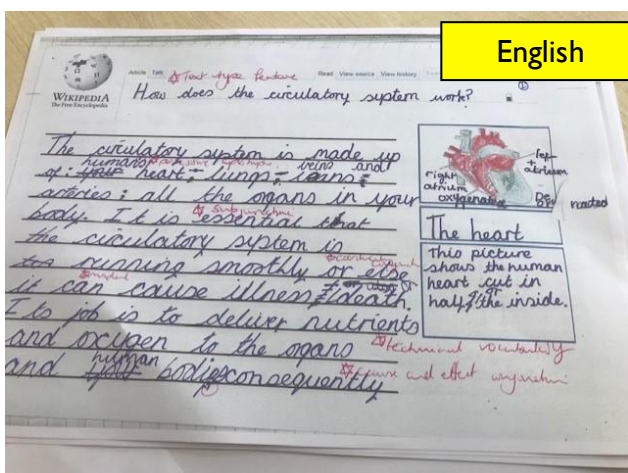
Computing



Art



English





APPENDIX 3

Enrichment map

YR			Author visit		Learn to Ride (Sport) Woods Mill (Science & Nature) (£8 entry fee) (Usually get a travel grant so don't pay for the coach- South Downs Travel Grant) Visit by parent with new baby Use
Y1	RNLI - OUTING	£ 6.50	RSPCA - visitors, Pedestrian Training (Road safety show!), Panto		Garden Centre Swimming - £8
Y2	Pizza Express (Science) Fire Service Visit (PSHE DT and History)		Drusillas or Knockhatch (Science) - £6 Dance at the Dome (PE) Animazing (Science) Stanmer Woods (PSHE)	£ 6.00	Brighton - Pavilion and Matha Gunn Walk (History) - £5 Punch and Judy (History) Ovingdean Rockpooling (Science) - £5 Swimming - £8
Y3	Moulsecoomb Primary (History, science, Design Technology)	£ 7.00	Fishbourne Palace (History) - £13	£ 13.00	Wakehurst Place (Science) - £6 Swimming - £8
Y4	Lewes Castle (History / Geography)	£ 4.00	Seven Sisters Hunting for a Habitat (Geography/ science) - £15 Bushcraft Buddah (Visitor)	£ 15.00	Brighton Museum (History) - £7 Meet the Author Swimming - £8
Y5	• Comic Strip Artist (art) • Real Life Heroes Week (PSHE) • RNLI - Shoreham (PSHE) - £6.50 • Bikeability L1 (Sport) • Bowles (Sport/PSHE)	£ 6.50	• Herstmonceaux Observatory (Science)	£ 14.50	Ancient Greek Workshop - £7 Swimming - £8
Y6	The Royal Pavilion (History) - £6.50 Chattri (History)	£ 6.50	Wakehurst w. workshops (Science) - £12 Professor C.Gull (Part 1)	£ 12.00	Swimming - £8

APPENDIX 4

Coldean Primary's Principles of learning



Our Science Principles






S	<u>UBJECT KNOWLEDGE AND VOCABULARY</u>	TEACHERS AND CHILDREN
C	<u>URIOSITY</u>	WE PROVIDE TIME AND OPPORTUNITIES FOR CHILDREN TO EXPLORE AND ASK QUESTIONS
I	<u>NVESTIGATIONS</u>	WE SUGGEST IDEAS THAT SUPPORT OUR CHILDREN IN ASKING AND ANSWERING THEIR OWN QUESTIONS
E	<u>NGAGING</u>	WE RESPOND TO OUR CHILDREN'S INTERESTS WHEN PLANNING SCIENCE ACTIVITIES
N	<u>OT ALWAYS TOPIC RELATED</u>	PROVIDE OPPORTUNITIES FOR DIFFERENT ENQUIRIES
C	<u>ROSS CURRICULAR</u>	LINK ACROSS THE CURRICULUM
E	<u>QUIPMENT</u>	MEASURE AND RECORD USING A RANGE OF RESOURCES

