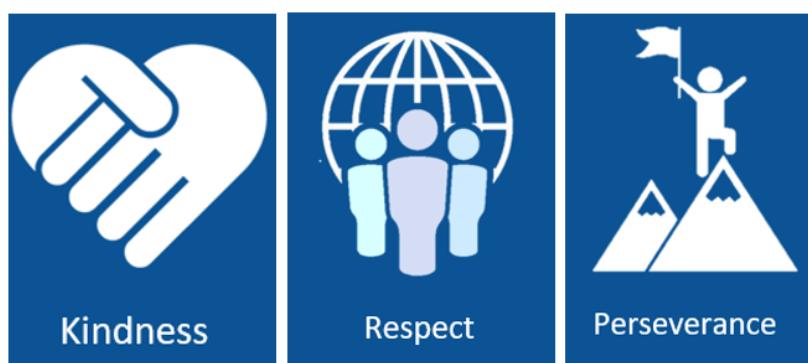


Ditchling (St. Margaret's) CE Primary and Nursery School

Science



'Living life in all its fullness' John 10:10

Version	Reviewed by	Approved by	Date Approved	Next Review Date
I	Ditchling developed Policy	Head/FGB	Dec 2024	Dec 2025

Signed: Chair of Governors



Signed: _Headteacher



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1. Curriculum Statement

INTENT

The 2014 national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this

At Ditchling, we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group. The key knowledge identified by each year group is informed by the national curriculum and builds towards clear sequences of lessons and assessment opportunities including our unique 'Under the Microscope' challenges. Key skills are also mapped for each year group and are progressive throughout the school. These too ensure systematic progression to identified skills end points which are in accordance with the Working Scientifically skills expectations of the national curriculum. The curriculum is designed to ensure that children are able to acquire key scientific knowledge through practical experiences; using equipment, conducting experiments, building arguments and explaining concepts confidently. The school's approach to science takes account of the school's own context, ensuring access to people with specialist expertise and places of scientific interest as part of the school's commitment to learning outside the classroom. Cross-curricular opportunities are also identified, mapped and planned to ensure contextual relevance. Children are encouraged to ask questions and be curious about their surroundings and a love of science is nurtured through a whole school ethos and a varied science curriculum.

IMPLEMENTATION

Teachers create a positive and passionate attitude to science learning within their classrooms and reinforce an expectation that all pupils are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following;

- Each new unit of work begins with a recap of the previous related knowledge from previous years. This helps children to retrieve what they have learnt in the earlier sequence of the programme of study, and ensures that new knowledge is taught in the context of

previous learning to promote a shift in long term memory. Key vocabulary for the new topic is also introduced as part of the sequence of learning and children are shown the dual-coded vocabulary and this is displayed on the working wall. This provides definitions and accompanying visuals for each word to ensure accessibility to all. This approach also means that children are able to understand the new vocabulary when it is used in teaching and learning activities and apply it themselves when they approach their work.

- Once children know the new vocabulary for the unit and how it relates to previous learning, the children are asked what they already know specifically about the new topic. This provides the teacher with an insight into the children's 'starting points' for the topic, to enable the use of assessment to inform planning. The teacher is then able to consolidate any of the key knowledge which is identified at this part of the process as not yet being secure.

- Within all sequences of lessons, teachers plan a phase of progressive questioning which extends to and promotes the higher order thinking of all learners at Ditchling we call these 'Under the Microscope' challenges and 'We are Scientists' dialogic-based assessment discussion. Questions initially focus on the recall or retrieval of knowledge and then extend to promote application of the knowledge in a new situation to promote analytical thinking.

Higher order questions focus on the children's own work and how they might change or create an outcome and justify a choice they have made which is based on their evaluation.

- Through our planning, we involve problem-solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess pupils regularly to identify those children with gaps in learning, so that all pupils keep up. Tasks are selected and designed to provide appropriate challenge to all learners, in line with the school's commitment to inclusion and quality first teaching.

- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence.

- Working Scientifically skills are embedded into lessons to ensure that skills are systematically developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in keeping with the topics.

- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.

- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

- Regular events, such as Science Week and STEM days, allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.
- At the end of each topic, key knowledge is reviewed by the children and rigorously checked by the teacher and consolidated as necessary.

IMPACT

The successful approach at Ditchling results in a fun, engaging, high-quality science education that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. Frequent, continuous and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science, as a result of our community links and connection with national agencies including the STEM association and CREST Award. They learn from and work with professionals, ensuring access to positive role models within the field of science from the immediate and wider local community. From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving. Children at Ditchling overwhelmingly enjoy science and this results in motivated learners with sound scientific understanding. The school's science provision is such that we are offering our Key Stage children the opportunity to take part in the CREST Award for Years 5 and 6.

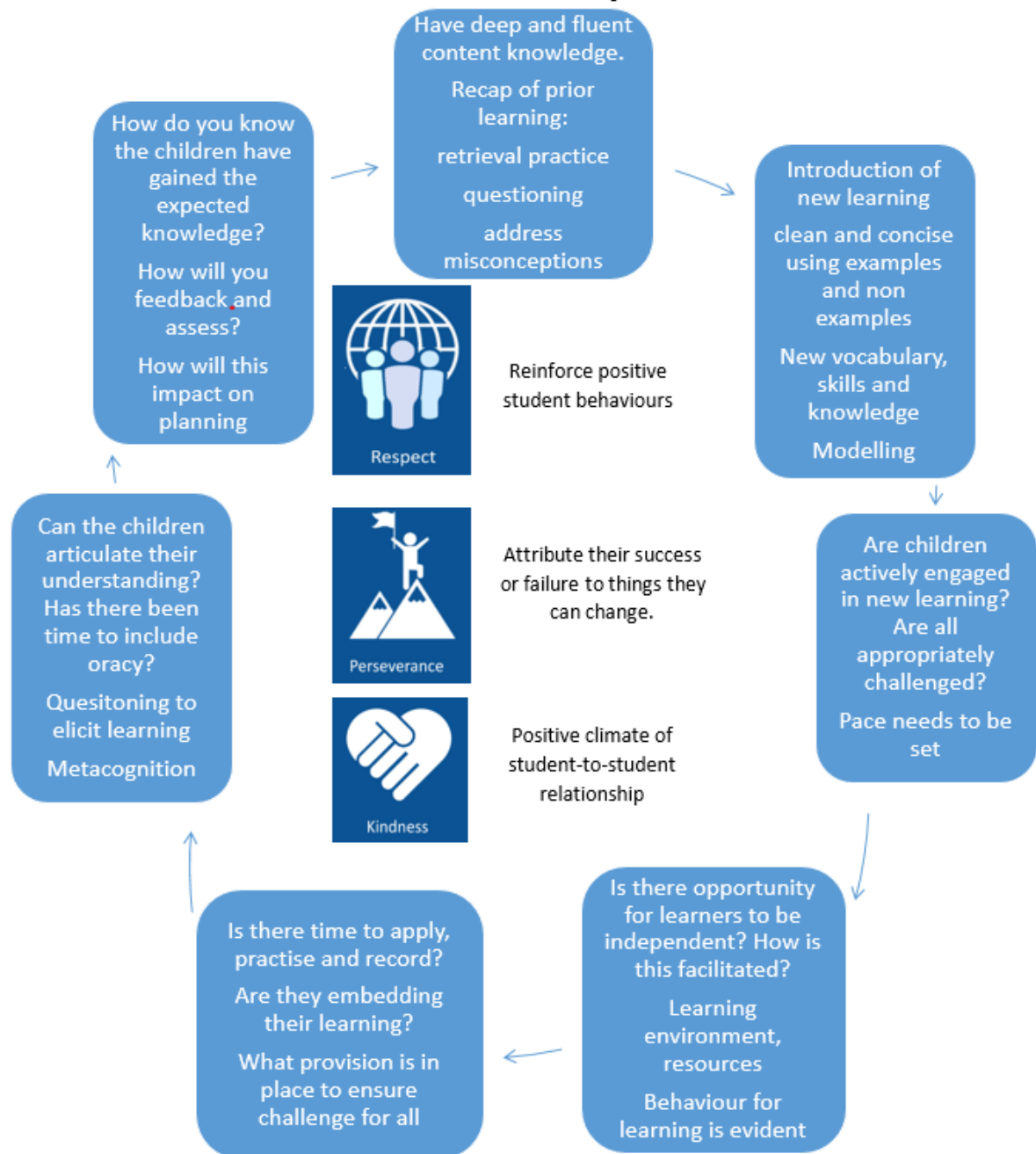
2. Teaching and Learning

As part of the introduction to each new science topic, teachers review what the children know already and identify what children would like to learn, to inform the programme of study so that it takes account of children's interests. A working wall will be used to support and celebrate learning, throughout each unit of work and this will also be used to support the acquisition of key knowledge and the accurate use of key vocabulary.

Lessons are planned to ensure that key knowledge is developed over time over the course of each science block and in the correct sequence. Key knowledge is reviewed by the children and rigorously checked and consolidated by the teacher at the end of each unit of work as part of the school's assessment of science. Lessons within each unit are also planned to ensure the systematic development of the key identified skills across the school.

Teaching and Learning at Ditchling

Based on the Great Teaching Toolkit



3. Assessment

Children's existing knowledge of the topic and the key related knowledge from previous year groups, is checked at the beginning of each unit.

Assessment for learning is continuous throughout the planning, teaching and learning cycle. Assessment is supported by use of the following strategies:

- Observing children at work, individually, in pairs, in a group and in class during whole class teaching.
- Using differentiated, open-ended questions that require children to explain and unpick their understanding.
- Providing effective feedback, to which recognises successful aspects of the children's work, as well as informing subsequent dialogue to address errors and misconceptions.
- Book moderation and monitoring of outcomes of work, to evaluate the range and balance of work and to ensure that tasks meet the needs of different learners (with the acquisition of the pre-identified key knowledge of each topic being evidenced through the outcomes).
- Child and teacher review of both the agreed success criteria at the end of each lesson and the key knowledge at the end each unit, to inform focused consolidation where this is necessary.

There is a strong focus on developing the quality, presentation and content of children's written work across all subjects through our 'Beautiful books' standards. The standard of children's writing is expected to be the same high standard across all subjects – teachers marking will address inaccuracies (such as, for example, inconsistencies in the use of capital letters and punctuation). It will also prompt when handwriting and grammar needs improvement, indicating an identified target and providing a suitable model where appropriate.

Although there will not always be a recorded outcome in children's books, task will be planned that provide plenty of opportunity for children to demonstrate the application of the key knowledge, skills and vocabulary for the lesson.

4. Planning and Resources

Lesson slides are designed to be accessible to all children, as well as to avoid cognitive overload. Lesson slides are used by the teacher to support the teaching, as well as to convey key information and instruction to the children. Teachers devise lesson slides according to what is stated on the progression map for science according to the term and year group.

Teachers can source from a range of recommended lesson resources. Sourced resources for lesson slides might include imagery and ideas from slides from other schemes. However, these are not used in their entirety, to ensure a structured and consistent approach that is in line with the school's bespoke curriculum mapping. The key vocabulary for each topic is mapped and shared with the children using Widget. Our classroom displays present this vocabulary for science

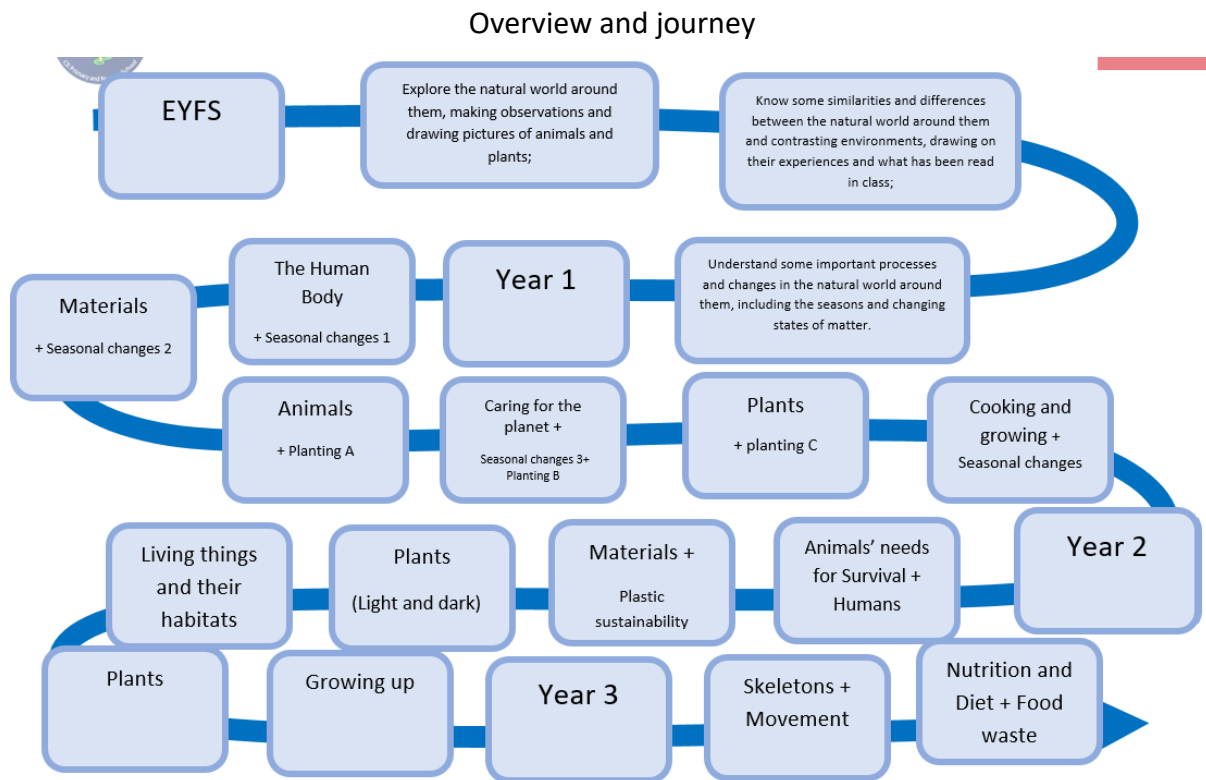
The science curriculum is designed to ensure that all pupils have a high quality, coherent and progressive experience of the subject. The school's science knowledge and skills mapping is informed by TAPS assessment by Bath Spa university and the national curriculum as a guide.

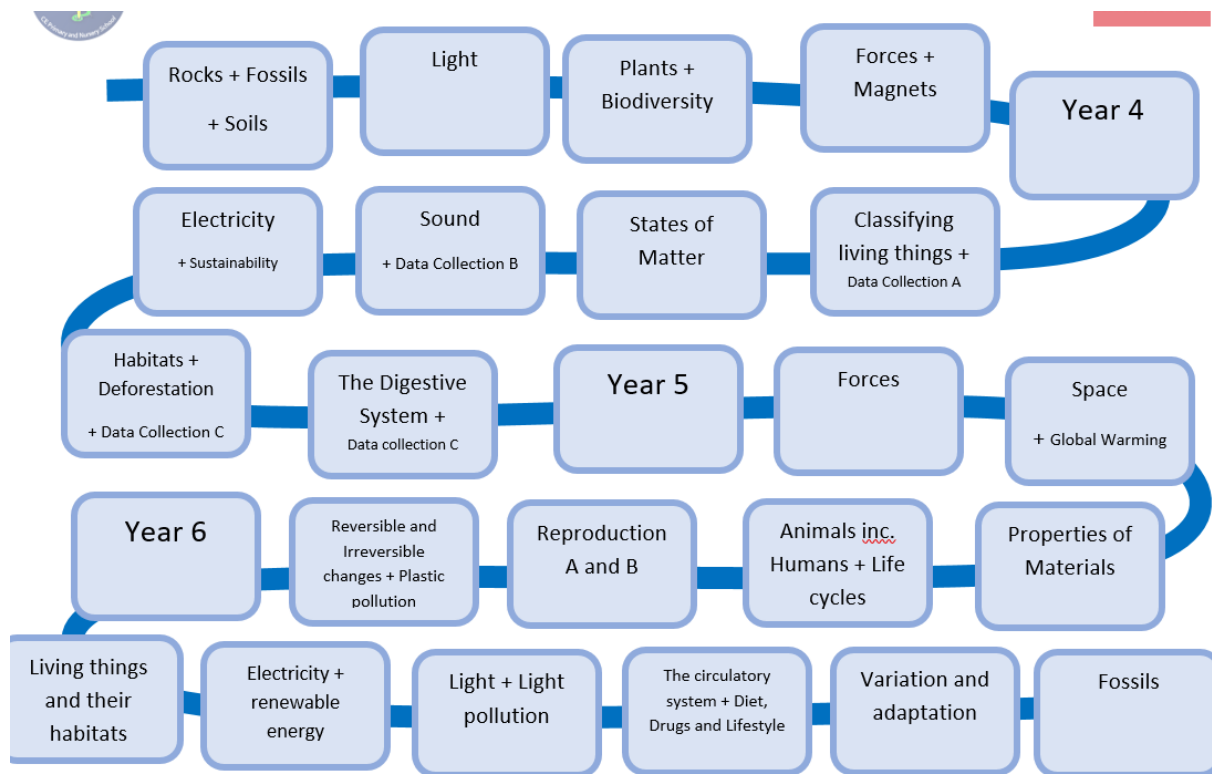
When planning, teachers ensure that teaching and learning activities provide a suitable level of challenge for all learners, with appropriate task adaptation where necessary. Lesson slides and resources are saved in the schools shared planning drive as a central resource. Not all lessons will be planned to have a written outcome, but the lesson slides of lessons without a recorded outcome will indicate the key knowledge and skills covered and how these were taught, including what the children did.

Accompanying artefacts are maintained and replenished by the subject leader. The topic boxes are in a separate room and are easily accessible to teachers, along with a wide range of books to support and enhance teaching.

5. Organisation

The science Knowledge and Skills Progression Map outlines the key knowledge for each unit and how these progress throughout the programme of study, as well as identified and planned cross-curricular links and opportunities for learning outside the classroom.





6. EYFS

EYFS: Early Learning Goals:

In the Early Years Foundation Stage (EYFS) of primary schools, science is taught through exploration, play, and hands-on experiences that foster curiosity and critical thinking. Children are encouraged to observe, question, and investigate the world around them in a way that feels natural and engaging. Activities often focus on developing foundational skills such as noticing patterns, exploring cause and effect, and making simple predictions. These early scientific experiences help to build a strong foundation for later learning, nurturing a love for discovery and inquiry in young children.

- Children know about similarities and differences in relation to places, objects, materials and living things.
- They can talk about the features of their own immediate environment and how environments might vary from one another.
- They can make observations of animals and plants and explain why some things occur, and talk about changes, including in simple experiments.

7. KS1 and KS2

Science Education in KS1 and KS1 is enriched by the school's community links, which enables access to local places and visitors. The school also works closely with other schools within our trust to build links and where possible provide combined activities. We are also part of the Ogden Trust which works to support the teaching and learning and Physics in Primary Schools. This also provides our school with CPD, resources and funding for science.

Children's work in books will mostly be their own recorded writing. Pages of scaffolded work will only be stuck into children's books when this is absolutely necessary. In some instances, children might stick a diagram or visual into their books that they will label or respond to into their books, rather than completing the entirety of an outcome on a separate sheet which is then stuck in. In science, it might be appropriate for children to record their learning or practice onto a provided format. However, the majority of children will record their work directly onto the pages of their book, using the layout provided as a point of reference. This will enable greater ownership and pride in recorded outcomes.

8. Equal Opportunities

Ditchling School will ensure that all children are provided with the same learning opportunities regardless of social class, gender, culture, race, disability or learning difficulties. As a result, we hope to enable all children to develop positive attitudes towards others through our school values of kindness and respect. All pupils have equal access to science and all staff members follow the equal opportunities policy. Resources for SEN children and children who are working at greater depth are made available to support and challenge appropriately.

9. Inclusion

Children with English as an additional language: It is vital that children who have English as an additional language have English modelled accurately by all staff at school. Collaborative work with peers (where English is their first language) is essential and EAL children are provided with consistent opportunities for this verbal interaction. Dual language books are available for each class (available from the Inclusion Department) and each classroom has a display key words associated with current 11 topics being studied. All teachers include a range of strategies to support children with EAL which includes: teacher and peer modelling and consistent use of visual support, repetition and recasting of language features, word banks and scaffolded speaking and listening activities. Teachers work with the Inclusion Coordinator to best meet the needs of individuals within their classes. Children who are new to English are assessed and support is put in place by the Inclusion team to help them make rapid progress. In addition, class teachers deploy teaching assistants to provide targeted support and the use of home language support and peer-buddying is encouraged. Assessment data is used to inform and allocate appropriate intervention, including speech and language groups. The school will also support EAL children and their families through drop in sessions for parents and carers, in line with the inclusion policy. Special Educational Needs Class teachers inform the SENDCO and Inclusion Department if they are concerned that a child may have underlying learning difficulties. Support for children with identified SEN includes the following, as appropriate:

- Volunteer readers
- Reading buddies
- Language groups
- Social skills groups
- Booster classes
- Toe by Toe
- Get Spelling scheme
- One-to-one RWI (see SEN policy for further details).

10. Role of the Subject Leader

The role of the subject leader science is to coordinate the teaching of science across all phases of the school. This is in order to secure high quality literacy provision for every child, including outstanding science teaching and learning, effective use of resources and the highest standards of achievement for all.

Key duties that the Science subject leader will undertake over the course of the year include:

- Monitoring of books and working walls
- Learning walks and participation in lesson observations
- Planning and organising science enrichment opportunities and competitions
- Helping identify and facilitate the professional development needs of staff
- Liaising with SLT to implement school improvement priorities and report on actions, progress and impact
- Liaising with the school Inclusion Lead to best support children experiencing difficulty in science
- Organising, maintaining and cataloguing resources
- Keeping abreast of new initiatives in science teaching, including attendance of borough forums and dissemination of key content.

Lesson slides and outcomes for each unit of work will be monitored by the SLT, in collaboration with subject and phase leaders. This will inform any necessary follow-up 12 action and support, to ensure that school systems are consistent across year groups, age phases across the school throughout the curriculum. This is part of the school's commitment to ensuring a high quality, broad and stimulating curriculum.

Regular opportunities will be provided throughout the year for moderation of children's achievement, according to the programme of study for their year group. The subject leader will use the outcomes of this process to support further development in science, as well as the findings from regular book looks (where teachers across year groups will view outcomes of work in each subject). The book look process itself will provide an opportunity to recognise, celebrate and disseminate good practice, and inform judgements as to the progress being made towards identified whole school and subject priorities. Wherever possible, models and that the children have created will be seen as part of this process. In-house moderation and Book looks will be scheduled to take place within teachers' directed time.

11. Parents and Carers

We recognise how crucial the home/school link is for supporting children to have the highest standards of achievement in science,. At the 'Meet your teacher' meeting at the beginning of every academic year, the science, standards of the year group are explained, as well as further meetings throughout the year to support parents to understand the curriculum. Home Learning is not expected in Science but there are often links to science in the optional 'Home Learning Projects' undertaken by KS2.