**Science Intent**

At Bedford Drive Primary, we have constructed an ambitious Science curriculum that follows the content of the EYFS statutory framework and the National Curriculum.

The Science curriculum builds upon prior knowledge, development and understanding. Our science curriculum is a knowledge-engaged curriculum, which means that our children learn scientific skills alongside knowledge, ensuring that both are explicitly developed.

All pupils study Science, including those who have SEN and/or disabilities and those who are disadvantaged. The pupils gain knowledge about how to ask scientific questions, plan experiments, ensure tests are fair and record and evaluate results every year. We have built our own scheme of work, which builds in complexity so that pupils can build their skills and knowledge. Knowledge and skills are constantly revisited and refreshed to ensure that they become embedded. To aid understanding, subject specific vocabulary is taught and revisited within every unit.

At Bedford Drive, values are also a crucial element of the curriculum and these are woven through Science, linking with our UNICEF Rights Respecting School status. We provide experiences within the science curriculum to ensure the children can develop the values that are at the core of our curriculum, such as resilience, wellbeing, participation, relationships and self-esteem.

We provide an inclusive curriculum, ensuring those who have special educational needs and/or disabilities and those who are disadvantaged can all receive the same opportunities as their peers in Science. Expectations are high for every pupil with appropriate levels of challenge and support. The schemes of work, which we have created at Bedford Drive are ambitious; they help children, many of whom start at Bedford Drive below age related expectations, to quickly gain knowledge and skills. We want our pupils to ***remember more, know more and understand more*** about Science.

**EYFS End Point:**

By the end of Foundation Stage, pupils would have been introduced to science through the Early Years Foundation Stage (EYFS) Curriculum Guidance. The Early Learning Goals (ELGs) for ‘Knowledge and Understanding of the World’ forms the foundation for later work in Science.

Wherever possible the children are provided with activities based on first-hand experience that encourage exploration, observation, problem solving, prediction, critical thinking, decision making and discussion. We provide an environment with a wide range of indoor and outdoor experiences that stimulate their interest and curiosity. This will prepare our children to readily access the KS1 curriculum

**KS1 End Point:**

By the end of Key Stage 1, pupils will be taught to observe, explore and ask questions about living things, materials and physical phenomena. They would have begun to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They have begun to evaluate evidence and consider whether tests or comparisons are preparing for the future in a caring environment.

Pupils can use reference materials including ICT to find out more about scientific ideas develops. They can share ideas and communicate them using scientific language, drawings, charts and tables.

Following our minimum expectations ensures all areas of the Programme of Study are covered across both Years 1 and 2. Children will have further developed their understanding of the world around them which they have gained in the Foundation Stage. Children will be able to observe, explore and ask questions about living things, materials and physical phenomena.

Children have begun to work collaboratively with others, enabling them to develop their scientific knowledge and understanding and to link scientific concepts. Children will be able to communicate ideas orally using taught scientific language and begin to develop written methods for communicating their ideas (to include drawings, diagrams, use of ICT, tables and charts).

**KS2 End Point:**

By the end of Key Stage 2, children would have learnt about a wider range of living things, materials and physical phenomena. They have made links between ideas and created explanations that use simple models and theories. They can apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things and their personal health. They can think about the effects of scientific and technological developments on the environment and in other contexts. They are able to carry out more systematic investigations, working on their own and with others. They can use a range of reference sources including ICT in their work. They talk about their work and its significances, using a wide range of scientific language, conventional diagrams, charts, graphs and ICT to communicate their ideas.

Following our ‘sticky knowledge’ and minimum expectations, the KS2 science curriculum has enabled pupils to learn, explore and ask questions about a wider range of living things, materials and physical phenomena. Children can think about the impact of scientific developments and technologies on themselves and the world around them.

The KS2 Science curriculum has encouraged the development of an independent approach to science learning, through asking questions, suggesting improvements to work and children supporting each other towards achieving a heightened understanding of scientific concepts, which will prepare them for Key Stage 3 Science.

Reading is also a focus for our curriculum at Bedford Drive, and to this end, opportunities are planned for children to read quality, scientific texts and answer comprehension questions. This enables children to be exposed to scientific thoughts and vocabulary in context, while developing reading and comprehension skills. In turn, children then leave Bedford Drive as confident and inquisitive scientists.

**Science Implementation**

At Bedford Drive Primary, we have a strong approach to supporting and training our staff. We are determined that our pupils are taught by knowledgeable experts. All teachers are helped through planning meetings, shared teaching and coaching to improve their subject knowledge and teaching abilities.

We support and advise staff in how to demonstrate and explain scientific concepts to pupils. These are reflected in our recently reshaped subject leader monitoring forms. Teachers use a range of resources to help them to develop pupils’ discussion and oracy; such as enhancement lessons, video clips, images, computer software and opportunities to present to others. Teachers demonstrate and explain key vocabulary that the pupils will need to access the lesson.

Teachers use common misconceptions to plan lessons that will avoid common errors such as the sun rising in the sky rather than the Earth rotating. We implement the Science scheme of work through well-structured lessons ensuring knowledge can be revisited when appropriate and prior learning is built upon. Teachers use strategies to develop pupils’ memories such as tests, quizzes, online learning and recapping previous lessons. Our scheme of work, for example, helps pupils learn in a fun exploratory way.

Our creative and exploratory curriculum for Science is carefully sequenced so that repetition and practise of working scientifically skills is present within each year group. This enables them to use their knowledge, skills and understanding across all areas of the curriculum.

We use a ‘mastery’ approach. This ensures that pupils are able to revisit previous learning and help them to remember in the long term, content taught and how to integrate new knowledge into larger concepts. We want to move our pupils’ thinking to a higher level in order to develop a deep understanding rather than just acquiring new facts and knowledge.

Teachers use assessment well. They flexibly reshape the lesson, when they identify an error and then use questioning to identify if it is a misconception or can be corrected easily. Teachers also use end of unit assessments to ensure that learning has been retained. This is tracked using our robust tracking system, which will later inform teachers of children’s prior learning.

Key vocabulary is identified and used and as oracy is an important part of our curriculum, we ensure that pupils have opportunities in Science to discuss, debate and present their work, thoughts and opinions.

Reading and developing a love of books is an important part of our curriculum, therefore quality texts have been identified to support and enrich the teaching of Science throughout the school.

**Self - Successful learners** – we teach lessons that have chances for pupils to be creative, curious and to articulate their thinking and ideas.

**Confident individuals** – we teach lessons that contain a mix of dilemma led learning, and also enquiry based teaching in order to provide pupils with some realistic scenarios that they will enjoy and will help them to love learning.

**Society - Responsible citizens** – we teach pupils to be resourceful learners who use their initiative, and make a positive contribution to society.

**Global -** Cultural capital is a key feature in our lessons. In each key stage, we teach pupils about a range of famous and not so famous scientists who have made a significant contribution to the world.

**Impact**

At Bedford Drive, we want our children to know more and remember more. Therefore, we use formative and summative assessment information to inform planning and short-term interventions.

Our tracking system, Insight, allows staff to assess systematically what they children know as the Science unit of work progresses, which is then used to inform future planning. Staff can quickly see, which child or group of children need further support in a specific area and incorporate this into planning. These formative assessments, then inform our summative assessment judgements, in each subject.

As part of our monitoring cycle, SLT and Subject Leaders monitor all subjects over the academic year. Monitoring includes: books looks, learning walks/ lesson observations, pupil voice and/or parent voice. Our Governors are also part of this process. Through this rigorous monitoring cycle, we have the opportunity to see the impact of our curriculum upon the children.

We believe that through the Science curriculum, we can impact on what a child is feeling about themselves so that they feel confident and competent; ready to tackle any challenge that they may face. Our curriculum ensures that every child receives an appropriate mix of academic and personal development and here at Bedford Drive, we place high priority on ensuring children’s physical and mental well-being needs are being met.

Our full and rich Science curriculum, with its excellent range of experience ensures that every pupil at Bedford Drive Primary School makes good progress both academically and personally. Our unique curriculum ensures that every child is given the opportunity to shine and flourish.

**We will see:**

**Successful learners** – at Bedford Drive, we will see children confidently and passionately talk to us about their learning in Science. Children will have a wide scientific vocabulary and read widely and often about scientific concepts and thoughts. Basic skills taught will enable children to move to the next stage of their learning and knowledge will equip our children to be good citizens in a multi-cultural Britain.

**Confident individuals** – Bedford Drive cultivates a culture of children who enjoy coming into school and are invested with their learning, showing a resilient, can do attitude. Through a mix of inquiry and dilemma led learning, children are able to identify problems and create solutions to them. Skills like this enable children to be confident individuals later in life .

**Responsible citizens** – who are aware of the difference that they can make to themselves, their society and the global community. Knowledge of how the world works is taught through the Science curriculum, and children can use this knowledge to make informed choices and can also help contribute to making the world a better place for future generations.