Science – Intent, Implementation, Impact

		ASPIRE		
Intent		At Tweeddale Primary School, our intent is for our children to **engage** in a science curriculum that allows them to explore and discover the world around them, and which allows them to ask questions and make observations that will deepen their understanding of the world that we live in. Through our science curriculum and working scientifically, we aim for our children to have an **enthusiastic** and **positive** attitude towards science where they show curiosity, an enquiring mind and the ability to question and argue rationally. We aim for our children to be able to hypothesise, test, observe measure, interpret, and describe their findings using appropriate scientific vocabulary. Our intent is to prepare our learners for their future, we want our children to leave Tweeddale with the necessary scientific skills and a secure scientific knowledge and understanding as stated in the national curriculum, ready to embark on their Key Stage3 journey. In line with the Intention and Substance document, we aim to further develop our curriculum to ensure we introduce knowledge and concepts to our children and then provide opportunities to carry out activities that deepen their understanding of scientific concepts so that they are better equipped to explain how the processes they were investigating actually worked.		
Implementation	**What**	**EYFS**	**KS1**	**KS2**
		In Early Years Foundation Stage, in addition to following Cornerstones, activities are developed around the children's interests, giving them opportunities to find out about the world they live in whilst supporting them to meet the Early Learning Goals.	In Key Stage1 pupils are encouraged to experience and observe the world around them. They learn about science concepts primarily through the use of first-hand practical experiences and also the use of secondary sources. Pupils have opportunities to ask questions and help to answer these using different types of enquiry.	In lower Key Stage2 pupils broaden their scientific understanding from Key Stage1. They have opportunities to ask their own questions and to plan their own scientific enquiries to answer these. They draw conclusions and begin to explain these. In upper Key Stage2 pupils develop a deeper understanding of a wide range of scientific ideas. They use prior understanding to make predictions and to select appropriate methods of scientific enquiry to answer questions. They will then draw conclusions based on their data and observations then use this evidence to justify their ideas.

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<table>
<tr><td></td><td>How</td><td colspan="7">At Tweeddale science is taught as a discrete subject each week. We follow the Kent scheme of work to ensure we deliver a high quality science programme which follows the National Curriculum programme of study. The scheme is divided into units, structured to ensure progression of both scientific skills and knowledge, in order to embed and deepen understanding as children move through Key Stages 1 and 2. The school's curriculum map shows how the units are distributed across the year groups.

Although we follow the Kent Primary Science long term plan, at Tweeddale we have made a more detailed version which shows the subject knowledge in black and the skills in blue, ensuring there is a focus on both knowledge and skills for each unit taught. The curriculum map is checked by the science lead then updated to ensure necessary provision or repetition is covered by the relevant cohorts. Whilst the overall objectives must remain the same, teachers adapt the individual unit plans to suit the needs of the children. Teachers also follow the safety advice set out in the 'Be Safe' book and from CLEAPSS (Consortium of Local Education Authorities for the Provision of Science Services).</td></tr>
<tr><td></td><td>Key Knowledge/Skills</td><td>Pattern seeking
Collect data and use numbers to find patterns</td><td>Comparative and fair tests
Change one thing and see what happens</td><td>Grouping and Classifying
Sorting things into groups</td><td>Observing changes over time
Look closely and keep going back to look at set intervals</td><td>Research using secondary sources
Use people/ the internet or books to research</td><td>Scientific Vocabulary
A vocabulary programme has been devised to match each year groups spelling patterns and is colour coded so children know which are knowledge based (black) and which are skills based (blue) words.</td><td>Scientists
In Key Stage1 they begin by considering the work of individuals, before moving on to exploring and learning about the significance of the work of scientists in Key Stage2.</td></tr>
<tr><td colspan="2">Assessment</td><td colspan="7">At the end of each unit taught, teachers use the school's assessment sheets for each child to identify their knowledge, skills and vocabulary. This is used to inform planning for consolidation lessons in summer term 2 and to inform the summative assessments which are recorded on Bromcom (Management Information Software) at the end of each term. If children are keeping up with the curriculum, they are deemed to be making good progress. At the end of the summer term the assessment sheets are passed to the</td></tr>
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	next classes to inform the following teachers of understanding so this can be further embedded; or to inform about gaps so that planning can be adjusted accordingly to ensure further teaching takes place to ensure children meet the learning requirement. At the end of Key Stage2 teachers assess and record children's progress and attainment in line with the National Curriculum standards as either 'working at the expected standard' or 'not meet that standard'.		
Impact	**Quality of Education**	**Behaviour and Attitudes**	**Personal Development**
	Our science curriculum is well designed and planned to ensure progression of knowledge, skills and vocabulary. Cross-curricular links, including mathematical skills, are made wherever possible. Children have opportunities to reflect on prior learning helping to embed it to long-term memory. They are able to make connections between what they have previously learned and what they are currently learning.	Pupils are excited about science and engage in activities with enthusiasm whilst demonstrating good self-control. They learn to formulate and test a hypothesis, which is a skill that can be applied universally, not just in science lessons.	During their time at Tweeddale, our children develop a wider scientific knowledge and understanding of the world around them as well as skills to think critically and to work scientifically. They have a richer vocabulary enabling them to articulate their understanding of taught concepts. All of these combined elements prepare our children with the foundations for their future learning wherever it may take them.