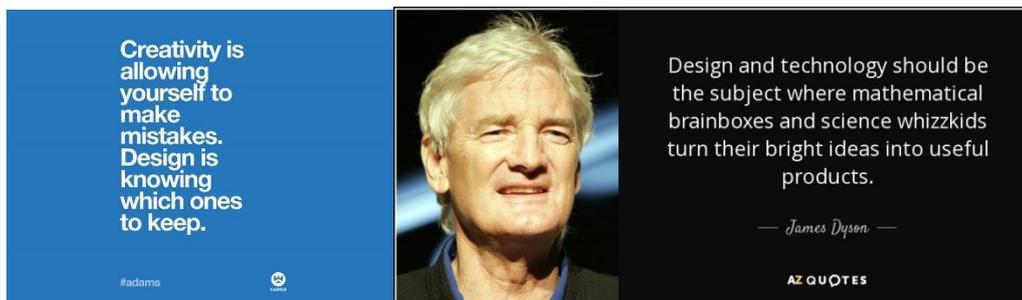


Bilton Grange Primary School

D&T rationale

Design and Technology develops children's skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food. It encourages children's creativity and encourages them to think about important issues.



Primary D&T helps our children to:

- Be creative, technical and practical
- Increase their knowledge and skills to enable them to create high-quality designs
- Think critically through thorough testing and evaluating
- Understand and apply the principles of nutrition and learn to cook

Intent

Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Bilton Grange, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, engineering, computing, and art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.

Substantive and Disciplinary Knowledge in D&T

Substantive Knowledge

In our D&T curriculum this is the knowledge and understanding of the practical skills needed when designing, making, and evaluating structures. The curriculum is progressive from EYFS to Year 6, building on prior skills and demonstrating increasing proficiency and refinement. Children will be taught the vocabulary of the elements of D&T. They will use these throughout their learning and when reflecting upon their creations.

Disciplinary Knowledge

This is the application of the skills and understanding children have gained. Children will have the opportunity to explore a range of media and techniques and evaluate their properties and most effective purposes.

Knowledge and enquiry in D&T

Knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors], which is taught through science within KS2
- apply their understanding of computing to program, monitor and control their products.

Enquiry

From EYFS through to Year 6, children will be given the opportunity to explore a wide range of materials and techniques to build structures. Through group work and peer-assessment they will develop the essential skill of evaluation.

Typical (age-appropriate) questions include:

What are you making? Which materials are you going to use? How will you attach them together? What other features will you include? How could you improve your model further? How could you make your structure stronger? Which mechanisms could you use to enable your structure to move? Why do you think this would be the most suitable option?

How is electricity made? What is a circuit? How can your circuit be adapted? How can you use a computer program to monitor and control your product?

Implementation

In EYs, D&T is woven throughout the specific area of Expressive Arts and Design. The element of EAD is planned using a medium-term planning template and a short-term provision plan. Across these documents the following aspects are identified:

- Pre-learning discussions.
- The learning sequence of lessons
- Key vocabulary and questions.
- Activities for each of the school's 4 C's drivers

Within KS1 and KS2, units of work are planned using a medium-term planning template which identifies:

- Over-learning and pre-learning activities
- Key knowledge statements (remembering sentences)
- Objectives to be taught- separated into substantive (red) and disciplinary (blue) content
- D&T elements: knowledge, skills, design, make, evaluate.
- Activities for each of the school's 4C drivers

Fundamental British values are embedded within teaching. The development of each child's self-knowledge, self-esteem and self-confidence enables each child to follow and test their own ideas. They also develop an appreciation and a respect for other children's ideas which may be different to their own.

Learning is planned sequentially to enable children to build upon prior learning and to acquire new knowledge over the duration of the unit.

Lessons will be blocked to enable children to become fluent in their knowledge, allowing them time to immerse themselves in new learning.

At the beginning of each unit of work, children will complete an over-learning recall activity to retrieve essential knowledge from the previous year's topic. This should identify any gaps in knowledge, enabling the teacher to provide additional support for children who have gaps in their previously acquired essential knowledge.

Children complete a pre-learning activity prior to the topic being taught. This identifies the essential knowledge children already know and enables teachers to provide additional support or challenge throughout the unit for individual children.

The essential knowledge identified in each unit provides the basis of the knowledge sentences (remembering sentences) to be shared with children. These are chanted and referred to throughout each lesson, helping the children to store this knowledge in their long-term memory.

Essential knowledge and vocabulary should be displayed in the classroom and included on learning slips in children's books.

To deepen understanding, disciplinary knowledge enables children to interpret and reason their substantive knowledge across a range of different contexts.

Vocabulary is split into vertical and horizontal deepening. Vertical deepening enables children to learn new vocabulary within the unit, building upon previously learnt vocabulary each year. Horizontal deepening enables children to see how the vocabulary can be used in a range of different subjects and contexts.

- Within the school's 4 C's (Communication, Collaboration, Creativity, Community) a balance of activities are provided to help support the learning of fundamental British values. They also support the provision for personal development and in enhancing children's cultural capital within the subject.
- Following each unit of work, children in KS1 and KS2 complete the pre-learning activity containing the essential knowledge for the unit. This occurs 2 weeks, 6 weeks and 12 weeks after the unit has been completed. Recalls provide opportunities for children to recall previously learnt knowledge and for teachers to track their progress. During these sessions, any gaps in knowledge are discussed and children are supported in remembering. This is done in an appropriate, age-related way and work is then personalised to meet the needs of all groups of learners.
- We endeavour to enrich children's time in school with memorable experiences where appropriate, providing opportunities that may normally be out of reach eg: trips to Harlow Carr to see and make their own natural sculptures, chef visits into school.

Impact

- The pupils in Early Years reflect on their learning by looking through their learning journey's and through class discussions. The 3 R's (Recall, remember and reflect) support the children throughout the year to know more and remember more.
- Observations in Early Years support the termly assessment of pupils and end of year judgements in EAD.
- In KS1 and KS2, 2/6/12 week recalls support the assessment of children. Results are added to tracking grids which, over the year, help to support an end of year judgement in the subject.
- A subject monitoring week is conducted every year. This ensures that the subject leader has a clear understanding of the strengths and weaknesses of how the subject is being delivered throughout the school. This monitoring week includes:
 - Learning walks

- Book scrutiny
- Planning scrutiny
- Data/ assessment scrutiny
- Interviews with children
- From this, the strengths and AFI's for the subject are developed and communicated to all staff and governors. Any immediate actions will be put into place quickly. Medium/ long term actions will be added to the School Improvement Plan.
- Work moderation within the subject is completed once a year. Teachers have the opportunity to share examples of work and check the accuracy of their teacher assessment judgements.