



HIGHFIELD FARM PRIMARY SCHOOL

Design and Technology Policy

Date of Policy approval _____

Date of Policy review _____

'Design and Technology in primary schools 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.'

DATA, 2021

The teaching of Design and Technology is of great importance to our children and the wider Highfield Farm Community. A strong start in Design and Technology learning will set the foundations for our children to become fascinated with future STEM careers and open their opportunities in sectors concerned with Science, technology, engineering and maths. At Highfield Farm we encourage children to engage with the wonderful world of design and technology and that creating something, for someone and for a purpose is an endeavor that should be fostered.

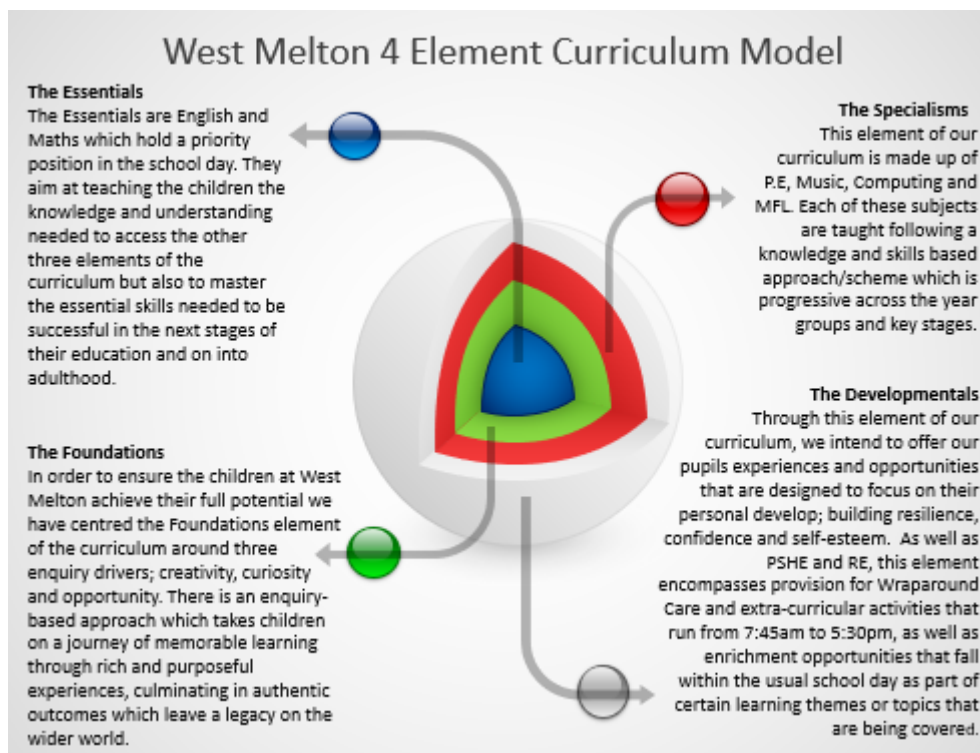
Intent

Design and Technology is a way of learning, which spans and links the whole curriculum. We want all children at Highfield Farm Primary School to think innovatively, to question and explore the practical world around them and to develop a positive and passionate attitude to their learning, through creative design. Teaching staff lead design technology lessons with a no ceiling approach to differentiation, taking into consideration the needs of children with SEND and the most able, enabling all children to access our challenging curriculum and to feel confident in their design decisions. Children understand how to apply their technical knowledge and justify their design decisions using key subject specific vocabulary, initial designs, mock-ups, prototypes and functional products from the conceptual through to the constructional, avoiding design fixation. We want to instill the ethos at the heart of all good design - to design, test, make and evaluate...

We recognise the important role that design and technology plays in preparing our children with the skills they can use in their life time and the potential career opportunities that it may encourage them into. Through the high quality DT education that all pupils at Highfield Farm will receive the children will gain a love for the subject in its own right, appreciate the value

it has in societal development and how learning from it can drive forward aspirations for themselves and of others.

Our aim is that our children go on to apply taught design and technology skills across other subject disciplines subjects, aswell as draw upon knowledge from other disciplines when required. Our carefully crafted curriculum is designed to provide our children with the subject specific language they need to describe, question and discuss ideas relating to the design. Indeed, it is one of the 'foundations' aspects of the curriculum at Highfield Farm that will add real value to the children's primary education.



The children of Highfield Farm have a voice and have the right to use it and so should be encouraged to express their opinions. We teach and encourage the use of debate and presentation and in doing so provides a platform for our children to express their views and justifications for product design.

Implementation

Based upon the National Curriculum and the individual needs of our children and the Highfield Farm community, we have created a Design and technology progression map supported by the consultant Clive Davies, which sets out the objectives taught in each year group for the following areas of the DT curriculum:

- Designing
- Making
- Evaluating
- Using technical knowledge

- Food technology

All of these key disciplinary skills are realised through design projects which explore and use of a variety of mediums and materials such as textiles, construction, mechanisms, and cooking and nutrition.

Following an iterative design process is key to enabling children to evaluate and adjust their designs and products. We achieve this through various approaches such as: the use of handling displays for children to explore existing designs and products; well-structured lessons allowing time for exploration, discussion, practise and research; designing a product for a specific audience or 'client' in mind; cross-curricular links that allow children to make connections between subjects and with real-life situations and problems that may need a design solution.

Organisation

Due to the make up of the cohorts at Highfield Farm, a creative approach to coverage has been taken. Design and technology is taught as part of a three year cycle in foundation stage, a two-year cycle for year 1 and 2. It is taught as a three year cycle in years 3, 4 and 5 and as a one year cycle in year 6. Planning for the themes in the DT curriculum are taken from the units laid out in the Clive Davies scheme which all staff will have access to, both physically and electronically.

Planning

Planning for design and technology comes from the long term overview in the cycles as laid out in the Clive Davis documents and broken down further into thematic DT units which act as the medium term planning. All teachers are responsible for using the Clive Davies units (MTP) and plan sequences of lessons that build upon prior knowledge. It is the teacher's responsibility to break down concepts into relevant *components* and *sequence them effectively so as not to overload the children's short term memories*.

Each individual lesson has content that is differentiated between, and within, year groups so that learning is age-appropriate and high expectations are maintained. Individual and/or sequences of lessons must take into account the following principles of instruction as laid out by Barak Rosenshine. This will add clarity and simplicity to the teaching and learning process within DT. (See Appendix) This is not to say that every principle is to be seen in every single lesson. The purpose of reviewing material is key in ensuring that material becomes stored in the long term memory, allowing for schemata to develop and new learning to then occur.

The importance of vocabulary

Teachers use questioning, and provide opportunities for discussion and investigation to support the development of specific design and technology language and vocabulary, which is explicitly taught and modelled by teachers in every lesson. Key historical terms and language (such as, mechanism, mock-up, design, evaluate, weave, function, construct) are

revisited frequently, to make learning memorable, relevant and easy to retrieve. This is complimented by our vocabulary policy.

The teaching of vocabulary has been specifically designed to also take account of introducing children to specific terminology that will support future learning.

The place of reading

Reading is central to the teaching and learning of DT and indeed is key to learning. As the children move through the phonics teaching and become competent in their ability to read, they will be exposed to a greater selection of high quality books and texts, and this will include non fiction texts in the discipline of DT and the wider STEM disciplines. In doing so, the children at Highfield Farm will be exposed to the academic language of schooling and the disciplinary vocabulary in the subject. As a consequence of such a focus on academic reading our pupils will be far better prepared for transition into secondary school and the format of teaching and learning they will experience. High quality non fiction STEM related texts are updated annually with the support of the English subject leaders. Such books will be highly visible in classrooms and around displays in the corridors.

EYFS

We teach design and technology in our foundation stage classes as an integral part of the topic work covered during the year. The foundation planning is on a three year cycle. We relate the DT aspects of the children's work to the objectives set out in the Early Learning Goals (ELGs) which underpin the curriculum planning for children aged three to five. Design and technology makes a significant contribution to the development of each child's knowledge of being expressive and creating with materials. A crucial aspect of this is ensuring that children exit foundation with the key language, vocabulary and knowledge to build upon in the key stage one DT curriculum. For example, Safely using and a variety of materials, tools and techniques, being able to experiment with colour, design, texture, form and function and then being able to explain the processes they have used in their creations.

Impact

The impact of our DT curriculum is measured in a variety of ways: questioning during lesson time, evaluating children's designs, processes and end products, listening to child-led discussion, interviewing pupils across the school about their learning, book trawls and using images/videos of children's practical learning.

By end of the DT curriculum at Highfield Farm, our children will:

- Have a growing knowledge of the importance of design and technology in society and the wider world
- Have a wider vocabulary of design and technology specific terms.
- Aspire to discover more about the STEM , through wider reading or other medium.
- Know that they can use their voice to express themselves and their opinions.
- Develop their DT skills, such as, designing, making and evaluating functional products

Appendix

THE PRINCIPLES OF INSTRUCTION

Taken from THE INTERNATIONAL ACADEMY OF EDUCATION

By BARAK ROSENSHINE

Based on strategies to optimise how we acquire and use new information

01 DAILY REVIEW



Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recall frees working memory for problem solving and creativity.

02 NEW MATERIALS IN SMALL STEPS



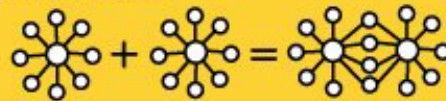
Our working memory is small, only handling a few bits of information at once. Avoid its overload – present new material in small steps and proceed only when first steps are mastered.

03 ASK QUESTIONS



The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.

04 PROVIDE MODELS



Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud help clarify the specific steps involved.

05 GUIDE STUDENT PRACTICE



Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers built in more time for this.

06 CHECK STUDENT UNDERSTANDING



Less successful teachers merely ask "Are there any questions?" No questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.

07 OBTAIN HIGH SUCCESS RATE



A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.

08 SCAFFOLDS FOR DIFFICULT TASKS



Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.

09 INDEPENDENT PRACTICE



Independent practice produces 'overlearning' – a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.

10 WEEKLY & MONTHLY REVIEW



The effort involved in recalling recently-learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.