

## Design and Technology Policy

Date	Review Date	Subject Leader
August 2020	August 2021	Jenny Burns

### 1. Introduction

“Design and technology is a phenomenally important subject. Logical, creative and practical, it’s the only opportunity students have to apply what they learn in maths and science - directly preparing them for a career in engineering. Policy-makers must recognise design and technology’s significance for the UK economy and strive not just to preserve it – but to ensure it appeals to the brightest of young minds.” *James Dyson, Design and Technology Association Patron.*

Design and Technology (DT) is a subject that brings together learning and experiences from three main areas:

- 1. Creative and original thinking:** children are encouraged to use their problem-solving skills and imagination, and to feel confident in taking their own original ideas from conception to reality when designing and making their products.
- 2. Practical skills:** children are taught the skills needed in order to successfully create appealing and functional products. They will develop these skills as they progress through school.
- 3. Scientific and mathematical knowledge:** children are taught that ‘technology’ means using what we know about science to make useful things. They are encouraged to see the links between what they may have learnt in Science or Maths and what they can design and create in DT.

When delivering the DT curriculum, teachers aim to expose children to a variety of real-world contexts, by learning about influential designers of past and present, and exploring case studies which show how key designers and key moments in design have impacted upon the world we live in. Through this, DT is brought to life and placed in a meaningful context which aims to not only help children know, remember and understand more, but also to encourage our young people to begin to imagine and consider further learning or careers in STEM fields.

### 2. Intent, Implementation and Impact

Intent	Research link	Implementation	Impact
<p><b>To build a Design and Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more.</b></p>	<p>Education Endowment Fund research stresses the importance of developing character / essential life skills in childhood and the</p>	<ul style="list-style-type: none"> <li><b>Clear and comprehensive scheme of work in line with the National Curriculum.</b> The DT National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1 and KS2 school curriculum. Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we make sure that</li> </ul>	<ul style="list-style-type: none"> <li>Children will know more, remember more and understand more about DT.</li> </ul>

<p>To design a Design and Technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design and Technology Programmes of study, to fulfil the duties of the NC whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life</p>	<p>association with a range of positive outcomes at school and beyond</p> <p><b>School:</b> questionnaires (parents and pupils) indicate that children positively engage in enhancement tasks. Pupils' written work indicates that clearly planned enhancement activities provide a scaffold for language consolidation.</p>	<p>children learn additional skills, knowledge and understanding and enhance our curriculum as and when necessary.</p> <ul style="list-style-type: none"> <li>• <b>Language</b> - The promotion of a language-rich DT curriculum is essential to the successful acquisition of knowledge and understanding in DT. The promotion and use of an accurate and rich vocabulary throughout school is planned in DT.</li> <li>• <b>Knowledge Organisers</b> Children have access to key knowledge, language and meanings to understand DT and to use these skills across the curriculum.</li> <li>• <b>Design and Technology Focused Working Walls</b> DT Working Walls throughout school focus on key aspects of DT and exemplify the terminology used throughout the teaching of DT, BV and SMSC, which enables pupils to make links across the wider curriculum.</li> <li>• <b>Independent learning:</b> In DT children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in DT.</li> <li>• <b>Basic skills</b> -English, Maths and ICT skills are taught during discrete lessons but are revisited in DT so children can apply and embed the skills they have learnt in a purposeful context.</li> <li>• <b>Enhancement</b> - We plan termly visits, visitors and involvement in the community activity to provide first-hand experiences for the children to support and develop their learning. This can be linked to DT (please see cultural capital overview). We recognise that to have impact planned cultural capital must be clearly linked to the statutory DT skills and knowledge to be acquired and provide the opportunity for children to better understand the knowledge or apply what they already know.</li> </ul>	<ul style="list-style-type: none"> <li>• The large majority of children will achieve age related expectations in DT</li> <li>• As designers, children will develop skills and attributes they can use beyond school and into adulthood.</li> </ul>
--	--	--	--

### 3. Pedagogy

In Design and Technology, like all other subjects, we recognise the importance of the methods and practice of teaching (the pedagogy) we choose to use in enabling pupils to know more, understand more and remember more. In Design and Technology, the following approaches will be used, and be evident in pupils' books, in order to ensure that learning opportunities are as effective as possible and that pupils progress throughout the year and across year groups during their time in school:

<b>Teaching Sequence in Design and Technology</b>	<b>Big Picture:</b> Placing of the Design and Technology being studied in the context of similar past learning in the subject	<b>Possible pedagogical approaches used in Design Technology</b>	Behaviourism	<b>Direct teacher instruction; modelling of skills and techniques; demonstration</b>
	<b>Daily Review:</b> A brief review of learning covered in previous lessons.		Constructivism	<b>Inquiry-based learning; outdoor learning</b>
	<b>1. Design Brief:</b> Posing a problem to be solved in a context children understand. Identifying an intended user for the product that is to be created.		Social Constructivism	<b>Teacher modelling; questioning; mix of individual, paired and group instruction</b>
	<b>2. Research:</b> Exploring and investigating existing products; experimenting with the making skills that will be required; learning about a key designer or case study relevant to the project.		Liberationism	<b>Pupil-led learning; opportunities to showcase learning</b>
	<b>3. Design:</b> Creating own design, informed by design brief and research.		<b>Learning, working and talking like a 'designer'</b>	<b>Being exposed to real-life case studies and examples of people who work/have worked in the world of design and technology; finding out about how key individuals/moments in design have impacted upon the world we live in; understanding 'designer' as a career option in the real world, and the various job roles this encompasses; being introduced to the key vocabulary that a designer would use; high expectations of pupils thinking and talking like a designer.</b>
	<b>4. Make:</b> Using practised/learnt skills to create a high quality product, making improvements as they work if necessary.			
<b>5. Evaluate:</b> Critically assessing own work against design brief.				

#### 4. Aims

At Fitzwilliam Primary School, through our teaching of Design and Technology we aim to:

- Develop imaginative and creative thinking in children, and encourage them to have the confidence to bring their ideas to life.
- Teach and develop the practical skills that children will need in order to successfully make appealing and functional products.
- Encourage and guide children in thinking critically about both existing products and their own work, in order to form their own opinions, and evaluations, and to learn from others' work and their own successes and failures.
- Expose children to key designers and design case studies, in order to understand the role and impact of design and technology on the world in which we live, and to consider the future learning and career opportunities within these fields.
- Encourage children to use what they have learnt in Science and Maths to inform their approach to designing and making in DT, and to understand that this is what real-life designers do.

#### 5. Objectives

### **Early Years Foundation Stage**

Design and Technology falls within the 'Expressive Arts and Design' strand of the EYFS. Children are given the opportunity to:

- Manipulate materials to achieve a planned effect.
- Construct with a purpose in mind, using a variety of resources.
- Use simple tools and techniques competently and appropriately.
- Select appropriate resources and adapt work where necessary.
- Select tools and techniques needed to shape, assemble and join materials they are using.

We encourage the development of creativity, skills; knowledge and understanding that help children make sense of their world as an integral part of the school's work. We relate the development of the children's arts and design to the objectives set out in the Early Learning Goals. These underpin the curriculum planning for children aged three to five. This learning forms the foundations for later work in design and technology. These early experiences include asking questions about how things work, investigating, using and being creative with a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control. We provide a range of experiences that encourage creativity, exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, attract the children's interest and curiosity.

### **National Curriculum - Key Stage 1**

#### **Design**

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

#### **Make**

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

#### **Evaluate**

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

#### **Technical Knowledge**

- explore and use mechanisms [for example, levers, sliders, wheels and axels], in their products

- build structures, explaining how they can be made stronger, stiffer and more stable

## **National Curriculum - Key Stage 2**

### **Design**

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### **Make**

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

### **Evaluate**

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

### **Technical knowledge**

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- 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]

## **6. Scheme of Work**

The Scheme of Work has been designed by the subject leader in order to ensure an appropriate variety of project types (within the categories of Construction, Textiles and Food Technology) are covered throughout school, and that progression is evidenced within these different strands. Construction is the widest category, and covers the designing and making of different types of structure, mechanisms and electrical systems. Food technology is taught once per year, and Textiles is taught in Years 2, 3 and 5. For more details please see the SOW document on the school's website.

## **7. Resources**

Specialised Design and Technology materials and equipment are kept in the central store cupboard and regularly checked by the subject leader. Resources needed for each project are ordered at the start of each term by the subject leader, after consultation with teaching staff.

## **8. Reasonable Adjustments**

The curriculum leader in Design and Technology recognises the importance of ensuring that children with identified Special Educational Needs and/or Disabilities have access to an ambitious DT curriculum. SEND children will be provided with reasonable adjustments through their tasks and level of challenge/support provided. Advice can be sought from the school's SENDCO where applicable.

## **9. Health and Safety**

- **Food Technology:**  
Children will be instructed on how to use sharp knives safely and will be supervised while using them.  
Children will be instructed on how to use a hob/oven and will be supervised when using.  
Food hygiene will be covered in each year group as a key learning objective for each Food Technology project.  
Teachers must familiarise themselves with any food allergies or dietary requirements within their cohort and plan accordingly.
- Children will be shown how to use a variety of tools safely and staff will oversee use of tools, with levels of supervision appropriate to age of children.
- Staff will ensure pupils have a tidy environment and enough space to work safely within, and also set high expectations of responsible behaviour in DT lessons.

## **10. Links with other areas of the Curriculum**

**English:** Children are expected to use basic skills and show good levels of written communication when recording their ideas during research, designing and evaluating.

**Maths:** Children will be encouraged to use skills gained from their learning in measurement and geometry when designing and making their products.

**Science:** Staff will make explicit the link between Science and DT. Prior learning and exploration in areas such as Everyday Materials, Forces and Motion, Plants and Electricity will help to inform children's design decisions.

**Computing and E-Safety:** We use computing to support DT teaching when appropriate. Children use software to enhance their skills in designing and making and use technology to collect information. The Design and Technology policy and scheme of work adheres to the whole school E-safeguarding Policy, which can be found on the school website.

**Personal, social and health education (PSHE) and citizenship:** We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about nutrition and healthy diets, and how by learning to prepare our own meals, we can take control of our health. They may need to work collaboratively and thus practice communication and team-working skills. Providing examples of careers within design and technology encourages older children to begin to think about future learning and career aspirations.

## **11. Spiritual, moral, social and cultural development**

The spiritual development of pupils is shown by their:

- sense of enjoyment and fascination in learning about themselves, others and the world around them
- use of imagination and creativity in their learning
- willingness to reflect on their experiences.

The moral development of pupils is shown by their:

- ability to recognise the difference between right and wrong, readily apply this understanding in their own lives and, in so doing, respect the civil and criminal law of England
- understanding of the consequences of their behaviour and actions
- interest in investigating and offering reasoned views about moral and ethical issues, and being able to understand and appreciate the viewpoints of others on these issues.

The social development of pupils is shown by their:

- willingness to participate in a variety of communities and social settings, including by volunteering, cooperating well with others and being able to resolve conflicts effectively

The cultural development of pupils is shown by their:

- understanding and appreciation of the wide range of cultural influences that have shaped their own heritage and that of others
- willingness to participate in and respond positively to artistic, sporting and cultural opportunities

- interest in exploring, improving understanding of and showing respect for different faiths and cultural diversity, and the extent to which they understand, accept, respect and celebrate diversity, as shown by their tolerance and attitudes towards different religious, ethnic and socio-economic groups in the local, national and global communities.

## **12. Assessment and Recording**

All written/drawn DT work is completed in DT books, which follow children throughout school. Finished products should be photographed individually and stuck into books. Teachers assess children's practical work in DT by making assessments as they observe them working during lessons. In accordance with the school marking and feedback policy, class teachers complete a whole class feedback grid which is shared with pupils at the beginning of the following lesson. In addition to this a marking summary sheet is also completed. At the end of each full term data is imputed into Target Tracker to record if children are at, above or below Age Related Expectations. The DT subject leader is currently working on creating a portfolio of DT work in order to exemplify standards across year groups and aid teachers in making judgements.

## **13. Responsibilities of the Subject Leader**

- Overseeing and implementing the policy.
- Writing an annual action plan for The School Improvement Plan and evaluating progress throughout the year.
- Ensuring that the Scheme of Work allows for full coverage of EYFS/NC objectives and shows progression across school.
- Attending CPD to keep knowledge up to date and feeding back to staff.
- Monitoring teachers' planning.
- Conducting book scrutinies.
- Conducting pupil discussions.
- Conducting learning walks.
- Providing feedback to staff on all monitoring activities in order that teaching and learning may be improved.
- Providing support and guidance to colleagues whenever required.
- Ordering resources and maintaining the DT cupboard.

## **14. COVID-19 Adjustments**

In light of the current situation regarding COVID-19 and the changes and restrictions that this has brought to school life, the following adjustments will be made to the DT curriculum to ensure the safety of our pupils and staff:

- Pupils will not share resources or equipment when making their products.



*'Working and growing together'*

- Any equipment taken from the DT cupboard will be cleaned thoroughly after use and left for 72 hours before being used by another bubble.
- Materials that have been touched but not used in final products will be thrown away if they can't be cleaned (eg paper, fabric). Pupils will be frequently reminded of this to try and avoid unnecessary waste.
- Food technology units will not be taught until further notice (this will be monitored throughout the year). Year groups will complete alternative construction projects instead.
- Up-to-date Government safety guidance will be followed at all times and further changes will be made as necessary to ensure the DT curriculum is delivered safely and any risks to pupils and staff are minimised.

### **15. Policy and Scheme of Work Revision**

This policy was originally written by Tim Downes in August 2019 and then updated/modified by Jenny Burns in August 2020. It will be monitored throughout the year in terms of COVID-19 impact and reviewed fully in August 2021.