

## Design Technology

### Intent

- Provide opportunity to develop skills, knowledge and understanding of designing and making functional products
- Nurture creativity and innovation through design, and by exploring the designed and made world in which we all live and work.

With this in mind, we have planned units that allow children to know and understand about food and nutrition, mechanisms, structures, systems, electrical systems, understanding materials and textiles.

We follow the EYFS statutory framework and National Curriculum.

Our curriculum provides teachers with a clear overview of the precise knowledge pupils will learn in each unit

The foundations of D.T. are cemented in the EYFS through learning within ***Understanding the World: technology***. Our ambitious interpretation of the National Curriculum places knowledge, vocabulary, and skills needed to engage in an iterative process of designing and making at the heart of our principles, structure and practice.

### Substantive knowledge

- This is the subject knowledge and explicit vocabulary used to learn about the content.
- Staff are supported to deliver clear instruction about relevant techniques, skills and methods.
- Children will use what they know in a meaningful way.

### Disciplinary knowledge

- Children will use & apply their knowledge by working as a designer, gradually building on their D.T skills: Designing, Making, Evaluating, Technical Understanding, Working Creatively, Innovation.
- They will learn that the following stages are key to design and technology:  
**Design** -- the art or process of deciding how something will look or work.  
**Make** – Creating something by combining materials or putting parts together. This stage involves innovation, technical understanding, working creatively and modifying.  
**Evaluate** – Form an opinion of the value or quality of something after careful thought.  
**Technical Knowledge** – Build and apply a repertoire of knowledge, understanding and skills to design and make products for a range of purposes and audiences.
- Key designers are introduced which include engineers e.g. Karl Friedrich Benz (1844 – 1929) and architects e.g. Frank Lloyd Wright (1867 – 1959)
- This is underpinned by oracy and vocabulary provision

### Principles

- Content is relevant to today and based upon ***core knowledge, environmental sustainability, and health & wellbeing***
- It is aspirational for all pupils
- Each study draws upon prior learning e.g. in EYFS, pupils learn physical development in daily activities, exploring food, tools and materials around them. These experiences are drawn upon and used to position new learning in KS1 and KS2.
- Tasks are put into real life context for children so that they are making for a real purpose.

### Sequencing

- Our D.T. has sequenced the national curriculum into meaningful and connected 'chunks' of content to reduce the load on the working memory as well as creating coherent and strong long-term memories.
- It builds upon previously taught content for **mechanisms, structures, food and nutrition, understanding materials and textiles.**
- Skills develop sequentially and the use of a range of materials, techniques and tools help children to progress their skill and knowledge.

### Spaced retrieval approach

- Our D.T. curriculum is delivered through a series of modules which are deliberately spaced throughout the academic year with opportunities to introduce and revisit key concepts. This approach enables staff to deepen pupil understanding and embed learning.

### Early Years

- In Early Years, early content is taught through Physical Development and Expressive Art & Design.
- Our EYFS curriculum is designed to enable children to make sense of how things work, as well as designing and making.
- Each half term pupils experience a DT focus in their continuous provision and within adult led activities.

### KEY STAGE 1 & 2

- The Design and Technology curriculum is organised into blocks with each block covering a particular set of disciplines, including food and nutrition, mechanisms, structures, systems, electrical systems, understanding materials and textiles
- We teach 1 block per half term
- This can be taught as a block of lessons covering a longer period of time, rather than separate, weekly lessons.
- Each year group covers the following:
  - Core discipline
  - Key concept
  - Any meaningful links to other subjects
- **Cultural capital** is strong with references to designers from the past (e.g. Karl Friedrich Benz (1844 – 1929), contemporary designers (Dame Zaha Mohammad Hadid) those from a variety of cultures and with links to history (eg. The Bayeux Tapestry).

NB: Cooking and nutrition is a part of the Design Technology Curriculum.

In Key Stage 1 this focuses on children using the basic principles of a healthy and varied diet to prepare dishes and understanding where food comes from.

In Key Stage 2 this focuses on understanding the basic principles of a healthy and varied diet ; preparing and cooking a variety of dishes (predominantly savoury) using a range of techniques and understanding seasonality and knowing where and how a range of ingredient are grown, reared, caught and processed.

## Implementation

### Modular Approach – Knowledge

- D.T. is taught across KS1 and KS2 in modules that enable pupils to study key knowledge, skills and vocabulary in depth.
- Each module aims to activate and build upon prior learning, including EYFS, to ensure better cognition and retention. Each module is carefully sequenced to enable pupils to purposefully layer learning from previous sessions to facilitate the acquisition and retention of key knowledge and skills.
- Each unit identifies what pupils will know and be able to do by the end of a unit. This includes vocabulary.

### Development of designing, making and evaluating skills

- As well as ensuring pupils are taught key knowledge, modules are designed to offer the opportunity to undertake practical tasks to develop their skills.
- Each unit is built around **designing – problem solving**.
- Key knowledge is taught and the skills to attack the problem e.g. **Core discipline:** food & nutrition & **Concept:** Does food affect the way you feel?

### Minimum lesson expectations

All D.T. lessons will incorporate the following elements:

- Explicit teaching of vocabulary
- Revisiting of prior learning
- Use of key vocabulary in learning
- Concise description of the knowledge and skills taught
- Evidence of learning in pupil's journals

Each unit has:

- **Point of reference:** links to History, Literature, materials, H&S, working as a designer
- **Point of explanation:** core knowledge, technical vocabulary to use
- **Point of delivery:** revisit prior learning, taught content, point of practice
- **Point of reflection:** questions for assessment are asked to determine the impact of the curriculum

### Vocabulary

- Key vocabulary is identified per module.
- Two tasks are set for pupils to complete in sessions 2 & 3
- Pupils undertake a quiz after a block has been completed. It contains a range of questions requiring simple written responses covering the following: **analysing words, defining words, making connections** to other known words and using words in context.

### Health and safety

- The blocks highlight key tools, techniques and tasks for which potential risks need to be carefully managed.

- We may need to follow our own risk assessment when delivering Design and Technology.
- Regarding food and nutrition, it is advisable for staff to have a basic online certificate in food hygiene.

### **Tailoring for SEND / <20%**

We aim for all D.T. lessons and learning questions to be accessible to all pupils.

- *Scaffolding*
- *Explicit instruction*
- *Cognitive & metacognitive strategies e.g. knowledge notes*
- *Flexible grouping*

## **Impact**

### **Teacher assessment**

#### **Formative**

- The assessment of pupils is formative and is based on pupil outcomes and questioning from each lesson. The following can be used to assess pupils' knowledge and application of skills and techniques as well as their understanding and use of relevant vocabulary.
- **Point of reflection:** questions for assessment are asked to determine the impact of the curriculum during the lesson.

#### **Summative**

- Expectations for each block are made explicit e.g. At the end of this block pupils will know how to waterproof cotton fabric and which fabrics are both functional and hardwearing.
- Each pupil creates a Design Journal which exemplifies their learning journey over KS1 and KS2.
- These journals help staff identify pupil knowledge and skills already taught and progression within the year.
- It helps the leader identify standards in D.T. within a class, cohort and across school.
- Each term the leader visits a sample of lessons and talks with pupils with their Design Journal to determine what pupils know, can do and recall.

#### **Monitoring**

- The D.T. lead will use Design Journals & Learning Walks, looking at 1 core discipline per term e.g. Food & Nutrition to see progression in action.
- Pupil Book Looks are used to investigate **what pupils know – can do – and remember**, using the expected vocabulary and planned outcomes.

#### **Outcomes**

- We expect outcomes to be at least in line with national expectations.
- Children will understand the stages of the design and make process.
- Children will know the work of some key designers and architects.