Design and Technology

The Design and Technology curriculum is structured into five **key concepts**:

- **Designing**
- **Making**
- **Evaluating**
- **Technical Knowledge**
- **Cooking and nutrition**

Second order concepts:

These second order concepts will be explored and developed throughout the D&T curriculum as pupils move through the school:

- **Responsibility:** (working safely, how design can solve problems, choosing the right materials, responsibilities to customers to ensure quality / reliable products, healthy eating, quality ingredients)
- **Similarity and difference:** (making comparisons, noting differences and drawing conclusions)
- **Cause and consequence:** (identifying how things work, how an action can cause change/movement)
- **Significance:** (significant designers and designs, real world examples of effective and successful products)
- **Written and oral expression:** (Using terminology, evaluating, creating accurate designs, labelling and annotating, explaining processes, , presenting)

End Points:

By the end of EYFS, pupils will:

- be able to safely explore and choose a range of materials, tools and techniques to create and make things
- be able to investigate how things work and
- draw, build and make things which fulfil a function
- Be able to share their creation, explaining the processes they have used.
- Be able to understand the importance of healthy food choices

By the end of Key Stage 1, pupils will:

- learn the knowledge and skills needed to design and make products for a range of relevant contexts
- be able to design and test products that are purposeful and appealing
- select tools and materials which are most suitable to make their products from
- evaluate their products against existing products and design criteria
- develop the technical knowledge needed to build structures which are stronger and more stable and be able to use a range of mechanisms
- develop an understanding of where food comes from and how to use the basic principles of a healthy diet to make their own simple dishes

By the end of Key Stage, pupils will:

- develop further knowledge and skills to enable them to design and make purposeful and quality products in different contexts
- be able to research how existing products work and use this to develop designs and products to meet a design brief
- be able to produce more detailed, annotated designs and to test and refine their ideas
- be able to select and use a wider range of tools and materials according to their function and properties
- develop the technical knowledge required to make their products work effectively

- be able to evaluate the effectiveness and quality of their products and use this to improve their work
- develop an understanding of a healthy and varied diet and be able to prepare and cook a range of dishes

A teaching sequence in design and technology

Each unit of work will be based on the following teaching sequence, adapted to suit the topic

- Place the D&T unit in the context of similar past learning in the subject
- Review the learning covered in previous lessons
- Deliver a design brief, posing a relevant problem to be solved
- Children research existing products and possible construction materials/ingredients/tools
- Children create their own designs in response to the brief and their own research
- Children make the product (including making and evaluating a technical aspect first or producing and refining a prototype if appropriate)
- Children evaluate their product with reference to the original design brief

Key Performance Indicators

Our progressive key performance indicators show what pupils should know and be able to do in each aspect of Design and Technology by the end of each year group. These are used to support ongoing assessments of pupils' work.

Year Group	Design
EYFS	I can represent and communicate my ideas through design
1	I am beginning to design products using pictures and words based on a design criteria.
	I use pictures, words and models to convey what I want to design.
2	I use simple drawings and labels to record my ideas
	I design products that have a clear purpose based on my own design criteria.
3	I can research similar products to develop my own design ideas.
	I am able to develop a design through discussion and annotated sketches to add detail to my designs.
4	I generate and develop ideas using exploded diagrams and prototypes.
	I use different ways to creatively record and present my designs to show they are fit for purpose.
5	I can generate and develop ideas using pattern pieces and computer aided design.
6	I generate and develop ideas using a variety of design techniques.
	I justify my plans in a convincing way.
	I use research and develop design criteria to design innovative functional and appealing products aimed at a specific group.

Year Group	Make
EYFS	I can safely use tools and materials
	I can choose materials which would be good to make things with
1	I can choose appropriate resources and tools to make a product.
	I can use a range of materials to make a product, including construction materials, textiles and ingredients.
2	I can select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
	I use a range of materials to make a product, including construction materials, textiles and ingredients and explain why the materials have been selected.
3	I can choose a material for both its suitability and its appearance and explain why it has been selected.
	I can think ahead about the order of my work, select tools needed for a given task and give reasons for my choices.

4	I can choose and use appropriate tools from a wider range to perform practical tasks.
	I can choose suitable materials from a wider range and explain its suitability.
5	I use a range of appropriate tools competently.
	I can join and combine a range of materials competently.
6	I select and use specialist tools and equipment to perform practical tasks accurately.
	I can select from and use a wider range of materials and components according to their functional qualities and aesthetic qualities.

Year Group	**Evaluate**
EYFS	I can say what I like or don't like about what I have made
1	I am beginning to explore and evaluate a range of existing products by evaluating the product against the purpose
	I can evaluate my designs and products by saying how well they do the job they were designed for.
2	I can explore and evaluate a range of existing products by looking at function and materials.
	I can evaluate my ideas and products against set design criteria.
3	I can investigate and analyse an existing product by identifying whether it is fit for purpose and how easy it is to use.
	I can prove that my design meets some set criteria and evaluate how well it works.
4	I can explain why certain materials were used to make existing products
	I can evaluate and suggest improvements for my design.
5	I can evaluate appearance and function against original criteria.
	I am able to justify decisions made during the design process.
6	I can critically evaluate the quality of the design, manufacture and fitness for purpose by comparing existing products
	I can evaluate my ideas and products against my own design criteria and consider the views of others to improve my work.

Year group	**Technical knowledge**
EYFS	I can use some appropriate words to talk about my ideas or products
1	I can explore and use simple mechanisms in my products.
2	I can build structures, exploring how they can be made stronger, stiffer and more stable.
3	I can apply my understanding of how to strengthen, stiffen and reinforce more complex structures.
3	I am able to understand and use mechanical systems in my products.

4	I can understand and use electrical systems in my products.
	I am able to understand and use mechanical systems in my products
6	I am able control and model using an ICT control programme.

Year group	**Cooking and nutrition**
EYFS	I know some foods that are healthy and good for me
1	I can tell you where my food comes from
2	I can use a range of ingredients to prepare a healthy dish
3/4	I can make healthy eating choices from an understanding of a balanced diet
	I can use a range of ingredients to prepare a healthy dish, explain why the ingredients were chosen and the effects on the body
	I can use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading or kneading
5/6	I can explore a range of cooking of cooking techniques to produce a healthy balanced dish.
	I can measure out ingredients accurately and use ratios to scale up or scale down a recipe
	I understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
	I understand the importance of correct storage and handling of ingredients