Design Technology Curriculum

"The greatest thing about big ideas is being able to share them" – Albert Einstein

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

The national curriculum for design technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Design Technology in our Early Years Foundation stage

How is design technology taught in the Early Years Foundation Stage.

Design Technology is taught through developing a fluent style of moving, with control and grace. Children have access to DT areas which aim to develop their small motor skills so that they can use a range of tools competently, safely and confidently. Children are encouraged to return to and build on their previous learning, refining ideas and developing their ability to represent them. EYFS children create collaboratively, sharing ideas, resources and skills. Throughout their time in Year R there is a focus on ELG's (Early Learning Goals) which focus on Physical Development and Fine Motor Skills therefore ensuring that children have experience of and are able to use a range of small tools, including scissors, paintbrushes and cutlery, safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function, share their creations, explaining the process they have used; teachers observe the children's development of these skills throughout the year.

Key Objectives EYFS	**Early Learning Goal**
In Foundation Design Technology is taught through the curriculum area of *expressive art and design* and *understanding the world*.	By the end of Year R children will be able to: • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories.
Key experiences	In Reception, children will experience many opportunities to develop and progress their DT skills. Initially, during morning jobs and through continuous provision children will experience cutting and sticking where these skills will be assessed and monitored throughout their Year R journey as it also forms part of their Fine Motor Skill set. As the year progresses skills within DT also progress and are built upon; in Spring term the children will learn about where food comes from with a focus on fruit and vegetable farming; the children will cook and make a stir fry where they will be taught how to chop food, they also have the opportunity to make bread where they will knead dough. Throughout their journey in Year R children will learn how to join things; initially starting with joining paper together with treasury tags and concluding in the Summer Term with sewing running stitches on Binca material. These skills will be carried through into KS1 where they will progress even further and offer a great foundation to build upon.
The characteristics of effective learning	**Playing and exploring – Engagement** Finding out and exploring, Playing with what they know, Being willing to 'have a go'. **Active Learning – Motivation** Being involved and concentrating, Keep trying and being willing to 'give it a go', Enjoying achieving what they set out to do. **Creative and critical thinking** Having their own ideas, Working with ideas.

Design Technology in Key Stage One

How is design technology taught in Key Stage One.

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts; for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment.

When designing and making, pupils should be taught to:

- **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,
  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

The Teaching and implementation of Art and Design curriculum at the Oaks Federation is based on the National Curriculum and supported by a wide range of resources. We ensure the skills progression of Design Technology are embedded through our 5 keys steps. These skills have been chosen to ensure coverage through our 2 year cycle.	**Textile** Children learn how to join fabrics/materials using different methods such as stapling, gluing and sewing. **Wheels and Axels** Children learn how to create a working axel; fixed or moving. **Food** Children learn to chop, cut, peel, fork secure, bridge hold. **Levers and Sliders** Children learn to create moving parts.

Key stage 1 cycle A		
Autumn	*Spring*	*Summer*
Textile	*Wheels and Axels*	*Food*
Substantive knowledge		
Design purposeful, functional, appealing products for themselves and other users based on design criteria; Children create a Christmas Decoration and join them using running stitch, stapling, gluing. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology; Children design their Christmas Decoration and consider which method of joining they wish to use. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics; Children consider which fabrics will work best with their form of joining ie: is a material easy to glue? If not, I will sew the material instead etc Evaluate their ideas and products against design criteria; Children will decide whether their product meets the design brief Build structures, exploring how they can be made stronger, stiffer and more stable; Children think about what they could change about their product to improve it.	Design purposeful, functional, appealing products for themselves and other users based on design criteria; Children create a vehicle to transport people to safety. Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology; Children practice making two types of axel – fixed or moving. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics; Children decide which type of axel they would like to use in their final piece. They will also decide what materials they would like to use for their final product. Evaluate their ideas and products against design criteria; Children will decide whether their product meets the design brief Build structures, exploring how they can be made stronger, stiffer and more stable; Children think about what they could change about their product to improve it.	Use the basic principles of a healthy and varied diet to prepare dishes Children create a dip and a dipper using healthy vegetables from the UK and around the world. Understand where food comes from; Children learn about many different fruits and vegetables and where they originate from including some of the processing of the fruit/vegetable.

Disciplinary Knowledge		
-Experiment with running stich, staples and glue to join materials. -Design a decoration and decide on joining method – explaining why. - Explore materials	- Experiment with moving axels and fixed axels. -Design a moving vehicle and decide on an axel – explaining why. - Explore materials	- Use knowledge of healthy vegetables to decide what dip and dippers you will use. -Safely cutting, chopping and peeling. - Explore different foods
Outcome: Christmas Decoration	Outcome: Moving Vehicle	Outcome: Dip and Dipper

Key stage 1 cycle B		
Autumn	*Spring*	*Summer*
Levers and Sliders	*Food*	*Textiles*
Substantive knowledge		
Design purposeful, functional, appealing products for themselves and other users based on design criteria; Children create a greetings card and decide whether they will use a lever or slider or a combination of both. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology; Children design their card and consider whether they use a lever or slider. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics; Children consider whether they will use a lever or a slider and reasons why they have chosen it. Evaluate their ideas and products against design criteria; Children will decide whether their product meets the design brief Build structures, exploring how they can be made stronger, stiffer and more stable; Children think about what they could change about their product to improve it.	Use the basic principles of a healthy and varied diet to prepare dishes Children create a Healthy Breakfast. Understand where food comes from; Children learn about many different fruits and vegetables and where they originate from including some of the processing of the fruit/vegetable.	Design purposeful, functional, appealing products for themselves and other users based on design criteria; Children create a pouch and join them using running stitch, back stitch or whip stitch. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology; Children design their pouch consider which method of sewing they wish to use. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics; Children consider which method of sewing they will use and can communicate reasons why they have chosen this stitch. Evaluate their ideas and products against design criteria; Children will decide whether their product meets the design brief Build structures, exploring how they can be made stronger, stiffer and more stable; Children think about what they could change about their product to improve it.

Disciplinary Knowledge		
-Experiment with levers and sliders. -Design a card and decide on a lever or a slider – explaining why. - Explore materials	- Use knowledge of healthy fruits and vegetables to decide what will be included in the healthy breakfast. -Safely cutting using fork securing the item or bridge holding the item of food. - Explore different foods	-Experiment with whip, running and back stitch. -Design a pouch and decide on a stitch – explaining why. - Explore materials

- Highlighted areas are assessment areas and may not be assessed within each term, terms will have specific focussed assessment areas.