Design & Technology Long Term Overview

In Jesus' footsteps we will grow in grace and knowledge

Early Years	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**Bread plaiting:** *Children begin practising their kneading and plaiting skills as they prepare the dough for baking, before testing and evaluating the final product.*	**Seasonal Project Structures: Autumn - Hibernation Boxes** *Designing and making a hibernation box, children consider the function of a product.* **Seasonal Project Mechanisms: Sliding angels/stars** *Creating a sliding mechanism, children develop their cutting and joining skills.*	**Workshop: Junk Modelling** *Exploring materials through junk modelling, children develop their scissor skills and awareness of different materials and joining techniques. Children begin to make verbal plans and material choices before starting and problem solve while making their model.*	**Seasonal Project Easter: Hanging Egg Decoration** *Designing a hanging egg decoration, children make choices about how to decorate.*	**Seasonal Project Spring: Flower Threading** *Creating their own threading cards, children practise using scissors and a hole punch.*	**Structures: Boats** *Considering the properties of materials through water play, children discover which materials are waterproof and whether they float or sink. Children evaluate a variety of boats and use their new-found knowledge to design and make a boat that is waterproof and floats.*
Reception	**Cooking and Nutrition: Soup** *Learning about vegetables and where they come from while preparing to make a soup. Children describe the taste of a range of vegetables and design a soup recipe as a class. They practise cutting skills and prepare the vegetables for their class soup before testing the final product.*	**Workshop: Junk Modelling** *Exploring materials through junk modelling, children develop their scissor skills and awareness of different materials and joining techniques. Children begin to make verbal plans and material choices before starting and problem solve while making their model.* **Seasonal Project Mechanisms: Sliding angels/stars** *Creating a sliding mechanism, children develop their cutting and joining skills.*	**Workshop: Junk Modelling** *Exploring materials through junk modelling, children develop their scissor skills and awareness of different materials and joining techniques. Children begin to make verbal plans and material choices before starting and problem solve while making their model.*	**Textiles: Bookmarks** *Developing fine motor skills through a range of threading activities before moving on to use binka and a needle. Children design a bookmark, considering what to include and why and then follow their designs to complete their bookmarks.*	**Seasonal Project Cooking and Nutrition: Designing a rainbow salad** *Researching and designing a colourful and healthy salad.*	**Structures: Boats** *Considering the properties of materials through water play, children discover which materials are waterproof and whether they float or sink. Children evaluate a variety of boats and use their new-found knowledge to design and make a boat that is waterproof and floats.*

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Key Stage 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A		**Structures:** Design a windmill. Assemble the structure and the windmill. Test and evaluate.		**Textiles:** Join fabrics. Design a puppet. Make, join and decorate a puppet.		**Cooking and Nutrition:** Identity fruits and vegetables. Investigate where fruits and vegetables grow, Taste smoothie ingredients. Make a smoothie. **Mechanisms:** Make a slider and explore movement.
Cycle B		**Structures:** Explore stability and strengthening materials. Make Baby Bear's chair. Fix and test Baby Bear's chair.		**Mechanisms:** Design a ferris wheel. Plan the build and build the frame and wheels. Add pods and decoration.		**Mechanisms:** Explore pivots, levers and linkages. Make linkages. Design and make a monster. **Cooking and Nutrition:** Investigate hidden sugars in drinks.

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Lower Key Stage 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Cycle A		**Cooking and Nutrition:** Know that climate affects food growth, Understand the advantages of eating seasonal foods grown in the UK. Create a recipe that is healthy and nutritious using seasonal vegetables. Safely follow a recipe when cooking. **Textiles:** Learn how to sew cross-stitch and appliqué.		**Digital world:** Understand the impact of the digital revolution in the world of (D&T) product design. Write a program to initiate a flashing LED panel after button press and/or automatically initiate using the Micro:bit light sensing, as part of an eCharm. Create and decorate a foam pouch for the eCharm, using a template. Design a display badge and/or stand using CAD (computer-aided design) software for an eCharm product. **Mechanical systems:** Understand how pneumatic systems work		**Structures:** Look at features of a castle. Design a castle. Construct 3D nets. Construct and evaluate a final product. **Mechanical systems:** To design a toy that uses a pneumatic system.
Cycle B		**Structure:** Explore frame structures. Design a pavilion structure. Build a frame structure and add cladding. **Cooking and Nutrition:** **F**ollow a baking recipe.		**Mechanical systems:** Build a car chassis. Design a shape that reduces air resistance. Make a model based on a chosen design. Assemble and test the product. **Textiles:** Identify and evaluate different types of fastenings. Explain the advantages and disadvantages of each fastening type.		**Electrical systems:** Learn about electrical items and how they work. Analyse and evaluate electrical products. Design a product to fit a set of specific user needs. Make and evaluate a torch.

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Upper Key Stage 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5		**Electrical systems: Doodlers** Understand how motors are used in electrical products. Investigate an existing product to determine the factors that affect the product's form and function. Put findings from research into practice to develop an improved product. develop a DIY kit for another individual to assemble their product.		**Mechanical systems:** Design a pop-up book. Use layers and spacers to cover the working of mechanisms. Create a high-quality product suitable for a target user.		**Cooking and Nutrition:** Understand where food comes from. Understand the term 'healthy'. Adapt a traditional recipe. Complete a food product.
Year 6		**Textiles:** Design a waistcoat or Christmas stocking. Mark and cut fabric according to a design. Assemble and decorate.		**Structure**: Design a playground with a variety of structures. Build a range of structures. Improve and add detail to structures. Create the surrounding landscape.		**Digital world:** Write a design brief and criteria based on a client request. Write a program to include multiple functions as part of a navigation device. Develop a sustainable product concept. develop 3D CAD skills to produce a virtual model. Present a pitch to 'sell' the product to a specified client. **Cooking and Nutrition:** Come Dine with Me! Follow a recipe, including using the correct quantities of each ingredient.

Design & Technology Curriculum
Essential Elements

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St. Leonard's Design and Technology Curriculum fulfils the statutory requirements outlined in the National Curriculum (2014). The National Curriculum for Design and 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 other.	★ understand and apply the principles of nutrition and learn how to cook.

From these aims, the content of our curriculum has been categorised into six areas:

Cooking and Nutrition	Mechanisms	Structures	Textiles	Electrical Systems (KS2)	Digital World (KS2)

The Design and technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each unit follows these stages, to form a full project. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.

Design	Make	Evaluate	Technical Knowledge