



# Design and Technology (DT)

## Whole School

Termly Knowledge and skills

**Intent:**

As Designers and technologists, we do not just stop at our curiosity of how things work but instead look at how we can think creatively to problem solve and make products even better. At Sandwich Infant School, we understand the diversity of the world and the importance of exposing our pupils to a wide range of products that can inspire their curiosity and creativity, as well as the thought processes involved in creating such products. Through this exposure, children take on the role of developer, evaluator and that of a critique, exploring how products can be developed or adapted for different users as well as creating and testing prototypes to give purpose to projects. Children need a hands-on approach that also gives access to other areas of the curriculum such as Mathematics, Science, Computing and Art. Skills and techniques developed through Design and Technology are of great importance in our everchanging technological world to ensure that children are equipped for the next stages in their lives.

**Implementation:**

Our Design and Technology curriculum is implemented through a variety of different projects over the children's time at Sandwich Infants. Our carefully planned curriculum ensures that children are constantly building upon prior learning and are able to expand their knowledge and understanding of problem solving, designing and constructing different products.

Children will complete 3 projects a year, either having one lesson a week or a two to three day/afternoon block to complete each project so children are fully immersed in the design, make and evaluate process to help fully engage the children and embed the substantive knowledge and skills. Children are given a variety of real-life products to explore in great detail, expanding their knowledge of how they look and work.



For each project, children follow the design, make and evaluate sequence, allowing children time to reflect upon their design and products and think of ways that they could be improved or adapted. Teachers and other staff support and model increasingly progressive evaluative skills to enable children to create products of a high-quality throughout school. Children are given a design brief to put the need for the product in context. Where possible, teachers ensure that the brief is linked to another area of their learning or has relevance to the children to inspire their imagination and eagerness to create and problem solve. Safety is explained and modelled at the start of and throughout each product including food hygiene instructions and using equipment or machinery safely.

**Impact:**

We aspire that our children will have gained knowledge and understanding of different skills and techniques required to problem-solve by designing and creating a variety of products using a safe approach. They will understand the cross curricular elements within the subject and the importance of knowledge and skills learnt in other areas of the curriculum aid the design and make process, as well as embedding these techniques and skills in them for future life and learning.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Reception</b>						
<b><u>Substantive Knowledge</u></b>	<b><u>Construction and 3D forms</u></b>  <b><u>How do things work?</u></b> To explore and find out how things work. To know how to use a variety of construction resources e.g. Lego, blocks, K-nex. To build with purpose.		<b><u>Templates and joining</u></b>  <b><u>How to use a range of tools safely?</u></b> To know how to use a range of tools competently, safely and confidently. To know how to use one-handed tools and equipment, for example, making snips in paper with scissors.		<b><u>Preparing Fruit and Vegetables (Fruit salad/vegetable soup)</u></b>  <b><u>What kitchen equipment can we name and use safely?</u></b> To discuss how to make an activity safe and hygienic. To know that we need to wash our hands before cooking. To know how to use simple equipment safely, with support.	
<b><u>Disciplinary Knowledge (Skills)</u></b>	To construct with a purpose, using a variety of resources e.g. junk modelling and making Christmas cards. To use simple tools and techniques. To record experiences by drawing, writing, voice recording To make links with 3D forms e.g. identifying that a cone has a point and so will be good for the top of a building.		To select tools & techniques to shape, assemble and join. To look at similarities and differences between existing objects / materials / tools To describe textures. To explore techniques for joining materials. To develop their own ideas and then decide which materials to use to express them. To select materials for a purpose.		To name some simple cooking equipment, knife, fork, chopping board, mixing bowl, plates, cups. To name a variety of fruit and vegetables and discuss what they are making.  *In term 1 – children explore pumpkins and name different fruit and vegetables as part of Harvest. They also name different snacks in term 1.	
Vocabulary	<b>Assemble, make, build, fix, moving parts, wheels, cogs, turn, cutting, blocks,</b>		<b>Join, fabric, paper, card, glue, tape, evaluate, design, make, texture, fasten.</b>		<b>Food, meal, snack, healthy, diet, mix, stir, food safety, knife, fork, spoon, wooden spoon, chopping board,</b>	
<b>Year 1</b>						

<p><b><u>Substantive Knowledge</u></b></p>	<p><b><u>Mechanisms: Sliders and levers</u></b></p> <p><b><u>What is a lever or slider?</u></b>          To know how to make a product that moves.          To know examples of simple lever mechanisms i.e. scissors and a seesaw.</p> <p><b><u>How do mechanisms work?</u></b>          To know that mechanisms are the parts that make a product work.          To know that mechanisms are all around us and help us in everyday life.          To know that a slider is a simple mechanism.          To know examples of simple sliders i.e. in a moving book or a drawer on a slider.          To know that for a slider to be effective it must move smoothly.          To know that slider help to move things from side to side and up and down.          To know how to evaluate how well something works.          (How well does it work? Does it meet its purpose? Who will use it? What else could you do to improve?)</p>	<p><b><u>Textiles: Templates and joining</u></b></p> <p><b><u>What different joining techniques are there?</u></b>  <b><u>What are we going to be making?</u></b>  <b><u>How do I want my finished product to look?</u></b></p> <p>To understand how to join fabrics and other materials using different techniques e.g. gluing, stapling, taping.          To know and use technical vocabulary relevant to the project.</p> <p><b><u>Which techniques will be best for the purpose?</u></b>  <b><u>How will I make my finished product?</u></b>          To know how to select the best joining or finishing techniques for a particular purpose.</p> <p><b><u>What is a template?</u></b>          With support make and use a simple template for their final product.</p> <p><b><u>How does my finished product look?</u></b>  <b><u>What improvements could I make?</u></b>          To know the importance of evaluating a product in order to make improvements.</p>	<p><b><u>Food and Nutrition: Preparing Fruit and Vegetables</u></b></p> <p><b><u>What is the purpose for the product?</u></b>          To know that products are designed for different purposes and users.          To name the ingredients that they will be using.          To name simple cooking equipment (grater, knife, chopping board, peeler, sieve, measuring scales)</p> <p><b><u>What is food hygiene and safety?</u></b>          To know how to cut food safely.          To know that the flat surface of the food should be face down on the chopping board.          To know that the food must be stable before cutting.          To know that when using a peeler for long foods such as carrots they should hold one end and peel from the middle away from themselves.          To know that when grating they do not have to grate every bit of the food.          To know that it is best to leave a small chunk at the end to hang on to.          To know how to use a grater safely by keeping fingers away from the grater edge.          To know how to use scissors safely. (Kitchen scissors can sometimes be a useful alternative to a knife, especially if children are quite young. Scissors are often useful to cut up ingredients such as cooked bacon, herbs and spring onions).          To know how to use the 'Fork Secure' cutting technique, safely.</p> <div> </div> <ul style="list-style-type: none"> <li>• The Fork Secure</li> </ul> <p>To know how to evaluate an idea by saying what worked and what didn't work.</p>
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<p><b><u>Disciplinary Knowledge (Skills)</u></b></p>	<p>To describe simple mechanisms using appropriate vocabulary.          To identify simple mechanisms in everyday life.          To make a simple slider or lever mechanism.          To evaluate a finished product.          To cut using scissors safely.          To fasten and join components to make a simple mechanism using glue or folding techniques. (V-Fold, mouth mechanism).          To design a product to me made.</p>	<p>To design a product first before making.          To talk about their design and how things will look, techniques to use and materials, etc.          To select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining, and finishing.          To explore and evaluate a range of existing products relevant to the project being undertaken.          To evaluate their ideas throughout and their final products against original design criteria.          To explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.</p>	<p>To name simple cooking equipment.          To follow simple safety rules when using sharp equipment.          To talk about what they are going to make.          To name the ingredients that they will be using.          To follow a simple method/recipe.          To talk about what they liked and disliked about their product.          To talk about and perform simple food hygiene rules.          To use appropriate vocabulary (see below) to describe actions and techniques.</p>
<p>Vocabulary</p>	<p>Slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	<p>Names of existing products, joining and finishing techniques, tools, fabrics and components, join, decorate, finish features, suitable, design criteria, make, evaluate, purpose</p>	<p>The Fork Secure cutting technique, scissors, chopping board, knife, grater, sieve, measuring scales, peeler, apron, food hygiene, safely, secure, flat, wash, clean, soap, germs, cut, grate, peel, names of a variety of fruit and vegetables, chop, slice, mix, stir, beat.</p>
<p><b><u>Year 2</u></b></p>			
<p><b><u>Substantive Knowledge</u></b></p>	<p><b><u>Materials and Structures: (Tudor Homes)</u></b>          To know to join a loo roll tube to a flat surface. (By cutting small slits in the top of the tube and folding back).          To know how to make freestanding structures stronger, stiffer and more stable.          To know and use technical vocabulary relevant to the project.</p>	<p><b><u>Textiles: Templates and joining</u></b>          To know sewing basics of threading a needle, knotting your thread and finishing off.          To know how to sew using running stitch, attempting to produce neat, equal stitches.          To know how to decorate fabric by adding beads/sequins and other finishing techniques.          To know how to make and use a template.</p>	<p><b><u>Food and Nutrition: Preparing Fruit and Vegetables</u></b>          To know how to use 'the bridge' and 'the claw' cutting techniques safely.</p> <ul style="list-style-type: none"> <li>• The  Bridge</li> <li>• The  Claw</li> </ul> <p>To know the importance of eating healthily. (Links made with Science)</p>

			<p>To know that preparing processes are the different ways that we get food ready to be eaten.</p> <p>To know that mixing is to blend ingredients together, using a spoon, blender, or whisk.</p> <p>To know that weighing/measuring is to get the right amount of an ingredient, using scales, tablespoons, or teaspoons.</p> <p>To know where a range of fruit and vegetables come from e.g. farmed or grown at home.</p> <p>To understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Guide. (Linked to Science)</p> <p>To know and use technical and sensory vocabulary relevant to the project.</p>
<p><b><u>Disciplinary Knowledge (Skills)</u></b></p>	<p>To investigate how to make a model stronger.</p> <p>To investigate how to make a model stiffer.</p> <p>To investigate how to make a model more stable.</p> <p>To generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <p>To develop, model and communicate their ideas through talking, mock-ups and drawings.</p> <p>To plan by suggesting what to do next.</p> <p>To select and use tools, skills and techniques, explaining their choices. To select new and reclaimed materials and construction kits to build their structures.</p> <p>To explore a range of existing structures in the school and local environment e.g. everyday products and buildings.</p>	<p>To design their product.</p> <p>To talk about what they will make and how they will make it.</p> <p>To explore joining techniques such as stapling, sewing, gluing, pinning.</p> <p>To sew using a running stitch.</p> <p>To be able to thread a needle and knot thread at the end.</p> <p>To make and use a template for their final product.</p> <p>To develop and communicate their ideas, through talk, drawings and mock-ups.</p> <p>To choose one idea to follow through.</p> <p>To talk about the stages in making before assembling products.</p> <p>To evaluate ongoing work and the final products</p>	<p>To use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</p> <p>To select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.</p> <p>To taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.</p> <p>To evaluate ideas and finished products against design criteria, including intended user and purpose.</p>

	<p>To use simple finishing techniques suitable for the structure they are creating.</p> <p>To evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</p>	<p>To explore different finishing techniques e.g. sewing buttons, 3-D fabric paint, gluing sequins, printing.</p>	
Vocabulary	<p>Cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function.</p>	<p>Names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function</p>	<p>Fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria, The bridge, The claw.</p>