

DESIGN TECHNOLOGY

Purpose of Study: 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 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 others and understand and apply the principles of nutrition and learn how to cook.

KS1 Pupils should be taught:

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

Cooking and Nutrition

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from

KS2 Pupils should be taught:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
 - understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
 - apply their understanding of computing to program, monitor and control their products
- Cooking and Nutrition
- understand and apply the principles of a healthy and varied diet
 - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
 - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Intent

At Anderton Primary School it is our intent that Design Technology will offer the children opportunity to think creatively, problem solve and take risks. Children will design within a purpose and produce a tangible outcome. Design Technology children will develop a broad range of subject knowledge and draw upon skills from other subjects such as mathematics, science, computing and art. DT is taught through practical and engaging lessons that will provide children with the knowledge and understanding of skills needed to design and make. Design Technology is taught using the Design, Make and Evaluate cycle, this is implemented each term in classes across KS1 and KS2 to fit in appropriately with the class topics.

Implementation

To ensure high standards of teaching and learning in design and technology, we implement a curriculum that is progressive throughout the whole school. Design and technology is taught as part of a termly topic, focusing on knowledge and skills stated in the National Curriculum. The teaching of DT should enable all children to gain 'real-life' experiences. Teachers plan lessons for their class using our progression of knowledge and skills documents. The progression document ensures the curriculum is covered and the skills/knowledge taught is progressive from year group to year group

Impact

The high-quality teaching of DT at Anderton Primary School will enable learners to build a strong range of core skills as they progress through the school that will give them the opportunity to become resourceful, innovative, enterprising and capable citizens. All children will feel empowered to design and create a range of products as well as applying practical expertise to enable them to participate successfully in an increasingly technological world. Children will evaluate work by other designers and consider how resources may be adapted to suit the needs of others. They will learn to see the value of design in a variety of contexts and the scope of art to build towards different careers in the future.

Key Concepts (Curriculum Overview)

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	Halloween Crafts Bonfire Crafts Christmas Cards and Crafts		Food & Shell Structures		Mediterranean Cuisine		Celebration food around the world/ textile decorations

Spring	Valentines Day Cards and Crafts Mother's Day Cards Easter Baskets	Healthy Food & Lunch Bag		Food/ Textiles		Greek Cuisine and Box Structures	
Summer	Father's Day Cards and Crafts Summer Arts and Crafts		Mechanisms		Reading Light		Electrical systems

Skills and Knowledge Progression

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing, planning and communicating ideas.	<ul style="list-style-type: none"> To talk about their ideas, choose resources, tools and techniques with a purpose in mind 	<ul style="list-style-type: none"> Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do Identify a target group for what they intend to design and make Develop their design ideas applying findings from their earlier research Evaluate current products. 	<ul style="list-style-type: none"> Generate ideas by drawing on their own and other people's experiences Develop their design ideas through discussion, observation, drawing and modelling Identify a purpose for what they intend to design and make Identify simple design criteria Make simple drawings and label parts Evaluate current products. 	<ul style="list-style-type: none"> Generate ideas for an item, considering its purpose and the user/s Identify a purpose and establish criteria for a successful product. Plan the order of their work before starting Explore, develop and communicate design proposals by modelling ideas Make drawings with labels when designing Evaluate products and identify criteria that can be used for their own designs 	<ul style="list-style-type: none"> Generate ideas, considering the purposes for which they are designing Make labelled drawings from different views showing specific features Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail Evaluate products and identify criteria that can be used for their own designs 	<ul style="list-style-type: none"> Generate ideas through brainstorming and identify a purpose for their product Draw up a specification for their design Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail Use results of investigations, information sources, including ICT when developing design ideas Evaluate products and identify criteria that can be used for their own designs 	<ul style="list-style-type: none"> Communicate their ideas through detailed labelled drawings Develop a design specification Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways Plan the order of their work, choosing appropriate materials, tools and techniques Evaluate products and identify criteria that can be used for their own designs
Working with tools, equipment, materials and components to	<ul style="list-style-type: none"> To use equipment and tools to build, construct and make simple models and props; use tools and 	<ul style="list-style-type: none"> Make their design using appropriate techniques 	<ul style="list-style-type: none"> Begin to select tools and materials; use vocab' to name and describe them 	<ul style="list-style-type: none"> Select tools and techniques for making their product 	<ul style="list-style-type: none"> Select appropriate tools and techniques for making their product 	<ul style="list-style-type: none"> Select appropriate materials, tools and techniques 	<ul style="list-style-type: none"> Select appropriate tools, materials, components and techniques

<p>make quality products</p>	<p>equipment linked to food preparation.</p> <ul style="list-style-type: none"> • To handle and use equipment appropriately and safely. <p>•To make models and props using different construction materials, e.g. construction kits, reclaimed materials. Experiment with different ways to build, construct and join resources. Make props to use in their play /role play/ when acting out stories/taking on story characters.</p>	<ul style="list-style-type: none"> • With help measure, mark out, cut and shape a range of materials • Use tools eg scissors and a hole punch safely • Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape. 	<ul style="list-style-type: none"> • Measure, cut and score with some accuracy • Use hand tools safely and appropriately • Assemble, join and combine materials in order to make a product 	<ul style="list-style-type: none"> • Measure, mark out, cut, score and assemble components with more accuracy • Work safely and accurately with a range of simple tools • Think about their ideas as they make progress and be willing change things if this helps them improve their work • Measure, tape or pin, cut and join fabric with some accuracy • Use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT 	<ul style="list-style-type: none"> • Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques • Join and combine materials and components accurately in temporary and permanent ways • Use simple graphical communication techniques 	<ul style="list-style-type: none"> • Measure and mark out accurately • Use skills in using different tools and equipment safely and accurately • Cut and join with accuracy to ensure a good-quality finish to the product 	<ul style="list-style-type: none"> • Assemble components make working models • Use tools safely and accurately • Construct products using permanent joining techniques • Make modifications as they go along • Pin, sew and stitch materials together create a product • Achieve a quality product
<p>Cooking and Nutrition</p>	<ul style="list-style-type: none"> • use tools and equipment linked to food preparation. • To handle and use equipment appropriately and safely. 	<ul style="list-style-type: none"> •Select and use appropriate fruit and vegetables, processes and tools • Use basic food handling, hygienic practices and personal hygiene 	<ul style="list-style-type: none"> • Follow safe procedures for food safety and hygiene • Choose and use appropriate finishing techniques • Use simple finishing techniques to improve the appearance of their product 	<ul style="list-style-type: none"> •Demonstrate hygienic food preparation and storage • To have a basic understanding of where food comes from. 	<ul style="list-style-type: none"> • Understand seasonality and understand know where and how a variety of ingredients are grown, reared, caught and processed. • To use a range of cooking techniques to prepare and create a range savoury dishes. 	<ul style="list-style-type: none"> • Weigh and measure accurately (time, dry ingredients, liquids) • Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens. 	<ul style="list-style-type: none"> • Understand seasonality and understand know where and how a variety of ingredients are grown, reared, caught and processed.
<p>Evaluating processes and products</p>	<ul style="list-style-type: none"> •To talk about what they like/dislike about their models/constructions/props say why, and how they would change them. 	<ul style="list-style-type: none"> •Evaluate their product by discussing how well it works in relation to the purpose • Evaluate their products as they are developed, identifying strengths and possible changes they might make 	<ul style="list-style-type: none"> •Evaluate against their design criteria • Evaluate their products as they are developed, identifying strengths and possible changes they might make • Talk about their ideas, saying what they like and dislike about them 	<ul style="list-style-type: none"> •Evaluate their product against original design criteria e.g. how well it meets its intended purpose • Disassemble and evaluate familiar products 	<ul style="list-style-type: none"> •Evaluate their work both during and at the end of the assignment • Evaluate their products carrying out appropriate tests 	<ul style="list-style-type: none"> •Evaluate a product against the original design specification • Evaluate it personally and seek evaluation from others 	<ul style="list-style-type: none"> •Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests • Record their evaluations using drawings with labels • Evaluate against their original criteria and suggest ways that

		<ul style="list-style-type: none"> Evaluate their product by asking questions about what they have made and how they have gone about it 					their product could be improved
Vocabulary							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing, planning and communicating ideas.	Idea	Product, user, materials, label, part,	purpose, design, stages, equipment, plan, designer	Efficient, technique, criteria, features, design brief, adapt, labelled drawings,	Success criteria, annotated sketch, viewpoints, process, engineer, represent, original, sketch	Consumer, service, cross section, specification, finish, procedures,	Annotations, exploded diagram, pattern pieces, costings,
Working with tools, equipment, materials and components to make quality products	Make, made, join, cut	measure, mark, instructions, decorate, Sew, template, needle, thread, knot	Shape, combine, assemble, test	Attach, pieces, techniques, construct, repair, systematic, score, centimetre, prototype, over stitch, cross stitch, pin (verb), fastening, back stitch, seam allowance,	Components, functional, aesthetic, appearance, millimetre, accuracy, reinforce, Electronics, parallel circuit, series circuit, bulb, switch, buzzer, motor, control, monitor, software, program	Assemble, refine, Fill, sand,	
Cooking and Nutrition	Healthy, unhealthy, knife, fork, spoon, food, water, taste,	Ingredients, fruit, vegetable, dairy, oil, spread, beans, pulses, eggs, fish, meat, protein, potato, rice, bread, pasta, starchy carbohydrate, safe, clean	Variety, diet, farm, grow, catch, cut, peel, grate, measure, weigh, recipe, spoons, cups, scales	Meal, balanced, mash, whisk, crush, hygiene, nutrition, energy, appearance, texture	Reared, processed, mix, knead, bake, temperature, oven, hob, grams, millilitres, seasonal	Menu, global, harvest, microorganisms, storage	Seasonal, food industry, utensils, griddle, grill, fry, boil, scale, ratio, substitute, temperature, aroma

Evaluating processes and products	Like, dislike	Like, dislike	Strengths, changes,	Improvements, market, designer, technology, function	Disassemble, feedback, modify	Manufacture, alterations, analysis	Adjustment, refinement, sustainability, energy efficient, human impact,
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