

Design Technology

Intent

At Jenyns we have a Design Technology curriculum which is inspiring, rigorous, and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. It will give them the language and skills and knowledge needed to achieve this as well as to effectively evaluate their work as well as the work of others. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum as well as the relevant strands of the statutory framework for the early years foundation stage. It is also our aim to create cross-curricular links with other subjects, such as Mathematics, Science, Computing, and Art.



Implementation

Our Design and Technology curriculum is delivered through a two-year programme due to our mixed aged classes. This ensures full coverage as well as progression across the key stages. We use the 'Design and Technology Association' scheme of work which ensures full coverage and delivery of essential skills and knowledge through the following areas: structures, mechanisms, textiles and food. DT is taught as a block of learning each term. Within their learning children will be investigating and exploring products ; carrying out focused tasks to develop specific skills and knowledge as well as design, make and evaluate assignments. We encourage links to be made across the curriculum within other subjects including maths and science as well as the foundation subjects. In the EYFS, many skills are developed through carefully planned and resourced continuous provision providing opportunities for child initiated learning and discovery, as well as some focused teaching tasks. Assessments will be made against the key skills and knowledge outlined in the progression framework using recorded evidence, photographs and also through valuable discussions with the children.

	Skills and Knowledge		
	EYFS	Key Stage 1	Key Stage 2
Designing/ generating ideas	• Decide on an appropriate material for a task before starting to build. • Begin to generate ideas by building on their own experiences. • Discuss how they could join, shape and assemble their creations during their making.	• Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through own experiences.explaining what they could make • Develop and communicate these ideas through talk, drawings and mock ups where relevant.	• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate,annotated Sketches, cross-sectional and exploded diagrams.

Making	• Begin to select from a range of appropriate tools and explain why they are using it • Begin to understand safety implications and keep clean when making. • Begin to mark out what they want to cut by drawing or tracing.	• Select and use simple utensils, tools, <i>techniques</i> and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card. • Select from a range of ingredients and materials according to their characteristics to create a chosen product. • Plan by suggesting what to do next. • Use simple finishing techniques suitable for the products they are creating.	• Plan the main stages of making. • Select from and use a range of appropriate utensils, tools and equipment with some accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating. • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties and aesthetic qualities. • Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties.
Evaluating	• Talk about what they have made and whether it has ended up like they have initially planned. • Make Improvements/changes during the construction process as necessary. • Begin to suggest what they could have done differently to improve the items they make.	• Taste, explore and evaluate a range of products to determine the intended user's preferences for the product • Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.	• Investigate a range of 3-D, textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. • Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.
Food	• Explore common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.	• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Know how to name and sort foods into the	• Know how to use appropriate equipment and utensils to prepare and combine food. • Know how to prepare and cook a variety of predominantly savoury dishes safely and

	• Experience cutting soft fruit and vegetables using appropriate utensils. • Experience cooking methods such as baking • Experience measuring and weighing out ingredients with an adult	five groups in The eatwell plate • Know that everyone should eat at least five portions of fruit and vegetables every day • Know how to prepare simple dishes safely and hygienically, without using a heat source • 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. • Know and use technical and sensory vocabulary relevant to the project	hygienically including, where appropriate, the use of a heat source • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught in the UK, Europe and the wider world. • Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate • Know that to be active and healthy, food and drink are needed to provide energy for the body • Know and use relevant technical and sensory vocabulary appropriately.
Vocabulary	some fruit and vegetable names, utensil names- bowl, spoon, knife, tray etc... cut,mix, spread, some sensory vocabulary eg hot cold sticky, make, stir, weigh, measure, count, change, soft, hard, rough, wet, smooth, warm, ingredients, recipe, cook, bake, toast	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	name of products, names of equipment, utensils, techniques and ingredients, texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory evaluations
Structures	• Experience using construction kits to build walls, towers and frameworks, enclosures. • Experience using basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. • Experience different methods of joining card and paper, eg, glue stick, pva, sellotape, masking tape.	• Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.	• Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project.
Vocabulary	cut, join,stick, fold, strong, various material names, circle, triangle, square, rectangle, make, enclosure,	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,	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce,

		rectangle, cuboid, cube, cylinder, design, make, evaluate, user, purpose, ideas, design criteria, product, function	reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype
Textiles	• Explore and use different fabrics (collage, outfits for characters). • Cut and join fabrics with simple techniques. • Practise threading through punched holes with beads, pipe cleaners, laces etc	• Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project.	• Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.
Vocabulary	fabric, cut, join, wrap. fold, stick, beads , ribbon, button, decorate, thread	names of existing products, joining and finishing techniques, tools, fabrics and components • template, pattern pieces, mark out, join, decorate, finish • features, suitable, quality mockup, design brief, design criteria, make, evaluate, user, purpose, function	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces
Mechanisms	• Experience working with paper and card to make simple flaps and hinges. • Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and tape. • Assemble vehicles with moving wheels using construction kits. • Explore moving vehicles through play. • Develop some cutting, joining and finishing skills with card.	• Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	• Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.

vocabulary	material names, flap, join, stick, fix, up, down, wheel, turn, move,	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards, vehicle, wheel, axle, axle holder, chassis, body, cab, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools, equipment and materials used, design, make, evaluate, purpose, user, criteria, functional, ideas, design criteria, product, function	mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief
Electrical systems			• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project.
vocabulary			series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device, user, purpose, function, prototype, design criteria, innovative, appealing, design brief

Level Expected at the End of EYFS			
This outlines the most relevant statements from Development	Nursery 3- and 4-year-olds	Physical Development	• Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors. • Use a comfortable grip with good control when holding pens and pencils.

Matters age ranges for Three and Four-Year-Olds and Reception, as well as highlighting the statements within the ELGs which feed into the programme of study for Design Technology		Expressive Arts and Design	• Explore different materials freely, in order to develop their ideas about how to use them and what to make. • Develop their own ideas and then decide which materials to use to express them. • Join different materials and explore different textures. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects. • Draw with increasing complexity and detail, such as representing a face with a circle and including details. • Use drawing to represent ideas like movement or loud noises. • Show different emotions in their drawings and paintings, like happiness, sadness, fear, etc. • Explore colour and colour mixing.
	Reception	Physical Development	• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. • Develop overall body-strength, balance, coordination and agility.
		Expressive Arts and Design	• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills
	ELG	Physical Development Fine Motor Skills	• Hold a pencil effectively in preparation for fluent writing - using the tripod grip in almost all cases. • Use a range of small tools, including scissors, paintbrushes and cutlery. • Begin to show accuracy and care when drawing
		Expressive Arts and Design Creating with Materials	• 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
Key Stage 1 (End of key stage expectations)		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.
Key Stage 2 (end of key stage expectations)	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, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to: 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.

Impact

As a result, the expected impact will be that the children will:

- Be creative
- Be proficient in the skills and knowledge needed to make structures and mechanisms and to work with textiles and food (including electrical systems in KS2)
- Design and make products that solve real and relevant problems
- Work safely
- Evaluate and analyse works using subject-specific language.
- Meet the expectations outlined in the National Curriculum for Design Technology as well as the relevant strands of the statutory framework for the early years foundation stage.

Design Technology Curriculum Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Year A & B Delivered through continuous provision and some focused teaching tasks	Food-measuring, mixing playdough. Peeling, chopping apples, mixing making apple crumble Structures- building structures, walls, enclosures, towers with bricks inside & outside Mechanisms- making lift the flap cards		Food making valentine biscuits and Easter nests Structures - making structures in Forest School with sticks and forest litter, balancing, assembling, wrapping with wool & string, junk model homes for a pet or toy		Making soup, following a recipe instructions peeling, chopping veg, cooking, tasting Textiles- joining card and felt/binka by punching holes or threading wool, sting, pipe cleaners to join Mechanisms- using split pins to make moving parts, making simple vehicles	

			with wheels or models with moving parts with construction kit
KS1 Year A	Food Linked to Harvest	Structures Linked to castles	Mechanisms Linked to toys
KS1 Year B	Mechanisms Linked to vehicles	Textiles Linked to core text	Food Linked to hot and cold places
KS2 Year A	Structures Link to Geography	Food Link to Science - Science week	Textiles Link to Core text
KS2 Year B	Mechanical systems Link to Christmas	Electrical systems Link to Science - Science week	Food Link To French - Bastille Day