



# Design Technology Overview

Year 1			
	Autumn	Spring	Summer
	<i>Structures: Freestanding Structures</i>	<i>Mechanisms: Sliders and Levers</i>	<i>Food: Preparation</i>
National Curriculum statement	<p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>Evaluate their ideas and products against design criteria.</p>	<p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>Design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>Evaluate their ideas and products against design criteria.</p>	<p>Understand where food comes from.</p> <p>Use the basic principles of a healthy and varied diet to prepare dishes.</p>
Possible design projects	Build a bridge for the three little pigs or build an enclosure for a zoo animal.	Greeting cards.	Fruit salad.
Cultural Capital / Enrichment	Know how freestanding structures (bridges etc) are created and where these can be found in the real world.	Know how every day and common objects use mechanisms in order to move.	Understand how to prepare fruit and vegetables safely and so they are suitable to eat.
Vocabulary	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.	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.	Fruit, vegetable, 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.

Links to other topics	Y3 Shell structures Y5 Frame structures	Y2 Wheels and axels Y3 Levers and linkages Y5 Pulleys and gears	Y2 Preparation Y3 and 4 Healthy and varied diet Y5 and 6 Culture and seasonality
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Year 2			
	Autumn <i>Mechanisms: Wheels and Axels</i>	Spring <i>Textiles: Templates and Joining</i>	Summer <i>Food: Preparation</i>
National Curriculum statement	<p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p> <p>Explore and evaluate a range of existing products.</p> <p>Evaluate their ideas and products against design criteria.</p>	<p>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p> <p>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Explore and evaluate a range of existing products.</p> <p>Evaluate their ideas and products against design criteria.</p>	<p>Understand where food comes from.</p> <p>Use the basic principles of a healthy and varied diet to prepare dishes.</p>
Possible design projects	Push/pull toy, shopping trolley, clown car.	Glove puppet, clothes for a teddy, fabric placemat.	Fruit jelly, vegetable salad, fruit and vegetable kebabs.

Cultural Capital / Enrichment	Know how every day and common objects use mechanisms in order to move.	Know how to sew effectively in order to create or repair fabric materials.	Understand how to prepare fruit and vegetables safely and so they are suitable to eat.
Vocabulary	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.	Joining, finishing, techniques, tools, template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function.	Fruit, vegetable, 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.
Links to other topics	Y1 Sliders and levers Y3 Levers and linkages Y5 Pulleys and gears	Y4 2D shape to 3D production Y6 Combining different fabric shapes	Y1 Preparation Y3 and 4 Healthy and varied diet Y5 and 6 Culture and seasonality

Year 3			
	Autumn <i>Structures: Shell Structure</i>	Spring <i>Mechanisms: Levers and Linkages</i>	Summer <i>Food: Healthy and Varied Diets</i>
National Curriculum statement	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>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.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>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.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p>
Possible design projects	Gift boxes, desk tidy, packaging, keep safe box.	Story book, poster, class display.	Sandwiches, wraps, rolls, pitta pockets.
Cultural Capital / Enrichment	<p>Know that 3D objects can be made from 2D templates and nets.</p> <p>Understand how packaging is made.</p>	Know how every day and common objects use mechanisms in order to move.	Know how to prepare quick savoury meals safely.

Vocabulary	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, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype.	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.	Utensils, 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.
Links to other topics	Y1 Freestanding structures Y5 Frame structures	Y1 Sliders and levers Y2 Wheels and axels Y5 Pulleys and gears	Y1 and 2 Preparation Y4 Healthy and varied diet Y5 and 6 Culture and seasonality

Year 4			
	Autumn	Spring	Summer
	<i>Textiles: 2D shape to 3D production</i>	<i>Electronics: Simple circuits</i>	<i>Food: Healthy and Varied Diets</i>
National Curriculum statement	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p>
Possible design projects	Purse/wallet, soft toy, apron, beach bag, pencil case.	Siren for a toy, reading light, buzzer for school office, table lamp, nightlight.	Rice cakes, snack bars, toasties.
Cultural Capital / Enrichment	Know how to sew effectively in order to create or repair fabric materials.	<p>Know how electrical circuits work and which products use circuits.</p> <p>Understand the dangers of electricity.</p>	Know how to prepare healthy savoury snacks safely.

Vocabulary	fabric, 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.	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.	Utensils, 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.
Links to other topics	Y2 Templates and joining techniques Y6 Combining different fabric shapes	Y6 Combining more complex switches and circuits	Y1 and 2 Preparation Y3 Healthy and varied diet Y5 and 6 Culture and seasonality

Year 5			
	Autumn <i>Structures: Frame structures</i>	Spring <i>Food: Culture and Seasonality</i>	Summer <i>Mechanisms: Pulleys and gears</i>
National Curriculum statement	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>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.</p> <p>investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Apply their understanding of computing to program, monitor and control their products.</p> <p>Understand how to use mechanical systems in their products (e.g. gears, pulley, cams, levers and linkages).</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>

Possible design projects	Playground shelter, market stall, bus shelter, parasol, kite, park furniture.	Pizzas, bread, pastry.	Create a fairground ride.
Cultural Capital / Enrichment		Know how bread and pizzas are made and how they can bake /cook these themselves at home.	Know how every day and common objects use mechanisms in order to move.  Visit Wicksteed Park.
Vocabulary	Frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional.	Ingredients, yeast, dough, bran, wholemeal, flour, unleavened, baking soda, spice, herbs, fat sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, innovative, research, evaluate, design brief.	Pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, monitor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output, design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief.
Links to other topics	Y1 Freestanding structures Y3 Shell structures	Y1 and 2 Preparation Y3 and 4 Healthy and varied diet Y6 Culture and seasonality	Y1 Sliders and levers Y2 Wheels and axels Y3 Levers and linkages

## Year 6

	<b>Autumn</b> <i>Textiles: Combining different fabric shapes</i>	<b>Spring</b> <i>Electronics: Using more complex switches and circuits</i>	<b>Summer</b> <i>Food: Culture and Seasonality</i>
<b>National Curriculum statement</b>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>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</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Select from and use a wide range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p>	<p>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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>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.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p> <p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Apply their understanding of computing to program, monitor and control their products.</p>	<p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>

Possible design projects	Shopping bag, mobile phone carrier, tablet case, slippers, fabric advent calendar.	Vehicle alarm, security lighting system, automatic nightlight, electrical board game.	Savoury scones, soup, cereal snacks, savoury muffins.
Cultural Capital / Enrichment	Know how to sew effectively in order to create or repair fabric materials.	Know how electrical circuits work and which products use circuits.  Understand the dangers of electricity.	Know how to safely prepare and cook savoury meals for themselves and others.
Vocabulary	Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern, pieces, fastening, pins, needles, thread, pinking shears, iron transfer paper, design criteria, annotate, design decision, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype.	Series circuit, parallel circuit, switches, components, input device, output device, system, monitor, control, program, flowchart, function, innovative, design specification, design brief, user, purpose.	Ingredients, yeast, dough, bran, wholemeal, flour, unleavened, baking soda, spice, herbs, fat sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, innovative, research, evaluate, design brief.
Links to other topics	Y1 Templates and joining techniques Y4 2D shape to 3D production	Y4 Simple circuits	Y1 and 2 Preparation Y3 and 4 Healthy and varied diet Y5 Culture and seasonality