Design and Technology Progression Framework & Long Term Plan

Design	Make	Evaluate	Technical Knowledge	Nutrition & Cooking
Key Stage One				
Pupils should; • work confidently across a range of contexts such as imaginary, story -based, school, garden etc. • state what products they are designing and making • say whether the products are for themselves or other users • describe who the products are for and how they will work • say how they will make their products suitable for the intended users • use simple design criteria to help develop their ideas • generate ideas by drawing on their own experience • use knowledge of exiting products to come up with their ideas • develop and communicate ideas by drawing and talking • model ideas by exploring materials components and construction kits by making templates and mock ups • use information and communication technology where appropriate to develop and communicate ideas	Pupils should; • Plan by suggesting what to do next • Select from a range of tools and equipment explaining their choices • Select form a range of materials and components according to their characteristics • Follow procedures for safety and hygiene • Use a range of materials and components including textiles, construction kits, food ingredients and mechanical components • Measure, mark out and cut and shape a range of materials and components • Assemble, join and combine materials and components • Use finishing techniques including those from art and design	Pupils should; (Own Products) • Talk about their own designs ideas and what they are making • Make simple judgements about their products against design criteria • Suggest how their products could be improved Pupils should; Explore (existing products) • What they are • What they are fro • How they work • How they are used • What materials they are made from • What they like/dislike about products	Pupils should know • About the simple working characteristics of materials and components • About the movement of simple mechanisms such as sliders, levers, wheels and axels • How free standing structures can be made stronger, stiffer and more stable • That 3d textile products can be assembled from 2 identical fabric shapes • The correct technical vocabulary for the projects they are undertaking	Pupils should know • That all food comes from plants or animals • That food has to be farmed, grown elsewhere or caught • How to name and sort foods into the five groups in the eat well plate • That everyone should eat at least 5 portions of fruit and vegetable everyday • How to prepare simple dishes without using a heat source • How to use techniques such as cutting, peeling and grating
Key Stage Two				
Across KS2 pupils should; • Work confidently within a range of contexts such as the home, leisure, culture, enterprise, industry and the wider environment • Describe the purpose of their products Indicate the design features of their products that will appeal to intended users • Explain how parts of their product work **In early ks2**	**Across KS2 pupils should;** • Select tools and equipment suitable for the task • Explain their choice of tools and equipment in relation to the skills and techniques they are suing • Select materials ^ components suitable for the task • Explain their choice of materials and components according to functional & aesthetic properties **In early ks2**	**Across KS2 pupils should; (Own Products)** • Identify the strengths and areas for development in their ideas & products • Consider the views of others, including intended users to improve their work **In early ks2** • Refer to their design criteria as the design and make • Use their design criteria to evaluate their completed products **Late KS2**	**Across KS2 pupils should know;** • How to use learning from science and mathematics to help design & make products that work • That materials have functional properties and aesthetic qualities • That materials can be combined to make more useful characteristics • That mechanical and electrical systems have an input, process and output	**Across KS2 pupils should know**; • That food is grown, reared and caught in the UK, Europe and the world **In late KS2 pupils should also know;** • That seasons may affect the food available • How food is processed into ingredients that can be eaten or used in cooking • How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including where appropriate using a heat source

• gather information about the needs and wants of particular individual /groups • develop their own criteria and use them to inform their ideas **Late KS2** • carry out research using surveys, interviews, questionnaires and web based resources • Identify the needs, wans preferences and values of individuals /groups • Develop a simple design speciation to guide thinking	• Order the main stages of making **Late KS2** • Produce appropriate lists of materials and equipment they will need • Formulate step- by-step plans as a guide to making • Follow procedures for safety and hygiene • Use a wider range of materials and components including textiles, construction kits, food ingredients and mechanical components **In early ks2** Pupils should mark out, measure, cut and shape materials & components with some accuracy • Assemble, join and combine materials and components with some accuracy • Apply a range of finishing techniques including those from art & design with some accuracy **Late KS2** • Accurately mark out, measure, cut and shape materials & components • Accurately join and combine materials and components • Accurately Apply a range of finishing techniques including those from art & design • Demonstrate resourcefulness when tackling problems	• Critically evaluate the quality of the design, manufacture & fitness for purpose of the products they design & make • Evaluate their ideas & product in relation to the design specification **Explore (existing products)** **Across KS2 investigate & analyse;** • How well products have been made • How well products have been designed • Why materials have been chosen • What methods of construction have been used? • How well the product works • How well the product meets the needs & wants of users • **In early ks2** • Who designed & made the product • Where the product was designed • When products were designed • Whether they can be reused or recycled **Late KS2** • How much the product costs to make • How innovative products are • How sustainable the products are in products? • What influence products have beyond their intended purpose • In KS2 pupils should know about designer, engineers, chefs and manufacturers that have developed ground breaking products	• The correct technical vocabulary for the project they are undertaking **Early KS 2 should also know** • How mechanical systems such as levers and linkages or pneumatic systems create movement • How simple electrical circuits and components can be used to create functional products • How to program a computer to control their products • How to make strong, stiff shell structures **Late KS 2 should also know;** • How mechanical systems such as cams, pulley or gears can create movement • How more complex circuits can be used to create functional products • How to program a computer to monitor changes in the environment and control their products • How to strengthen and reinforce a 3D framework	• How to use a range of techniques including cutting, peeling, kneading, chopping, grating, mixing and baking **In Early KS2 pupils should also know;** • That a healthy diet is made up from a variety & balance of different food and drink as depicted in the eatwell plate • That to be healthy and active food and drink are need to provide energy for the body **In late KS2 pupils should also know;** • That different food contains n different nutrients, water and fibre that are essential for good health

Full list of 21 planners

Key Stage 1

- Year 1/2 Mechanisms – Sliders and levers
- Year 1/2 Structures – Freestanding structures
- Year 1/2 Food – Preparing fruit and vegetables
- Year 1/2 Textiles – Templates and joining techniques
- Year 1/2 Mechanisms – Wheels and axles

Early Key Stage 2

- Year 3/4 Mechanical Systems – Levers and linkages
- Year 3/4 Mechanical Systems – Pneumatics
- Year 3/4 Structures – Shell structures using computer-aided design
- Year 3/4 Electrical Systems – Simple programming and control
- Year 3/4 Textiles – 2-D shape to 3-D product
- Year 3/4 Food – Healthy and varied diet
- Year 3/4 Structures – Shell structures
- Year 3/4 Electrical Systems – Simple circuits and switches

Late Key Stage 2

- Year 5/6 Food – Celebrating culture and seasonality
- Year 5/6 Textiles – Combining different fabric shapes
- Year 5/6 Structures – Frame structures
- Year 5/6 Electrical Systems – More complex switches and circuits
- Year 5/6 Mechanical Systems – Pulleys or gears
- Year 5/6 Mechanical Systems – Cams
- Year 5/6 Textiles – Using computer-aided design in textiles
- Year 5/6 Electrical Systems – Monitoring and control

Long Term Plan 2019 -2020				
Year Group	**Autumn 1**	**Autumn 2**	**Spring**	**Summer**
R/1	**Mechanisms** Sliders and Levers		**Structures** Free Standing Structures	**Food** Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)
Vocabulary/ concept	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		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	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
2/3/4	**Structures** Shell structures	**Food** Healthy and varied diet (including cooking and nutrition requirements for KS2)	**Textiles** 2-D shape to 3-D product	**Structures** Shell structures (including computer-aided design)
Vocabulary/ concept	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish

	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	hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function
5/6	**Structures** Frame structures	**Food** Celebrating culture and seasonality (including cooking and nutrition requirements for KS2	**Electrical Systems** More complex switches and circuits (including programming, monitoring and control)	**Textiles** Using computer-aided design (CAD) in textiles
Vocabulary/ concept	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, flour, wholemeal, 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 design specification, innovative, research, evaluate, design brief	reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose	computer aided design (CAD), computer aided manufacture (CAM) font, lettering, text, graphics, menu, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper annotate, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype
Long Term Plan 2020 -2021				
R/1	**Mechanisms** Wheels and axels	**Textiles** Templates and joining techniques		**Food** Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)
Vocabulary/ concept	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	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		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
2/3/4	**Mechanical Systems**	**Electrical Systems**	**Electrical systems**	**Mechanical systems**

	Levers and linkages	Simple circuits and switches (including programming and control)	**Simple programming and control**	Pneumatics
Vocabulary/ concept	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	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	series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, light emitting diode (LED), bulb, bulb holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, process user, purpose, function, prototype, design criteria, innovative, appealing, design brief	components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate
5/6	**Textiles** Combining different fabric shapes	**Mechanical Systems** Pulleys or gears	**Electrical systems** Monitoring and control	**Mechanical systems** Cams
Vocabulary/ concept	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype	pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor 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	reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose	cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief