Design and Technology

Progression of knowledge, skills and understanding

The design, make, evaluate and improve section skills will be followed through each 'section' of the DT skills progression. For each design and make, these skills will be practised along with those specific to the topic, along with taking inspiration from design throughout history. All DT projects will include looking at a creation either from history or modern day, as a starting point for work. *Vocabulary in blue shows new vocabulary progression by class.*			
Skills	**Class 3**	**Class 4**	**Class 5**
Design, make, evaluate and improve	Investigate existing products, including drawing them to analyse and understand how they are made. Plan a sequence of actions to make a product. Generate designs with annotated sketches and computer-aided design (CAD) where appropriate. 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.	Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. 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 to develop and communicate ideas. Order the main stages of making.	Generate innovative ideas through research including surveys, interviews and questionnaires and discussion with peers to develop a design brief and criteria for a design specification. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification Use prototypes, cross-sectional diagrams, exploded diagrams and CAD software to represent designs. Write a step-by-step plan, including a list of resources required.

	Select from and use finishing techniques suitable for the product they are creating. Refine work and techniques as work progresses, continually evaluating the product design. Identify strengths and weaknesses of their design ideas. Talk about how closely their finished product meets their design criteria and meets the need of the user	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. 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	Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources Consider the views of others when evaluating their own work. Ensure products have a high-quality finish, using art skills where appropriate Justify their decisions about materials and methods of construction. Make suggestions on how their design/product could be improved. Compare the final product to the original design specification and record the evaluations.
Vocab	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing	As C3, plus: evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations	As C3+C4, plus:design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype

Cooking and nutrition	Know how to use appropriate equipment and utensils to prepare and combine food. Begin to learn about a range of fresh and processed ingredients appropriate for their product. Know and use relevant technical and sensory vocabulary appropriately.	Select utensils and equipment including heat sources to prepare and cook food safely. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught Think about seasonality when selecting ingredients/making a product.	Be able to select appropriate cooking utensils etc. when deciding on making a product. Know which ingredients will work well together. Understand about food sources and cooking times for different food groups. Select and use safely, a variety of equipment and utensils to prepare and combine food.
Vocab	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 fresh, processed, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, carbohydrate, protein, vitamins, nutrients, nutrition,	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 fresh, processed, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, carbohydrate, protein, vitamins, nutrients, nutrition, seasonality, reared, caught	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 fresh, processed, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, seasonality, reared, caught , yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils,
Construction, electronics and mechanics	Create series circuits. Strengthen frames using diagonal struts.	Create series and parallel circuits. Investigate how to make structures more stable e.g. by widening the base.	Create circuits that employ a number of components (such as LEDs, resistors and transistors).

	Begin to use mechanical systems in their products e.g. gears, pulleys and levers.	Understand and use mechanical structures in their products e.g. gears, pulleys, levers and gears.	Cut wood accurately to 1mm. Build frameworks using a range of materials e.g. wood, card and corrugated plastic. Use a cam to make an up and down mechanism. Understand that mechanical and electrical systems have an input, process and an output. Apply their understanding of computing to program, monitor and control their products.
Vocab	mechanism, lever, linkage, pivot, slot, bridge, guide system, linear, rotary, gear, pulley, series circuit, switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip,	mechanism, lever, linkage, pivot, slot, bridge, guide system, linear, rotary, oscillating, reciprocating, gear, pulley, gear, stability, series circuit, switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip fault, connection, toggle switch, push-to-make switch, push-to-break, parallel circuit	mechanism, lever, linkage, pivot, slot, bridge, guide system, linear, rotary, oscillating, reciprocating, gear, pulley, gear, stability, series circuit, switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, fault, connection, toggle switch, push-to-make switch, push-to-break, parallel circuit 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
Materials including textiles	Measure and mark out accurately. Cut materials accurately and safely by selecting appropriate tools. Cut slots.	Measure and mark out to the nearest mm. Use and explore complex popups. Cut slots and internal shapes. Create nets.	Cut materials with precision. Cut accurately and safely to a marked line. Join/combine materials with temporary, fixed or moving joints.

	Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Know and use technical vocabulary relevant to the project.	*Join two pieces of fabric together using different/most appropriate stitches* Understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project.	Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Select and use most appropriate joining methods/stitches for completion of fabric work. Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. Know and use technical vocabulary relevant to the project.
Vocab	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings.	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, stitch, seam, seam allowance	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings wadding, reinforce, right side, wrong side, hem, template, pattern pieces,
Take inspiration from design throughout history	Disassemble products to understand how they work. Improve on existing designs, giving reasons for choices. Identify some of the great designers in different areas of study to generate ideas from their designs	Use knowledge of inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products to create their own innovative designs.	Analyse the work of others, including iconic designs to informal work. Understand developments in D and T and the responsibilities of designers, including environmental responsibilities.