Bell Lane Primary School

Design & Technology

Key Stage 2

Curriculum map

Philosophy

There are six underlying attributes at the heart of Bell Lane curriculum and lessons.

1. Lessons and units are knowledge and vocabulary rich so that pupils build on what they already know to develop powerful knowledge.
2. Knowledge is sequenced and mapped in a coherent format so that pupils make meaningful connections.
3. Our flexible curriculum enables teachers to tailor content to other subjects in the curriculum and the current context.
4. Our curriculum is evidence informed through rigorous application of best practice and the science of learning.
5. We prioritise creating a diverse curriculum by committing to diversity in teaching and teachers, and the language, texts and media we use, so all pupils feel positively represented.
6. Creating an accessible curriculum that addresses the needs of all pupils is achieved to accessibility guidelines and requirements.

Inclusive and ambitious

The D&T units are pitched so that pupils with different starting points can access them. Lessons within a unit are sequenced so that each one builds on prior learning. The activities are scaffolded so all children can succeed, and they provide scope for all to be challenged.

Pupil engagement

The D&T lessons are structured to engage pupils in thinking during their lessons - both to engage with the subject matter and to strengthen their memory of what is being learnt.

The nature of D&T is that alongside reading and writing activities in the lessons, pupils will need to be sketching and drawing ideas. In addition, many of our lessons require practical application of the concepts and skills being learned. In many cases this can be done using materials commonly found in the home and the lessons provide guidance on how to use such materials safely alongside adult supervision where necessary and reinforce the learning from the lesson.

It is our intention to contextualise learning where possible and applicable. This real-life application and understanding of D&T is important to show how D&T skills, knowledge and key learning are relevant and applicable in a vast number of areas of work, consumer choices and everyday life.

Motivation through education

D&T engages pupils in learning how to design and make, in order to improve the world they live in.

Where possible, we draw on real-world experiences to provide an engaging context for developing, designing and making skills and knowledge. Every pupil should have the opportunity to make use of their designing and making skills and knowledge and, through this, develop personal achievement. We provide opportunities for pupils to be creative and solve problems by developing their own solutions to real-world contexts and offer (where possible and applicable) various methods to communicate their ideas and understanding.

A curriculum of quality

The D&T curriculum has been put together with careful consideration and by consulting with specialists from IT T, secondary and primary education. This wealth of expertise has resulted in an effective, exciting, relevant, and challenging curriculum for pupils and teachers to engage in. The learning in Key Stages 1 and 2 should provide a good foundation for learning in Key Stage 3 and beyond.

Curriculum design constraints

The D&T curriculum features 20 lessons per Year Group for Key Stage 2, split into two equal units. This is a significantly reduced provision compared to what should ideally be available in a school context and as a result does not fully address all aspects of an ideal D&T curriculum and the national curriculum programmes of study. Due to the constraints of asynchronous learning, there is no easy way to ensure full curriculum coverage. Whilst the curriculum coverage is reduced, we are confident that the fundamentals of a quality D&T curriculum remain and allow both teachers and pupils to benefit from the offering.

BROADFIELDS

Table of Contentss

- Where does our food come from?
- Understanding the needs of a healthy varied diet
- Combining ingredients: making a soup
- Evaluating food products
- Combining ingredients: making healthy pancakes
- The food industry
- Combining ingredients: making bread
- Design your own dish to reflect a culture or celebration
- Create your own dish to reflect your chosen culture or celebration

Unit 6 Reactions (Control in D&T)

- Introduction lesson: understanding electrical systems
- Exploring electrical and mechanical systems: the need for control in design and technology
- Exploring how to control simple circuits to create more functional products
- Responding to a design brief and exploring ideas
- Developing an idea
- Exploring the use of new and emerging technology used in products
- Planning to make an end product
- Making a final prototype
- Making a final prototype: electrical system
- Critically evaluate the end product

Unit 7 3D computer aided design

- How do we analyse existing products' designs?
- Why do we need to research before designing?
- How can we identify what our users want?
- Who are architects and what do they do?

Units Overview:

Unit Number	Unit Title	Recommended year group	Number of lessons
1	Cooking and nutrition: healthy and varied diets	Year 3	10
2	Mechanisms: levers and linkages	Year 3	10
3	Keepit safe: shell, solid and combination structures	Year 4	10
4	Electronics: simple circuits and switches	Year 4	10
5	Cooking and nutrition: celebrating culture and seasonality	Year 5	10
6	Reactions (Control in D&T)	Year 5	10
7	3D computer aided design	Year 6	10
8	Textiles: combining different fabric shapes	Year 6	10

Unit specifics

Unit title	Prior knowledge required:	Equipment required
Year 3 Cooking and nutrition: Healthy and varied diets	Know some ways to prepare ingredients safely and hygienically Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. Have used some equipment and utensils and prepared and combined ingredients to make a product.	Range of relevant example foods to taste and evaluate suitable equipment and utensils such as: knives chopping board, weighing scales, measuring jugs, bowls, baking tray, spoons - various sizes, parchment paper, cling film
Year 3 Mechanisms: Levers and linkages	Explored and used mechanisms such as flaps, sliders and levers. Gained experience of basic cutting, joining and finishing techniques with paper and card.	Card, paper, masking tape, paper fasteners, glue stick, scissors
Year 4 Keep it Safe: Shell, solid and combination structures	Experience of using different joining, cutting and finishing techniques with paper and card. A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.	Card, squared paper, sellotape, masking tape, pencil, corrugated card, ruler, scissors, fabric
Year 4 Electronics: Simple circuits and switches	Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers.	Aluminium foil, paper fasteners, paper clips, card, paper clips, buzzers, bulbs, bulb holders, batteries, battery holders, scissors, copper tape, Computer/iPad

	Cut and join a variety of construction materials, such as wood, cards, plastic, reclaimed materials and glue.	
Year 5 Cooking and nutrition: Celebrating culture and seasonality	Have knowledge and understanding about food hygiene, nutrition, healthy eating, and varied diet. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients	Weighing scales, measuring jugs, bowls, spoons - various sizes, baking trays
Year 5 Control	Some experience of writing and modifying a program e.g Scratch Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.	Computer / iPad with internet access, construction materials i.e. card, scissors, tape, paper.
Year 6 3D computer-aided design	Basic computer ability / experience.	Computer / iPad with internet access, mouse, ruler, paper
Year 6 Textiles: Combining different fabric shapes	Experience of basic stitching, joining textiles and finishing techniques. Experience of making and using simple pattern pieces.	Existing textile products for investigation and deconstruction, selection of fabrics, pins, needles, thread, measuring tape

Lessons

Unit 1: Cooking and nutrition: healthy and varied diets

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Substantive knowledge
1.	**What's in a packed lunch?**	**Pupils will learn** ● how well products meet user needs and wants ● why ingredients have been chosen ● that food ingredients can be fresh, pre-cooked and processed **Lesson vocabulary** ● 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 **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge**	● **Nutrients** ● **Processed** ● **Pre cooked** ● **Fresh** ● **Analysis**	Know some ways to prepare ingredients safely and hygienically. Understanding of why we need to eat and drink. Exploring different packed lunches Comparing fresh, pre-cooked and processed food Analysis our own lunch

		• Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** • Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** • Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** • Equipment requiring safe usage.		
2.	**Using research to develop design criteria**	**Pupils will learn** • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their idea **Lesson vocabulary** • Texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen,	• **Target market** • **Market research** • **Questionnaires** • **Design criteria**	Know some ways to prepare ingredients safely and hygienically. Creating a healthy packed lunch for a primary school child based on their design brief. Creating/designing a questionnaire and analysing your findings

		tinned, processed, seasonal, harvested, healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory evaluations **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		

3.	**Designing for a target market**	**Pupils will learn** ● describe the purpose of their products ● the correct technical vocabulary for the projects they are undertaking ● work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment **Lesson vocabulary** ● 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 **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and	● **Target market** ● **Ingredients** ● **Nutrients** ● **Fresh** ● **Processed** ● **Pre-cooked** ● **Fruit and vegetables** ● **Carbohydrates** ● **Protein** ● **Fats and oils**	Know some ways to prepare ingredients safely and hygienically. Creating a healthy lunch based on a design brief considering the choices for sandwich, vegetable/fruit and a healthy treat.

		utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		
4.	**Developing design ideas**	**Pupils will learn** ● select tools and equipment suitable for the task ● select materials and components suitable for the task ● make design decisions that take account of the availability of resources ● order the main stages of making ● indicate the design features of their products that will appeal to intended users **Lesson vocabulary** ● Texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested,	● **Target market** ● **Ingredients** ● **Design briefs**	Creating appealing design techniques Selecting the correct tools (knife, cutting board, cutting tool) Selecting suitable ingredients Designing a healthy packed lunch

		healthy/varied diet, planning, design criteria, purpose, user, annotated sketch, sensory evaluations **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		

5.	**Using ingredients to create your ideas**	**Pupils will learn** ● assemble, join and combine materials and components with some accuracy ● follow procedures for safety and hygiene ● use a wider range of materials and components than Key Stage 1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components **Lesson vocabulary** ● 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 **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste	● **Hygiene** ● **Ingredients** ● **Grate** ● **Claw and bridge**	Know some ways to prepare ingredients safely and hygienically. Gathering all ingredients and equipment / choosing the correct equipment. Using a cheese grater Making a sandwich Following health and hygiene rules

		and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		
6.	**Evaluating your product**	**Pupils will learn** ● use their design criteria to evaluate their completed products ● identify the strengths and areas for development in their ideas and products ● consider the views of others, including intended users, to improve their work **Lesson vocabulary** ● 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,	● **Design criteria** ● **Evaluation** ● **Product** ● **Bias**	Know some ways to prepare ingredients safely and hygienically. Checking product against a design criteria. Considering the views of others to improve their work.

		sensory evaluations **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		
7.	**Exploring food and where it comes from**	**Pupils will learn** ● that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world	● **Grown** ● **Reared** ● **Fresh** ● **Pre cooked** ● **Caught**	Know some ways to prepare ingredients safely and hygienically. The importance and factors

		● that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the 'Eatwell Guide' ● that to be active and healthy, food and drink are needed to provide energy for the body **Lesson vocabulary** ● 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 **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls,	● **Processed**	which influence a healthy and varied diet and to consider where food comes from. To use the EatWell Plate to organise food correctly.

		baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		
8.	**Using evaluation to develop ideas further**	**Pupils will learn** ● indicate the design features of their products that will appeal to intended users ● select tools and equipment suitable for the task ● select materials and components suitable for the task ● make design decisions that take account of the availability of resources ● order the main stages of making **Lesson vocabulary** ● 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,	● **Design criteria** ● **Evaluation** ● **Product** ● **Dried fruit**	Know some ways to prepare ingredients safely and hygienically. Designing a dip and an oat bar and creating a recipe card for both.

		sensory evaluations **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage.		
9.	**Delicious dips**	**Pupils will learn** ● assemble, join and combine materials and components with some accuracy ● follow procedures for safety and hygiene ● use a wider range of materials and	● **Hygiene** ● **Ingredients** ● **Blend** ● **Claw** ● **Bridge**	Know some ways to prepare ingredients safely and hygienically. Responding to feedback and

		components than Key Stage 1, including food ingredients ● how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking **Lesson vocabulary** ● 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 **Substantive knowledge** ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes,		making hummus/following a recipe

		parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage. ● ●		
10.	**Marvellous oat bars**	**Pupils will learn** ● how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking ● that food ingredients can be fresh, pre-cooked and processed ● the correct technical vocabulary for the projects they are undertaking **Lesson vocabulary** ● 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	● **Hygiene** ● **Ingredients** ● **Dried fruit** ● **Processed** ● **Pre-cooked** ● **Fresh**	Know some ways to prepare ingredients safely and hygienically. Responding to feedback and making an oat bar/following a recipe

		Substantive knowledge ● Know some ways to prepare ingredients safely and hygienically. **Disciplinary knowledge** ● Have some basic knowledge and understanding about healthy eating and the 'Eatwell Guide'. **Equipment** ● Range of relevant example foods to taste and evaluate, suitable equipment and utensils such as: knives, chopping board, weighing scales, measuring jugs, bowls, baking trays, spoons - various sizes, parchment paper, cling film **Essential additional subject-specific information** ● Have used some equipment and utensils and prepared and combined ingredients to make a product. **Guidance warnings** ● Equipment requiring safe usage		

Unit 2 Mechanisms: levers and linkages

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Substantive knowledge
●	**Understanding how a range of mechanisms create movement**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment ● how mechanical systems such as levers and linkages or pneumatic systems create movement ● whether products can be recycled or reused **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card.	● **Mechanism** ● **Lever** ● **Slot** ● **Pivot** ● **Design brief (recap)** ● **Recycle** ● **Output** ● **Input movement** ● **Moving parts**	Explore and use mechanisms such as flaps, sliders and levers.

		Equipment ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.		
●	**Developing understanding of different mechanisms and how to make them**	**Pupils will learn** ● the correct technical vocabulary for the projects they are undertaking ● how mechanical systems such as levers and linkages or pneumatic systems create movement **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners,	● **Mechanism** ● **Lever** ● **Bridge** ● **Loose pivot** ● **Fixed pivot** ● **Linear** ● **Rotary** ● **Slider** ● **Oscillating**	Explore and use mechanisms such as flaps, sliders and levers.

		glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.		
●	**To design a product criteria, meeting the needs of the user**	**Pupils will learn** ● generate realistic ideas, focusing on the needs of the user ● share and clarify ideas through discussion **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.	● **Mechanism** ● **Persuasive** ● **Design brief** ● **Recycle** ●	Explore and use mechanisms such as flaps, sliders and levers

●	**Using a range of techniques to create a prototype of developing ideas**	**Pupils will learn** ● measure, mark out, cut and shape materials and components with some accuracy ● assemble, join and combine materials and components with some accuracy **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.	● **Mechanism** ● **Lever** ● **Linkages** ● **Design brief** ● **Prototype** ● **Sketch**	Explore and use mechanisms such as flaps, sliders and levers.

●	**Developing design ideas further, using understanding of mechanisms**	**Pupils will learn** ● indicate the design features of their products that will appeal to intended users ● explain how particular parts of their products work ● use annotated sketches to develop and communicate their ideas **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.	● Mechanism ● Design brief ● Bridge ● Loose pivot ● Fixed pivot	Explore and use mechanisms such as flaps, sliders and levers.

●	**Planning the creation of your final idea**	**Pupils will learn** ● order the main stages of making ● use annotated sketches and exploded diagrams to develop and communicate their ideas ● refer to their design criteria as they design and make **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.	● **Mechanism** ● **Exploded diagram**	Explore and use mechanisms such as flaps, sliders and levers.

●	**Using a range of techniques to begin to make our final idea**	**Pupils will learn** ● measure, mark out, cut and shape materials and components with some accuracy ● assemble, join and combine materials and components with some accuracy ● apply a range of finishing techniques, including those from art and design, with some accuracy **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.	● **Mechanism** ● **Lever** ● **Linkages** ● **Design brief** ● **Prototype**	Explore and use mechanisms such as flaps, sliders and levers.

●	**Using a range of techniques to complete final idea**	**Pupils will learn** ● **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.	● **Mechanisms** ● **Linkages** ● **Design brief** ● **Adaptation**	Explore and use mechanisms such as flaps, sliders and levers.
●	**Using a range of techniques to complete final idea**	**Pupils will learn** ● measure, mark out, cut and shape materials and components with some accuracy ● assemble, join and combine materials and components with some accuracy ● apply a range of finishing techniques,	● **Mechanism** ● **Lever** ● **Linkages** ●	Explore and use mechanisms such as flaps, sliders and levers.

		including those from art and design, with some accuracy **Lesson vocabulary** ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.		
●	**Using a range of techniques to complete final idea and testing against design criteria**	**Pupils will learn** ● use a wider range of materials and components than design criteria Key Stage 1, including mechanical components ● use their design criteria to evaluate their completed products	● **Design criteria** ● **Evaluation** ● **Product** ● **Mechanical system**	Explore and use mechanisms such as flaps, sliders and levers.

		Lesson vocabulary ● Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief **Substantive knowledge** ● Explored and used mechanisms such as flaps, sliders and levers. **Disciplinary knowledge** ● Gained experience of basic cutting, joining and finishing techniques with paper and card. **Equipment** ● Card, paper, masking tape, paper fasteners, glue stick, scissors **Guidance warnings** ● Equipment requiring safe usage.		

Unit 3 Keep it safe: shell, solid and combination structures

Lesson number	Lesson Title	Pupils will learn	Key Vocabulary	Skills and Substantive knowledge
1.	**To investigate structures**	**Pupils will learn** ● how well products have been designed ● why materials have been chosen ● what methods of construction have been used ● how well products work ● how well products meet user needs and wants	● structure ● Shell structure ● corrugated ● ribbed ● laminated ● cuboid ● prism ● cylinder	Experience of using different joining, cutting and finishing techniques with paper and card.
2.	**To construct nets to create 3D shapes**	**Pupils will learn** ● how to make strong, stiff shell structures ● measure, mark out, cut and shape materials and components with some accuracy ● assemble, join and combine materials and components with some accuracy	● net, ● cube, ● cuboid, ● Prism ● scoring	Experience of using different joining, cutting and finishing techniques with paper and card.

3.	**To evaluate existing structures**	**Pupils will learn** ● PEB 9 - who designed and made the products ● where products were designed and made ● when products were designed and made	● product analysis ● function ● shell structure ● solid structure ● combination structure	Experience of using different joining, cutting and finishing techniques with paper and card.
4.	**To develop a design brief and to sketch ideas for the product**	**Pupils will learn** ● develop their own design criteria and use these to inform their idea ● generate realistic ideas, focusing on the needs of the user ● model their ideas using prototypes ● use annotated sketches to develop and communicate their ideas	● design brief ● purpose ● product ● user ● sketch ● annotate	Experience of using different joining, cutting and finishing techniques with paper and card.

5.	**To explore contexts and purposes of structures**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment ● describe the purpose of their products ● how to use learning from mathematics to help design and make products that work	● structure ● context ● purpose ● developing	Experience of using different joining, cutting and finishing techniques with paper and card.
6.	**To design, make and evaluate structures**	**Pupils will learn** ● refer to their design criteria as they design and make ● consider the views of others, including intended users, to improve their work	● structure ● design specification ● making ● evaluating	Experience of using different joining, cutting and finishing techniques with paper and card.

7.	**To experiment with making techniques**	**Pupils will learn** ● order the main stages of making ● select tools and equipment suitable for the task ● select materials and components suitable for the task ● the correct technical vocabulary for the projects they are undertaking	● corrugated ● a tab ● a flange ● laminated	Experience of using different joining, cutting and finishing techniques with paper and card.
8.	**To measure, mark out, cut and shape materials**	**Pupils will learn** ● use annotated sketches and cross-sectional drawings to develop and communicate their ideas ● measure, mark out, cut and shape materials and components with some accuracy ● assemble, join and combine materials and components with some accuracy	● assembling ● shaping ● measuring ● accuracy	Experience of using different joining, cutting and finishing techniques with paper and card.

9.	**To assemble, join and combine materials creating a finished product**	**Pupils will learn** ● measure, mark out, cut and shape materials and components with some accuracy ● assemble, join and combine materials and components with some accuracy ● apply a range of finishing techniques, including those from art and design, with some accuracy	● adhesives, ● joining, ● assemble, ● accuracy, ● finishing ● material,	Experience of using different joining, cutting and finishing techniques with paper and card.
10.	**To evaluate the final product**	**Pupils will learn** ● PEA 5- use their design criteria to evaluate their completed products ● PEA 8 - identify the strengths and areas for development in their ideas and products	● project analysis ● function ● sustainability ● reduce, ● reuse, ● recycle,	Experience of using different joining, cutting and finishing techniques with paper and card.

Unit 4 Electronics: simple circuits and switches

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Subtantive knowledge
1.	**To learn about electrical systems**	**Pupils will learn** ● that mechanical and electrical systems have an input, process and output ● how well products achieve their purposes	● electricity ● input devices ● output devices ● series circuit	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
2.	**To learn how electrical products meet the needs of users**	**Pupils will learn** ● how well products meet user needs and wants ● gather information about the needs and wants of particular individuals and groups ● how simple electrical circuits and components can be used to create functional products	● user ● sustainability ● purpose ● function	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
3.	**To develop a design criteria**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school,	● LED ● user ● Purpose	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed

		leisure, culture, enterprise, industry and the wider environment ● develop their own design criteria and use these to inform their idea	● design criteria	materials and glue.
4.	**To design an electrical circuit diagram**	**Pupils will learn** ● make design decisions that take account of the availability of resources ● use annotated sketches to develop and communicate their ideas ● Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.	● components ● input devices ● output devices ● series circuit ● bulb ● wire ● switch ● battery holder, ● bulb holder, ● crocodile clip, ● toggle switch, ● push-to-make switch	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
5.	**To know how to construct simple series circuits**	**Pupils will learn** ● how to use learning from science to help design and make products that work ● measure, mark out, cut and shape materials and components with some accuracy	● CAD ● Tinkcad ● components ● input devices ● output devices ● series circuit ● bulb	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.

		• identify the strengths and areas for development in their ideas and products	• wire • switch • battery holder, • bulb holder, • crocodile clip,	
6.	**To generate ideas for electrical systems using different materials and components**	**Pupils will learn** • generate realistic ideas, focusing on the needs of the user • order the main stages of making • select materials and components suitable for the task	• Pros • Cons • prototype • user • component • innovative, • appealing,	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
7.	**To design, make and test components for an electrical system.**	**Pupils will learn** • the correct technical vocabulary for the projects they are undertaking • how well products meet user needs and wants	• toggle switch • push-to-break switch • push-to-make switch	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
8.	**To use learning from science to help design and make working electrical products**	**Pupils will learn** • how to use learning from science to help design and make products that work • measure, mark out, cut and shape	• Prototype • Symbol • Pros • Cons	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.

		materials and components with some accuracy	• Series circuit, • fault, • connection, • insulator, • conductor	
9.	**To select components to assemble electrical systems**	**Pupils will learn** • how to use learning from science to help design and make products that work • measure, mark out, cut and shape materials and components with some accuracy	• prototype, • assembling • joining • finishing	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
10.	**To evaluate how well products meet user needs and wants**	**Pupils will learn** • explain how particular parts of their products work • the correct technical vocabulary for the projects they are undertaking • how well products meet user needs and wants	• questionnaire • product analysis • evaluate • product • needs • wants • user	Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.

Unit 5 Cooking and nutrition: celebrating culture and seasonality

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Substantive knowledge
1.	**Introduction - Celebrating culture and seasonality**	**Pupils will learn** ● that seasons may affect the food available ● that food ingredients can be fresh, pre-cooked and processed ● carry out research, using surveys, interviews, questionnaires and web-based resources ● identify the needs, wants, preferences and values of particular individuals and group	● culture ● wants ● needs ● preferences ● dietary ● religious ● values ● nutrition	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.
2.	**Where does our food come from?**	**Pupils will learn** ● that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe	● grown ● reared ● processed ● seasonality ● source ● fresh	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.

		and the wider world ● how food is processed into ingredients that can be eaten or used in cooking	● pre-cooked	
3.	**Understanding the needs of a healthy varied diet**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment ● that a recipe can be adapted by adding or substituting one or more ingredients ● the correct technical vocabulary for the projects they are undertaking	● fat ● preference ● wants ● needs ● diet ● nutrition, ● healthy, ● varied ● valued ● ingredients	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.
4.	**Combining ingredients: making a soup**	**Pupils will learn** ● how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source	● claw ● bridge ● combining ● cross-contamination ● food-hygiene ● cooking	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.

		● how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking		
5.	**Evaluating food products**	**Pupils will learn** ● that different food and drink contain different substances - nutrients, water and fibre - that are needed for health ● critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make ● identify the strengths and areas for development in their ideas and products ● consider the views of others, including intended users, to improve their work	● evaluate ● sensory ● inform ● vitamins, ● nutrients, ● healthy, ● varied, ● gluten, ● dairy, ● allergy, ● intolerance,	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.

6.	**Combining ingredients: making healthy pancakes**	**Pupils will learn** ● develop a simple design specification to guide their thinking ● generate innovative ideas, drawing on research ● make design decisions, taking account of constraints such as time, resources and cost ● that recipes can be adapted to change the appearance, taste, texture and aroma	● cooking ● cross-contamination ● food hygiene ● claw ● bridge ● combining	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.
7.	**The food industry**	**Pupils will learn** ● produce appropriate lists of tools, equipment and materials that they need ● formulate step-by-step plans as a guide to making ● select tools and equipment suitable for the task ● how much products cost to make ● explain their choice of tools and equipment in relation to the skills and techniques they	● manufacture ● Mass produced ● food miles ● sustainable ● sustainability	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.

		will be using		
8.	**Combining ingredients: making bread**	**Pupils will learn** ● accurately assemble, join and combine materials and components ● accurately apply a range of finishing techniques, including those from art and design ● use techniques that involve a number of steps ● follow procedures for safety and hygiene ● use a wider range of materials and components than Key Stage 1, including food ingredients and kitchen tools	● kneading ● dough ● baking ● proof ● prove	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.
9.	**Design your own dish to reflect a culture or celebration**	**Pupils will learn** ● how sustainable the materials in products are ● about chefs and manufacturers who have developed ground-breaking products	● culture ● design specification ● user	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.

10.	**Create your own dish to reflect your chosen culture or celebration**	**Pupils will learn** ● why materials have been chosen ● how well products achieve their purposes ● how well products meet user needs and wants	● cooking ● evaluate ● sensory ● combining	Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.

Unit 6 Reactions (Control in D&T)

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Subtantive knowledge
1.	**Introduction lesson: understanding electrical systems**	**Pupils will learn** ● that mechanical and electrical systems have an input, process and output ● the correct technical vocabulary for the projects they are undertaking ● accurately assemble, join and combine materials and components ● use techniques that involve a number of steps	● conductor ● insulator ● component ● simple circuit	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.
2.	**Exploring electrical and mechanical systems: the need for control in design and technology**	**Pupils will learn** ● the correct technical vocabulary for the projects they are undertaking ● accurately assemble, join and combine materials and components ● use techniques that involve a number of steps ● use a wider range of materials and components than Key Stage 1, including electrical components	● input ● output ● process ● mechanical system ● mechanism	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.

3.	**Exploring how to control simple circuits to create more functional products**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment ● how more complex electrical circuits and components can be used to create functional products ● how to program a computer to monitor changes in the environment and control their products ● how to use learning from science to help design and make products that work	● microprocessor ● programme ● voltage ● resistor ● smart device	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.
4.	**Responding to a design brief and exploring ideas**	**Pupils will learn** ● develop a simple design specification to guide their thinking ● use annotated sketches to develop and communicate their ideas	● smart device ● recycle ● specification ● concept	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.

5.	**Developing an idea**	**Pupils will learn** ● develop a simple design specification to guide their thinking ● use exploded diagrams to develop and communicate their ideas	● Initial idea ● Final idea ● Exploded view ● develop	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.
6.	**Exploring the use of new and emerging technology used in products**	**Pupils will learn** ● how innovative products are ● how well products work ● new and emerging technology, including wearables	● new technology ● emerging technology ● innovative ● input ● output ● process	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.
7.	**Planning to make an end product**	**Pupils will learn** ● formulate step-by-step plans as a guide to making ● select tools and equipment suitable for the task	● plan ● inform	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered,

				functional, electrical product.
8.	**Making a final prototype**	**Pupils will learn** ● the correct technical vocabulary for the projects they are undertaking ● accurately assemble, join and combine materials and components	● prototype ● mark out ● component ● assemble	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.
9.	**Making a final prototype: electrical system**	**Pupils will learn** ● identify the strengths and areas for development in their ideas and products ● consider the views of others, including intended users, to improve their work	● simple circuit ● programme ● control ● component	● Some experience of writing and modifying a program e.g. Scratch ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.
10.	**Critically evaluate the end product**	**Pupils will learn** ● explain how particular parts of their products work ● critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design	● test ● evaluate ● specification ● advantages ● disadvantage	● Evaluating an end product

		and make ● evaluate their ideas and products against their original design specification		

Unit 7 3D computer aided design

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Subtantive knowledge
1.	**How do we analyse existing products' designs?**	**Pupils will learn** ● how innovative products are ● what impact products have beyond their intended purpose ● what methods of construction have been used ● how well products meet user needs and wants **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment**		

		● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		
2.	**Why do we need to research before designing?**	**Pupils will learn** ● carry out research, using surveys and web-based resources **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		

3.	**How can we identify what our users want?**	**Pupils will learn** ● identify the needs, wants, preferences and values of particular individuals and groups ● develop a simple design specification to guide their thinking **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		

4.	**Who are architects and what do they do?**	**Pupils will learn** ● about designers and engineers who have developed ground-breaking products **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		
5.	**What is a specification and why do we need to write one?**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school, leisure, culture, 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 particular parts of their products work **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		

6.	**What makes an effective range of initial design ideas?**	**Pupils will learn** ● generate innovative ideas, drawing on research ● make design decisions, taking account of constraints such as time, resources and cost ● model their ideas using prototypes ● use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet		

		access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		
7.	**What are the benefits of using computer aided design?**	**Pupils will learn** ● select materials and components suitable for the task ● explain their choice of materials and components according to functional properties and aesthetic qualities ● use computer-aided design to develop and communicate their ideas **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability /		

		experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		
8.	**How can you develop designs using computer aided design?**	**Pupils will learn** ● accurately measure, mark out, cut and shape materials and components ● accurately assemble, join and combine materials and components ● use computer-aided design to develop and communicate their ideas **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype		

		Disciplinary knowledge ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		
9.	**How can you present and share your final designs?**	**Pupils will learn** ● share and clarify ideas through discussion ● carry out research, using surveys and web-based resources **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience.		

		Equipment ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		
10.	**Why is it important to evaluate your final designs?**	**Pupils will learn** ● the correct technical vocabulary for the projects they are undertaking ● critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make ● consider the views of others, including intended users, to improve their work **Lesson vocabulary** ● Computer-aided design, (CAD), Computer-aided manufacture (CAM) augmented reality, face, plane, extrude, view cube, dimension, radius, align, empathy, scale, modify, repeat, copy, flip design brief, design criteria, design decisions,		

		innovative, prototype **Disciplinary knowledge** ● Basic computer ability / experience. **Equipment** ● Computer / iPad with internet access, mouse, ruler, paper **Guidance warnings** ● Equipment requiring safe usage.		

Unit 8 Textiles: combining different fabric shapes

Lesson number	Lesson question	Pupils will learn	Key Vocabulary	Skills and Subtantive knowledge
1.	**What are the properties of different fabrics?**	**Pupils will learn** ● that materials have both functional properties and aesthetic qualities ● the correct technical vocabulary for the projects they are undertaking **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques. **Disciplinary knowledge** ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation and deconstruction, selection of fabrics,		

		pins, needles, thread, measuring tape **Guidance warnings** ● Equipment requiring safe usage.		
2.	**What are modern and smart textile materials?**	**Pupils will learn** ● what impact products have beyond their intended purpose, the negative impact of the textiles industry **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques. **Disciplinary knowledge** ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation and deconstruction, selection of fabrics, pins, needles, thread, measuring tape **Guidance warnings**		

		● Equipment requiring safe usage.		
3.	**How can textiles become more sustainable?**	**Pupils will learn** ● work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment ● carry out research, using interviews and questionnaires ● consider the views of others, including intended users, to improve their work **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques. **Disciplinary knowledge** ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation		

		and deconstruction, selection of fabrics, pins, needles, thread, measuring tape **Guidance warnings** ● Equipment requiring safe usage.		
4.	**What are the different types of stitches used in textiles?**	**Pupils will learn** ● how well products have been made ● why materials have been chosen ● that a 3D textiles product can be made from a combination of fabric shapes **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques. **Disciplinary knowledge** ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation and deconstruction, selection of fabrics,		

		pins, needles, thread, measuring tape **Guidance warnings** ● Equipment requiring safe usage.		
5.	**What makes an effective range of initial design ideas?**	**Pupils will learn** ● use annotated sketches to develop and communicate their ideas ● describe the purpose of their products ● indicate the design features of their products that will appeal to intended users **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques. **Disciplinary knowledge** ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation		

		and deconstruction, selection of fabrics, pins, needles, thread, measuring tape **Guidance warnings** ● Equipment requiring safe usage.		
6.	**How do we develop our design ideas?**	**Pupils will learn** ● use annotated sketches to develop and communicate their ideas ● that materials have both functional properties and aesthetic qualities ● the correct technical vocabulary for the projects they are undertaking ● critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques.		

		Disciplinary knowledge ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation and deconstruction, selection of fabrics, pins, needles, thread, measuring tape **Guidance warnings** ● Equipment requiring safe usage.		
7.	**How to use the tools and equipment to mark our phone holder accurately**	**Pupils will learn** ● select tools and equipment suitable for the task ● select materials and components suitable for the task ● produce appropriate lists of tools, equipment and materials that they need ● formulate step-by-step plans as a guide to making **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints		

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8.	**What stitch will be most suitable to join our pieces of fabric together?**	**Pupils will learn** ● accurately apply a range of finishing techniques, including those from art and design ● use techniques that involve a number of steps ● use a wider range of materials and components than Key Stage 1, including, textiles, and components **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality,		

		innovation, authentic, user, purpose, evaluate, mock-up, prototype, aesthetics, function, constraints **Substantive knowledge** ● Experience of basic stitching, joining textiles and finishing techniques. **Disciplinary knowledge** ● Experience of making and using simple pattern pieces. **Equipment** ● Existing textile products for investigation and deconstruction, selection of fabrics, pins, needles, thread, measuring tape **Guidance warnings** ● Equipment requiring safe usage.		
9.	**How can we correctly apply a finish to our phone holder?**	**Pupils will learn** ● critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make ● identify the strengths and areas for development in their ideas and products **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria,		

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10.	**Why is it important to evaluate your finished product?**	**Pupils will learn** ● evaluate their ideas and products against their original design specification ● what impact products have beyond their intended purpose **Lesson vocabulary** ● Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, design criteria, annotate, design decisions, functionality,		

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Additional Information

Contents

Section number & Title

1. Coherence and flexibility

The Design & Technology (D&T) curriculum is designed to offer flexibility in terms of the order in which units are taught whilst offering coherence within units and across year groups. There are two units for each Year Group each consisting of 10 lessons. Lessons are broken down into smaller parts to aid understanding, given the asynchronous nature of the lessons. For the units to be coherent, the lessons within them must be taught in order. However, the curriculum is flexible in terms of the order in which you teach units within a Year Group. Year 5 celebrations unit is advised at the start of the year due to a possible greater number of events to tie into at that time of year.

In some units, the practical element/nature of the subject will require schools to provide/loan materials or components that cannot realistically be expected to be found in the home context. Whilst units are organised into Year Groups, lessons may be appropriate for two years above or below the intended age range. For example, a teacher of a Year 3 class may deem Year 2 or indeed a Year 1 class appropriate depending on prior experiences and knowledge of D&T.

2. Knowledge organisation

The curriculum organises content into strands that encapsulate the disciplines that are core to D&T and expands upon those that are highlighted in the national curriculum's programme of study. The key themes are:

Designing

- Understanding contexts, users and purposes
- Generating, developing, modelling and communicating ideas

Making

- Planning
- Practical skills and techniques

Evaluating

- Own ideas and products
- Existing products
- Key events and individuals

Technical knowledge, including making products work

Cooking and nutrition

- Where food comes from
- Food preparation, cooking and nutrition

Technology in society

- Sustainability
- mpact of technologies, including emerging technologies

3. Knowledge selection

Decisions about knowledge selection have been guided by:

1. relevant knowledge which underpins the subject
2. relevance to pupils' experiences and understanding of the world.
3. the national curriculum, and in addition the D&T Progression Framework
4. high quality resources already available to us
5. consultation with D&T specialists and examples of best practice
6. important issues relating to impacts, both good and bad of design, manufacture and products on the world and individuals.

Content has been selected for this curriculum that develops coordination, spatial awareness, creative thinking, problem-solving and incorporates and utilises skills and knowledge from other subject areas. Whilst other subject areas are intrinsically
linked, i.e. mathematics, science etc. there is a conscious recognition and understanding that this cannot be a barrier to learning as every pupil is likely to have different experiences and starting points. There is a purposely strong emphasis on encouraging reflection and iteration, with a pupil-led approach. Rather than a 'designing-by-numbers' approach, pupils will be encouraged to creatively explore briefs and opportunities.

The suggested curriculum sequence builds through the key stages so that as pupils move forward in their education, they are equipped with the prior knowledge that they need to succeed in the next phase.

4. Subject structure overview

Three kinds of activity are included:

- Investigative and Evaluative Activities (IEA's); with a focus on exploring and research. This will also incorporate opportunities to discuss 'Technology in Society', developing knowledge and skills.
- Focussed Tasks (FT's); with a focus on skill development.
- Design, Make and Evaluate Activities (DMEA's); with a focus on developing knowledge and skills through product development, following an iterative cycle of reflection and development. The briefs / contexts for this are purposely opened out as the years progress. The initial briefs are quite constrained in terms of proposed outcomes, whereas later in Key Stage 2, there is more ownership for the pupil to explore different opportunities with the context.

Making and testing is underplayed in these units compared to the role it usually has in a school-based D&T curriculum, because of the constraints imposed by asynchronous learning. Where there is a focus on making, it is on developing prototypes rather than 'finished' products.

The units have a varied approach to an iterative design cycle with different 'starting points' and order of experience. For example, some units may begin with designing before evaluating and assessing relevant research required to aid further development. Other units may begin with collating research and analysing users before progressing to a design task. This approach is to help develop pupils' decision-making processes and future confidence in navigating an iterative cycle independently.