To inspire confident learners who will thrive in a changing world.

Design and Technology

Intent of study at Swinford School

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. At Swinford school we want all children to access high-quality design and technology education that makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others understand and apply the principles of nutrition and learn how to cook.

Implementation

The teaching and implementation of Design Technology at Swinford is a skills-based curriculum designed to equip pupils with the knowledge and skills to experiment, invent and create their own products. It is a structured whole school approach to this creative subject derived from the National Curriculum. Lessons are planned following a structure of 'Design, Make and Evaluate'. We are beginning to use pro-forma worksheets across the school to ensure consistency of approach. Our whole school curriculum provides pupils with opportunities to develop their skills in Design Technology using a variety of tools and materials. Specific skills are built upon each year and tracked through our progression of skills document. All pupils have the opportunity to explore and evaluate different creative ideas developing skills in activities such as, textiles, cooking and nutrition activities. Work is completed in DT booklets to show both a progression of skills and a learning journey.

Design Technology is taught as a discreet subject in an opposite term to Art & Design. The terms when it is covered can differ throughout the year groups. Design Technology is taught for three half terms and Art & Design for three half terms (or the equivalent). Design and Technology lessons are taught as a block so that children's learning is focused throughout each unit of work. Progression grids are use in order to ensure knowledge, skills and vocabulary build year on year. This ensures that by the end of year 6, pupils have a wealth of skills to prepare them for secondary school.

Impact

Using the full range of resources, including display materials, has increased the profile of DT across the school. Learning is recorded in project booklets. Outcomes of work are monitored to ensure that they reflect a sound understanding of the key identified knowledge. Teachers can then intervene in a timely manner to clarify misconceptions and revisit areas of learning if necessary.

By fostering a love of design and technology in the world, children are encouraged to work collaboratively and independently to increase their vocabulary and their design skills. By equipping our children with these skills, they leave Swinford with a greater understanding of their world around them and a desire to learn design and technology in their next phase of education. The outcomes of children will be monitored by the teachers and SLT through formative assessment, tracking, book looks and pupil interviews.

Assessment

The teacher assesses the learning during the lesson through questioning, quizzes and independent work. This is used to inform future lesson planning and teacher assessment.

Coverage of National Curriculum

					Total	KS1 Year A	KS 1 Year B	LKS2 Yr A	LKS2 Yr B	UKS2 Yr A	UKS2 Yr B
Design and Technology	KS1		DT 1	Design- design purposeful, functional, appealing products for themselves and other users based on design criteria	4	2	2				
Design and Technology	KS1		DT 2	Deisgn- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-	4	2	2				

				ups and, where appropriate, information and communication technology							
Design and Technology	KS1		DT 3	Make - select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	4	2	2				
Design and Technology	KS1		DT 4	Make - select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	2	3	2				
Design and Technology	KS1		DT 5	Evaluate - explore and evaluate a range of existing products	2	1	1				
Design and Technology	KS1		DT 14	Technical knowledge - explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	2	1	1				
Design and Technology	KS1		DT 13	Technical knowledge- build structures, exploring how they can be made stronger, stiffer and more stable	2	1	1				
Design and Technology	KS1		DT 8	Evaluate - evaluate their ideas and products against design criteria		2	2				
Design and Technology	KS1		DT 6 *	Cooking nutrition- use the basic principles of a healthy and varied diet to prepare dishes	2	1	1				
Design and Technology	KS1		DT 7*	Cooking nutrition - understand where food comes from	2	1	1				
Design and Technology		KS 2	DT 8	Design - generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	4			1	1	1	1
Design and Technology		KS 2	DT 9	Design- use research and develop design criteria to inform the design of innovative, functional,	9			2	3	2	2

				appealing products that are fit for purpose, aimed at particular individuals or groups							
Design and Technology		KS2	DT10	Make- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	9			2	3	2	2
Design and Technology		KS2	DT11	Make - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	4			1	1	1	1
Design and Technology		KS2	DT12	Evaluate -investigate and analyse a range of existing products	6			2	1	2	1
Design and Technology		KS2	DT15	Evaluate -evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	6			2	2	1	1
Design and Technology		KS2	DT16	Evaluate - understand how key events and individuals in design and technology have helped shape the world	2				2		
Design and Technology		KS2	DT17	Technical Knowledge- apply their understanding of how to strengthen, stiffen and reinforce more complex structures	1				1		
Design and Technology		KS2	DT18	Technical Knowledge- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	1				1		
Design and Technology		KS2	DT19	Technical Knowledge - understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	1			1			

Design and Technology		KS2	DT20	Technical Knowledge - apply their understanding of computing to program, monitor and control their products.	3				1	1	1
Design and Technology		KS2	DT21	Cooking Nutrition - understand and apply the principles of a healthy and varied diet	3			2		1	
Design and Technology		KS2	DT22	cooking nutrition - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques	3			2		1	
Design and Technology		KS2	DT23	Cooking Nutrition - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	3			2		1	

Long Term Coverage

Year A	Autumn A1	Autumn A2	Spring A3	Summer A4
Year 1 and 2	Aspect:Textiles		Aspect:Mechanisms	Aspect: Cooking & Nutrition
	Focus: Joining materials		Focus: Sliders and levers	Focus: Healthy eating
	Outcome: To create glove puppet that they can use		Outcome: To create moving weather pictures	Outcome: To create a food kebab
Year 3 and 4		Aspect: Electrical Systems	Aspect :Mechanical systems	Aspect: Cooking & Nutrition
		Focus: Electrical circuits	Focus: Pneumatics	Focus: healthy eating
		Outcome: To create a Light Box with an electrical circuit	Outcome: To create a mummy case with a moving lid	Outcome: To create a healthy Dip
Year 5 and 6	Aspect: Textiles		Aspect: Cooking & Nutrition	Aspect: Mechanics
	Focus: Prototypes		Focus: Preparing and chopping vegetables	Focus: Mechanisms and motors & CAD
	Outcome: To create a shoe/sandal for a particular use (Nike shoe)		Outcome: To design and make a seasonal soup.	Outcome: To design and make funfair ride for a logo figure

Year B	Autumn B1	Autumn B2	Spring B3	Summer B4
Year 1 and 2		Aspect: Cooking & Nutrition	Aspect: Mechanisms	Aspects: Structures
		Focus: Where food comes from	Focus: wheels and axles	Focus: Strengthening structures
		Outcome: To design and make bread with an added flavor or texture	Outcome: To make a wheeled vehicle that will travel the distance of the hall.	Focus: To design and build a bridge working in a team.
Year 3 and 4	Aspect: Structures & CAD		Aspect: Textiles	Aspect: Mechanical systems

	Focus: CAD logo		Focus: Sewing- joining materials	Focus: Levers and pulleys
	Outcome: To make packaging for a chocolate bars & make chocolate bar		Outcome- To design and make a drawstring bag	Outcome: To design and make a model catapult/canon
Year 5 and 6		Aspect: Mechanical systems	Aspect: Textiles	
		Focus: Pulleys	Focus: CAD	
		Outcome: To design and make an Orrey- Rotating Planets	Outcome- To design and make an Eco-friendly shopping bag with a logo.	

Progression of skills in DT

DT progression of knowledge, skills and vocabulary

EYFS	Characteristics of effective learning	Early Learning Goals
	Show curiosity about objects, events and people Questions why things happen Engage in open-ended activity Thinking of ideas Find ways to solve problems / find new ways to do things / test their ideas Use senses to explore the world around them Create simple representations of events, people and objects Planning, making decisions about how to approach a task, solve a problem and reach a goal Checking how well their activities are going Changing strategy as needed Reviewing how well the approach worked	Choose the resources they need for their chosen activities Handle equipment and tools effectively Children know the importance for good health of a healthy diet They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology

Skills	Year 1 & Year 2	Year 3 & Year 4	Year 5 & Year 6
Generating ideas - designing	Design appealing products for a particular user based on simple design criteria. Generate initial ideas and design criteria through own experiences. Develop and communicate these ideas through talk and drawings and mock ups where relevant. • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings.	• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas. • Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion	• 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. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aided design • Use research using surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products. • Develop a simple design specification to guide the development of their ideas and products,
		and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.	taking account of constraints including time, resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.
Making	• Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and chop safely; marking out, • Plan by suggesting what to do next. • Select and use tools, equipment, skills and techniques to perform	• Plan the main stages of making. • Select from and use a range of appropriate utensils, tools and equipment with some • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and	• Produce detailed lists of equipment and fabrics relevant to their tasks • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.
	cutting, joining and finishing; cut, shape and join paper and card. • Select from a range of ingredients and materials according to their characteristics to create a chosen product. practical tasks, explaining their choices. • Select new and materials, components, reclaimed materials and construction kits to build and create their products. • Use simple finishing techniques suitable for the products they are creating.	accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating. 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.	.• Write a step-by-step plan, including a list of resources required. • Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorative techniques suitable for the product they are designing and making.

Evaluating	• Taste, explore and evaluate a range of products to determine the intended user's preferences for the product • Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose. • Explore a range of existing products related to their design criteria. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	• Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. • Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	• Investigate and analyse products linked to their final product. • Compare the final product to the original design specification and record the evaluations. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work . • Continually evaluate and modify the working features of the product to match the initial design specification. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Test the system to demonstrate its effectiveness for the intended user and purpose.
Vocabulary	planning, investigating design, evaluate, make, user, purpose, ideas, product, investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations	design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype
Knowledge	Year 1 & Year 2	Year 3 & Year 4	Year 5 & Year 6
Food	• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.	• Know how to use appropriate equipment and utensils to prepare and combine food. • Know how to use appropriate equipment and utensils to prepare and combine food.	• Know how to use utensils and equipment including heat sources to prepare and cook food. • Know how to use utensils and equipment including heat sources to prepare and cook food.

	Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.		

	• Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical and sensory vocabulary relevant to the project. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical and sensory vocabulary relevant to the project.	• Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	• Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.
Vocabulary	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,	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	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 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

Structures	• Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.	• Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project.	• Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.
Vocabulary	cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision,	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent
Textiles	• Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques • Know and use technical vocabulary relevant to the project.	• Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.	• Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. • Know and use technical vocabulary relevant to the project.
Vocabulary	joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish	fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	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,

Mechanisms/ Mechanical systems	• Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project. • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	• Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.	• Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.
Vocabulary	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating	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
Electrical systems		• Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project.	• Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project.

Vocabulary		series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device	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

Key Takeaways and Projects

EYFS

A1	Topic: Super senses Cooking & Nutrition	Food tasting I can identify different tastes (sweet, sour, bitter, salty). I can say which foods I like and dislike and justify my answers. I understand the importance of healthy foods.
A2	Cooking & Nutrition Mechanisms	Dinosaur Cookies I can mix ingredients together. I can use fine motor skills to roll out dough and cut out shapes. I can explain a change of state (from dough to hard biscuit). Moving Christmas Card I can use card and split pins to create a moving Christmas card. I can use a variety of tools (scissors, glue, pins). I can share my creation and explain the process I have used.
A3	Modelling	Hero Den (junk modelling) I can use junk modelling equipment to make a den for a superhero. I can use scissors. I can join materials. I can experiment with form and function.
A4	Textiles	Safari Sock Puppet I can select appropriate materials. I can join materials. I can use scissors. I can experiment with texture.
A5	Modelling	Clay Plant Pots I can use clay to make a pot. I can use various techniques to shape clay. I can design the decorations for my plant pot. I can decorate my plant pot.
A6	Modelling	Boat (junk modelling) I can use materials to create a floating boat. I can consider which materials would be best to use to create a boat. I can explain why I have chosen certain materials. I can discuss what I would do differently next time and what I have done well.

Junk modelling equipment and various other craft resources will always be available to EYFS children to use during continuous provision.

Different construction materials will also always be available for EYFS children to use during continuous provision.

KS1 – Seals Year 1/2

Year A & Year B

A1	**Textiles – Puppets**	I know that 'material' can mean a range of items, and I know the names of some; i.e. felt, fur, straw, wool, card, paper. I know different ways to attach materials together, including glue, tape, stitch…. Etc I can evaluate my puppet and explain what I would do differently next time to make it better.
A3	**Mechanisms – sliders and Levers** **Weather models**	I know that sliders can make things move. I can create a moving picture that uses a slider by cutting carefully around a shape. I understand that sliders can be made in different ways I can cut in a straight line to create a moving model that use a slider made from card and slots. I know that levers can make things move I can create moving models that use a lever, by using accurate cutting skills. I know that a pivot allows something to move around it I can create a moving model that use a lever and pivot by cutting accurately and following instructions. I know that a linkage is when 2 levers get joined together. I can create moving models that use a double lever and linkage.
A4	**Cooking & Nutrition – Fruit Kebabs**	I can name at least five different fruit and say something about each one. I can demonstrate, through conversation, awareness of the number of different fruit available. I can use appropriate vocabulary to describe the visual and textural qualities of different fruit. I can use appropriate vocabulary to describe the smell and taste of different fruit. I can say that everyone should eat 5 or more fruit and vegetables every day to stay healthy. I can explain that a portion is roughly a handful. To be able to name at least two skills used to make the fruit kebab. (washing, peeling, chopping, slicing, dicing…) To produce a plan for their work on paper. I can produce a finished dish, having worked safely and hygienically. I can evaluate my work by making comments about my finished product.
B2	**Cooking & Nutrition – Making Bread**	Know that bread is made from flour. Know the staged process from field to bakery/shop. Know that packaging effects design of breads. Know that different breads can have different features and different flavours.

		Know the sequence and method of baking bread. Know how to follow a recipe with ingredient quantities/temperature of oven. Be able to evaluate taste and texture of own bread.
B3	**Mechanisms and Wheels** **Small vehicles with axles**	Know that wheels move on an axle Know the terms wheel, axle and chassis Know that a wheel needs to move on an axle Know how to draw a plan Know the different parts to label a plan Know how to build a moving vehicle Be able to construct the vehicle following a method Know that every model can be improved somehow Know how to improve the finished vehicle Notice good points on others vehicles
B4	**Structures – Bridges**	Know the terms beam, pier, suspension Know how to strengthen a wall Know how to fold paper to strengthen it Know how to draw a plan Know the different parts to label a plan Know how to build a stable bridge Be able to construct a bridge following a method Know that every model can be improved somehow Know how to improve the finished bridge Notice good points on other bridges

Year 3 & 4

A2	**Electrical systems Light Boxes**	Light boxes can be used to display information or for decoration. A frame needs to be sturdy and secure. A silhouette is the dark shape and outline of someone or something visible in restricted light against a brighter background. Silhouettes work best when they are simple. A silhouette will not work if there are gaps in the frame. An electrical circuit requires a batter source and a light bulb that are connected by wires. You can use a switch in an electrical circuit.
A3	**Mechanical Systems Pneumatic Mummy cases**	I can recognise familiar air using objects and describe how they work. I can explain how simple pneumatic systems work using appropriate vocabulary. I can create simple pneumatics systems.

		I know what a sarcophagus is used for, and the 4 design features found on Ancient Egyptian Sarcophagus'. I can cut round a 2D Net carefully keeping on the lines, and score and fold along given lines. I can construct a 3D shape from a 2D net by following instructions I can make a moving, pneumatic structure using the materials provided, and evaluate my construction.
A4	**Cooking and Nutrition** **Healthy Dips**	I understand that dips can come in many flavours and contain different ingredients. I can taste a range of dips and say which ones I like and why. I can describe some of the dips using sensory vocabulary. I know how to be hygienic in the kitchen and why it is important. I know how to prepare foods safely by cutting, peeling, mixing and blending. I can design my own dip and decide what ingredients it will contain. I can explain the steps needed to make the dip. I can make my own dip using my knowledge and understanding of safe food prep and hygiene. I can taste my dip and describe it to a friend. I can evaluate my dip using the design criteria. I can say what I would change next time to improve it.
B1	**Cooking & Nutrition & Packaging** **Chocolate bar design, make and package**	That the choice of colours, name and shapes of the packaging can influence the appeal of the chocolate bar design. That mathematics skills can help to create costings for my design product. Understand risks and how to stay safe when preparing food. The main importance is good hygiene. Know which materials would be best for protecting my chocolate bar. Use my science skills to test them. Know how to design and create packaging including ingredients, health and safety notice and bar code using CAD. Know how to safely create a chocolate bar following design. Give my own reasoned opinions on my chocolate bar design and suggest improvements.
B3	**Textiles – Drawstring bag**	To know that a drawstring bag has a gathered top. To follow the design measurements to cut out the materials. Join the materials together using fabric glue and begin running stitch for drawstring. Decorate/embellish the bag to personalize it.
B4	**Structures – Catapults and Canons**	Sounds are made from vibrations. Tudor entertainment was different to now.

	/Tudor entertainment	Tudor entertainment mainly consists of theatre shows, games and music. Tudor entertainment was made of different materials compared to now.

Year 5 & 6

A1	**Textiles – Greek Sandals**	I know that the following criteria are important when designing a sandal- comfort, safety, durability, aesthetics, price. I know the steps needed to construct a sandal and the main parts of a sandal – sole, upper, heel, strap, joins, buckle. I can draw designs that I think are similar to a Greek sandal, noting the materials that I would use. I can explain the design criteria. I can explain each step that I would need to take to make a sandal from beginning to end. I can test my flow chart by making a prototype from paper and card, making improvements. I can use equipment to measure and cut accurately. I can join my materials using appropriate methods. I can decide if evaluate my sandal to see whether it meets the design criteria and explain why.
A3	**Cooking & Nutrition** **Seasonal Soups**	To have a clear understanding of the intended consumers of their soups. To know that soups are made all around the world, have a variety of ingredients and can be eaten hot or cold. To evaluate soups using a range of sensory vocabulary and record their results using a star diagram. Pupils will be able to name foods available in each season and understand that climate affects when and where food is produced. Children can follow a simple recipe and will be able to use a range of techniques to prepare and cook a soup. Children can create a design criteria for their soup and generate a range of innovative ideas. Children can use a range of food preparation techniques and understand safety and hygiene rules. They can evaluate their soup against the design criteria.
A4	**Mechanical Systems & Motors** **Fairgrounds**	I can identify the moving parts of a rotating ride/object. I can create a detailed diagram of their chosen ride/object. I can go some way to explaining how I think a ride/object is powered and/or built. I understand how pulley and belt systems can be used to transfer movement

		I can describe how an electrical circuit with a motor can be used to create rotating parts I can manipulate pulleys to create different movements I can describe ways of strengthening and reinforcing structures. I can suggest ways in which ideas for frameworks could be developed to ideas for my own fairground ride designs. I can use a variety of materials and components accurately. I can make a decision about what kind of ride I will make. I can design an appropriate electrical circuit for their ride. I can describe the process they will need to go through to successfully complete their product I can follow a design to create a fairground ride with a rotating part I can work accurately and safely with a variety of tools, materials and electrical components I can identify ways of improving my fairground rides to create a finished product of a high quality
B2	**Mechanical Systems** **Rotating Planets**	I can research a product to investigate and analyse how they work and how they are constructed using mechanical techniques (levers/pulleys/gears) I can design a product using simple sketches with annotations, thinking carefully about equipment I will use. I can produce my product using my design. I can evaluate my design, ideas and end-product.
B3	**Textiles – Eco shopping bag**	Know what the term 'eco-friendly' means' Name some eco-friendly materials. Use a running stitch or knot to connect sides of my bag together. Know how to use research to design a product fit for purpose. Know my target market and create my product based on research and design ideas. Be able to give strengths and weaknesses of different bag designs. Able to reflect on my final product to suggest improvements.

SEND

We teach Design Technology to all children, whatever their ability. DT forms part of the school's curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities matched to the needs of children with learning difficulties and we consider each child's abilities.

Ambition – What are we aiming for children with SENs to achieve in this subject?

Be ambitious of what our SEN children can achieve. Art and DT are different ways for children to think and draw on all their learning from across the curriculum without having to use it in the traditional way. SEN children historically can achieve and sometimes exceed their peers when completing Art & DT tasks.

Strategies to scaffold Learning

How can I support learners who struggle to access lessons because of literacy difficulties?

• Provide visual aids to enable learners to identify artists and their work, as well as to identify equipment and media.

• Provide a word and/or picture bank for the learner to refer to during guided and independent activities.

• Use strategies such as modelling, demonstrating and imitating to support learners in understanding the step-by-step processes.

How can I support learners who struggle to retain vocabulary?

• Learners will hear and use a range of specific vocabulary including pattern, colour, tone, texture, line, shape, form and space. Discuss and display any key vocabulary together with its meaning. Practise saying them together.

• Provide visual word banks that are accessible to the learners.

• Ensure that the vocabulary becomes embedded by referring to it regularly during lessons and whilst modelling.

How can I support learners who struggle with fine motor skills?

• Consider using frames or adhesives (e.g., masking tape) that hold down learners' work to surfaces in cases where learners may struggle to hold a resource in place. Provide learners with larger scale materials to work on and gradually decrease the scale as they acquire greater control.

• Encourage learners to experiment with different media, for example when drawing offer chunkier graphite sticks as well as soft 'B' range pencils. Similarly, offer a range of painting application media – some learners may prefer a sponge to a brush or may even use their fingers at times.

• Plan each lesson well in advance, to consider points where learners may struggle and allow for adult guidance accordingly. Use of scissors can be a source of frustration for some learners and wider-handled or easy grip scissors can be a useful aid.

• Engaging in art and design activity is great for helping build fine motor skills for all children. Learners will enjoy and benefit from using malleable media such as clay or air dough.

How can I support learners who struggle with attention?

• Reflect on the positioning of learners within the classroom to maximise their engagement. Some learners will benefit from working and interacting with selected others. A calm environment will help minimise distractions.

• Consider adapting the lesson to break it into chunks that permit time for paired or group talk and allow tasks to be completed across manageable stages.

• Pre-expose learners to the content of the lesson by sharing with them any resources to be used as well as the content of the lesson, perhaps the work of an artist they are learning about or an example of the kind of outcomes they will produce. This will support learners to engage in the processes.

• Giving time for learners to look back through their sketchbook to make connections to what they already know, which in turn can help nurture motivation.

• Allow movement breaks if and when necessary and give learners classroom jobs such as handing out a resource. This will support learners who struggle with self-regulation.

• All learners should routinely clean and tidy away the equipment they have used and time for this needs to be built into lessons, as it is a useful tool for encouraging independence as well as managing transitions.

How can I support learners who need additional time to develop conceptual understanding?

• Provide opportunities for small group learning either before (pre-teach) or during the lesson. This will support learners and allow time to ask questions or explore resources alongside adult intervention. These opportunities are part of the repetition process needed to maximise capacity to build up conceptual understanding.

• Take time to model and demonstrate each element of a process, allowing learners to develop their understanding through a step-by[1]step approach. This will benefit all learners as it allows for an active participatory approach.

• Showing outcomes from the previous lesson's work can be a useful memory aid.

• Have visual aids in the form of worked examples that the learners can have to hand when completing independent tasks

Resources

These are some of the resources we use to help plan and teach DT

DATA - We support and champion design and technology education in schools - D&T Association (designtechnology.org.uk)

TWINKL - Primary Resources - KS2, KS1, Early Years (EYFS) KS3, KS4, Twinkl

PLAN BEE Account — PlanBee

OAK NATIONAL ACADEMY Oak National Academy (thenational.academy)

Sketchup SketchUp Free | SketchUp Help