Design Technology Handbook

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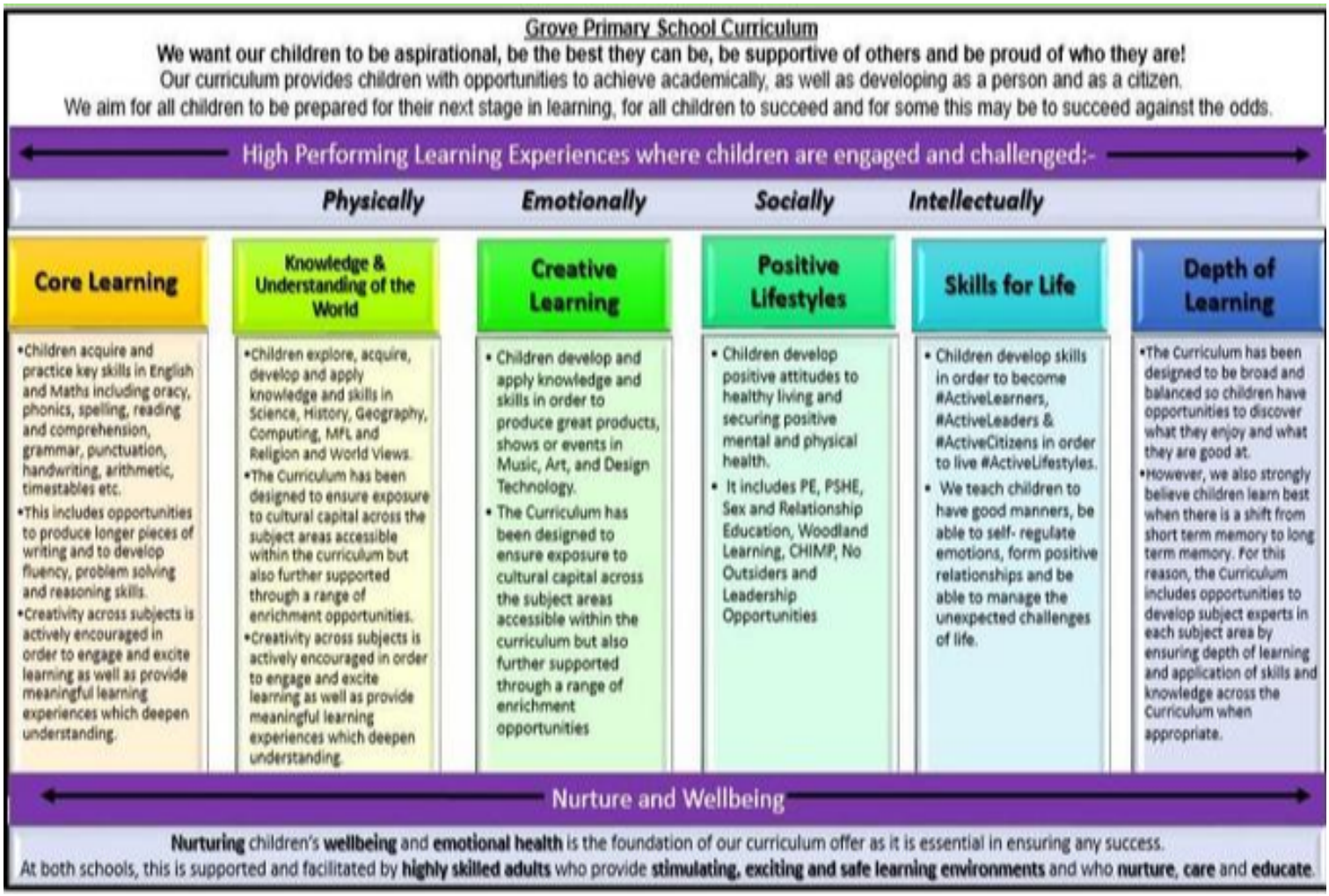
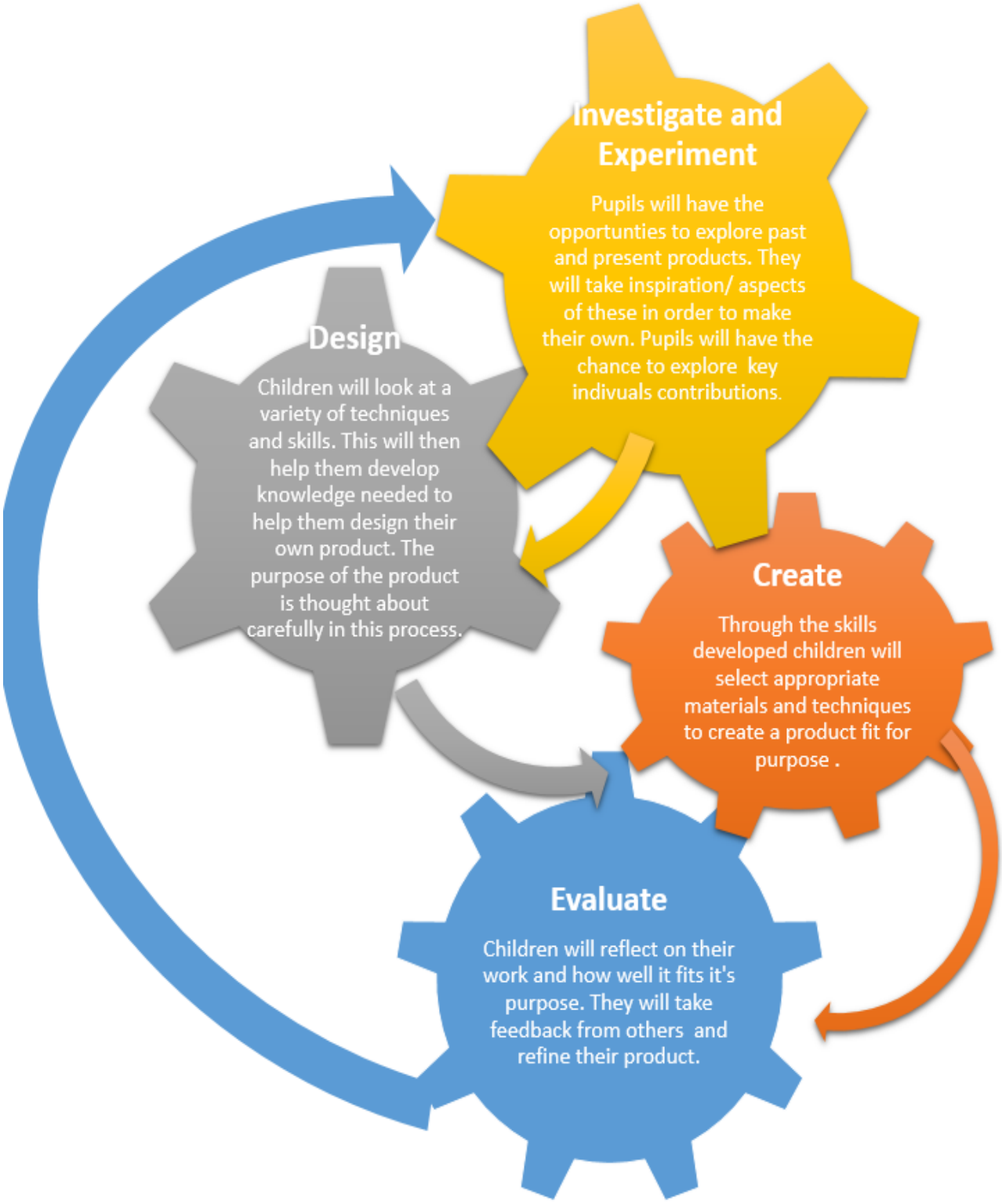
School Vision Statement



The Design Technology Curriculum falls under the Creative Learning Curriculum Pillar. The Design Technology Curriculum has 5 unique pillars of its own which underpins learning and teaching in this subject.

Design Technology Cycle (Pillars)



DT Intent Statement

At Grove/Westwood Primary we intend Design and Technology to be creative and practical and provide children with the chance to problem solve and develop their own creative ideas as individuals and as part of a team. We aim to provide our children with the opportunity to use their imagination to design and make products within a variety of contexts, to provide motivation and meaning to their learning.

Children will be taught a range of topics including; mechanisms, textiles, food technology, structures, and electrical systems (in Key Stage 2). Through hands-on, practical experiences we aim for children to leave Year 6 with some knowledge and skills of DT which will inspire children to be chefs, engineers, sculptures, carpenters, designers and architects. We recognise the important role of DT in preparing our children with skills for life which will enable them to be creative individuals as they become Active Learners, Active Leaders and Active Citizens.

Expectation for teaching DT

- DT starts in the Early Years
- Staff to foster a love of DT.
- Design Technology teaching is sequenced using the DT Cycle.
- The DT Cycle is referred to each lesson.
- Long term plans are followed.
- Medium term plans are adapted with tasks planned on Key Stage planning days and are uploaded to Google Drive.
- DT is taught every week on a half termly basis.
- Over a two yearly cycle children will experience a variety of DT which focuses on learning new skills and knowledge.
- Formative assessment is used to move children's learning forward during the lesson and to develop next steps.
- Target Tracker is completed on a termly basis and data is used to identify gaps/trends/focus groups.

Teaching DT

- All units in books to have a front cover page (See example on Drive).
- All work to have an LO which include knowledge and skills.
- Work to be code marked using B A E by children and staff.
- When code marking include whether children worked independently or with help (following school marking policy).
- Entry and exit tickets to be used when appropriate (ensure the children's answers show achievement of LO).
- Use self and peer assessment for children's reflections. This can be on post it notes. EG. What went well, what they could improve.
- Anything that is typed EG. writing frames, LOs etc must be in the school font. (Letter Join Air 16)
- Work to be trimmed before being stuck in straight.
- Equipment and resources are used responsibly and are developmentally appropriate .
- Correct equipment is used for teaching DT units.
- Teachers are responsible for ordering resources ahead of time.

Photos

- General photos to be used in class book not individual children's books.
- Only photos which include the child and their work to be used in individual DT books.

National Curriculum

Design and technology programmes of study: key stages 1 and 2

National curriculum in England

Purpose of study

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. High-quality design and technology education 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.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets].

Subject content

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Design Technology Concept Map

	Cycle A		
KS1	Mechanisms	Textiles	Food
Concepts	Systems Motion Joining	Joining Embellishment	Nutrition Food Safety Production
LKS2	Mechanisms	Textiles	Food
Concepts	Systems Motion Joining	Joining Embellishment Finishing	Nutrition Food Safety Production Technical skill
UKS2	Structures	Textiles	Electrical Systems
Concepts	Construction Strengthening Joining Repair Finishing	Joining Embellishment Finishing Aesthetics	Circuitry Testing Repair

	Cycle B		
KS1	Food	Mechanisms	Structures
Concepts	Nutrition Food Safety Production	Systems Motion Joining	Construction Strengthening Joining
LKS2	Food	Electrical Systems	Structures
Concepts	Nutrition Food Safety Production Seasonality Technical skill	Circuitry Testing Repair	Construction Strengthening Joining Repair
UKS2	Food	Mechanisms	Structures
Concepts	Nutrition Food Safety Production Seasonality Technical skill	Systems Motion Joining	Construction Strengthening Joining Repair Finishing

Concept Progression

DT Key Concepts Progression

Mechanisms				
	EYFS	KS1	LKS2	UKS2
Systems	To explore systems in toys e.g. pop up books within continuous provision.	To explore existing mechanisms (wheels and axles, slider and levers).	To explore levers and linkages.	To explore pulleys and gears.
Motion	To understand how to manipulate items (pushing toys forwards and backwards) within continuous provision.	A product that moves forwards and backwards.	A product that moves up, down or left and right.	A product driven by an electrical system.
Joining	Exploring a variety of joining techniques to understand cause and effect (glue, tape, hole puncher, stapler, treasury tags, split pins) within continuous provision.	To fix wheels securely to an axle using a fixed joint.	To use split pins to support making a pivot joint.	Mixture of joints (paper fasteners, elastic bands, glue).

Textiles				
	EYFS	KS1	LKS2	UKS2
Joining	Safely use and explore a variety of tools and techniques. Exploring a variety of joining techniques to understand cause and effect (glue, tape, hole puncher, stapler, treasury tags, split pins) within continuous provision.	To use a running stitch.	To explore a variety of stitches.	To use a variety of stitches and select appropriate technique to join.
Embellishment	To explore a variety of effects to express their ideas using materials for decorative purposes (sequins, buttons, junk modelling, loose parts) within continuous provision.	To colour and decorate a product (adding sequins, dying, printing).	To select and use a variety of embellishment techniques (sew buttons on, adding velcro).	To select and use a variety of embellishment techniques focussing on the quality of materials (EG. such as soft decoration for comfort on a cushion).
Finishing			To understand and use a seam allowance.	To join textiles with a range of finishing techniques (back stitch for seams, running stitch for embellishment).
Aesthetics				To use the qualities of

Concept Progression

Food				
	EYFS	KS1	LKS2	UKS2
Nutrition	To understand the need for healthy choices.	To understand a healthy and varied diet. Looking at the Eat well plate.	To understand and apply the principles of a healthy and varied diet.	To understand and apply and promote the principles of a healthy and varied diet.
Food Safety	To manage your own basic hygiene and personal needs.	To know how to use utensils and equipment safely.	To know what hygiene means, preparing food hygienically, keping surfaces, utensils and hands clean.	To understand the importance of correct storage and handling of ingredients.
Production	To explore planting seeds and caring for growing plants. To know where some foods come from.	To understand where food comes from.	To know how a variety of ingredients are reared, caught and grown.	To understand local produce and know how a variety of ingredients are reared, caught and grown.
Seasonality			To understand what seasonality means.	To understand the seasonality of food and the implications this can have.
Skill	Use one-handed tools and equipment.		To know how to follow a recipe. To know how to control using a hob or oven for cooking.	To create and refine my own recipe. To measure accurate ratios of ingredients. Demonstrate a range of cooking skills and techniques.

Electrical Systems				
	EYFS	KS1	LKS2	UKS2
Circuitry			To create simple closed and parallel circuits.	To create circuits using a range of components (EG. buzzers, motors, LEDs, resistors).
Testing			To diagnose a fault in a battery operated device. To diagnose a fault within a circuit.	To diagnose a fault within a circuit and explain why the circuit cannot operate.
Repair			To repair a fault in a circuit with adult assistance.	To independently repair a fault within an electrical system.

Concept Progression

Structures				
	EYFS	KS1	LKS2	UKS2
Construction	To use a range of materials to construct for a purpose within continuous provision.	To name and use a range of materials to construct.	With support choose suitable materials and components to construct with.	To select from and use a wide range of tools and materials to construct a frame structure.
Strengthening		To know how to strengthen a product.	To strengthen using a variety of techniques (laminating, corrugating and ribbing).	To strengthen using a variety of techniques (choosing the correct materials to support their frame structure).
Joining	Safely use and explore a variety of tools and techniques. Exploring a variety of joining techniques to understand cause and effect (glue, tape, hole puncher, stapler, treasury tags, split pins)within continuous provision.	To select from and use tools to join materials together.	To understand and use nets correctly to join and construct a shape.	To select appropriate joining techniques to secure their structure together.
Repair	Return to and build on their previous learning and refining their ideas within continuous provision.		To identify and repair a fault with adult assistance.	To independently repair a fault on a frame structure.

Design Technology Long-Term Plan

2021-2022

DT Long Term Plan - Cycle A

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Indoors - Construction kits: small and large, junk modelling, deconstruction building, mobilo, duplo, Lego, wooden blocks, stickle bricks, popoids, nuts and bolts, straws and connectors, marble run, wooden blocks, bricks, Cutting and joining resources: scissors, hole punches, hammers, nails, glue, sellotape, treasury tags, ribbon, split pins, wool, string, nuts and bolts. Media: paper, card, bags, cardboard boxes, trays. Embellishments: sequins, glitter, buttons, threads, pom poms, wool, ribbon, stickers. Outdoors: planks of wood, tyres, den building poles, fabric, canes, crates, pegs, ropes, reels, bricks. Woodwork area: saws, hammers, screwdrivers, nails, screws, balsa wood, offcuts of soft wood, small wheels.					
Year 1/2		Mechanisms Sliders and Levers *Christmas cards*		Textiles Templates and joining techniques *Finger Puppets*		Food Preparing fruit and veg *Fruit kebabs*
Year 3/4		Mechanisms Levers and linkages *Christmas calendar*		Food Healthy and varied diet *Flapjacks*		Textiles 2D shape to 3D product *Roman purses*
Year 5/6		Textiles Combining different fabric shapes *Drawstring Bag*		Structures Bridge Building *Bridge*		Electrical Systems Complex electrical systems *Fairground*

DT Long Term Plan - Cycle B

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Indoors - Construction kits: small and large, junk modelling, deconstruction building, mobilo, duplo, Lego, wooden blocks, stickle bricks, popoids, nuts and bolts, straws and connectors, marble run, wooden blocks, bricks, Cutting and joining resources: scissors, hole punches, hammers, nails, glue, sellotape, treasury tags, ribbon, split pins, wool, string, nuts and bolts. Media: paper, card, bags, cardboard boxes, trays. Embellishments: sequins, glitter, buttons, threads, pom poms, wool, ribbon, stickers. Outdoors: planks of wood, tyres, den building poles, fabric, canes, crates, pegs, ropes, reels, bricks. Woodwork area: saws, hammers, screwdrivers, nails, screws, balsa wood, offcuts of softwood, small wheels.					
Year 1/2		Food Eat more fruit and veg *Fruit Smoothie*		Mechanisms Wheels and axles *Emergency Services Vehicle*		Structures Free standing structures *Bridge for Billy Goats Gruff*
Year 3/4		Food Seasonal Food *Fruit Crumble*		Electrical Systems Simple circuits and switches *Torch*		Structures Shell structures
Year 5/6		Mechanisms Pulleys and gears *Car*		Food Celebrating culture and seasonality *Pizza*		Structures Frame structures *Adventure play equipment*

Design Technology Long-Term Plan

2022-2021

DT Long Term Plan – Cycle A

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Indoors Continuous Provision Construction kits: small and large, junk modelling, deconstruction building, mobilo, duplo, Lego, wooden blocks, stickle bricks, popoids, nuts and bolts, straws and connectors, marble run, wooden blocks, bricks, Cutting and joining resources: scissors, hole punches, hammers, nails, glue, sellotape, treasury tags, ribbon, split pins, wool, string, nuts and bolts. Media: paper, card, bags, cardboard boxes, trays. Embellishments: sequins, glitter, buttons, threads, pom poms, wool, ribbon, stickers. Outdoor Continuous Provision: planks of wood, tyres, den building poles, fabric, canes, crates, pegs, ropes, reels, bricks. Woodwork area: saws, hammers, screwdrivers, nails, screws, balsa wood, offcuts of soft wood, small wheels. Adult Led Cooking: once every half term.					
Year 1/2		Mechanisms Sliders and Levers *Christmas cards*		Textiles Templates and joining techniques *Finger Puppets*		Food Preparing fruit and veg *Fruit kebabs*
Year 3/4		Mechanisms Levers and linkages *Christmas calendar*		Textiles 2D shape to 3D product *Roman purses*		Food Healthy and varied diet *Flapjacks*
Year 5/6		Structures *Bridge Building Bridge*		Textiles Combining different fabric shapes *Drawstring Bag*		Electrical Systems Complex electrical systems *Fairground*

DT Long Term Plan – Cycle B

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Indoors Continuous Provision Construction kits: small and large, junk modelling, deconstruction building, mobilo, duplo, Lego, wooden blocks, stickle bricks, popoids, nuts and bolts, straws and connectors, marble run, wooden blocks, bricks, Cutting and joining resources: scissors, hole punches, hammers, nails, glue, sellotape, treasury tags, ribbon, split pins, wool, string, nuts and bolts. Media: paper, card, bags, cardboard boxes, trays. Embellishments: sequins, glitter, buttons, threads, pom poms, wool, ribbon, stickers. Outdoors Continuous Provision: planks of wood, tyres, den building poles, fabric, canes, crates, pegs, ropes, reels, bricks. Woodwork area: saws, hammers, screwdrivers, nails, screws, balsa wood, offcuts of softwood, small wheels. Adult Led Cooking: Once every half term.					
Year 1/2		Food Eat more fruit and veg *Fruit Smoothie*		Mechanisms Wheels and axles *Emergency Services Vehicle*		Structures Free standing structures *Bridge for Billy Goats Gruff*
Year 3/4		Food Seasonal Food *Fruit Crumble*		Electrical Systems Simple circuits and switches *Torch*		Structures Shell structures
Year 5/6		Food Celebrating culture and seasonality *Pizza*		Mechanisms Pulley and gears *Cars*		Structures Frame structures *Adventure play equipment*

Design Technology Medium Term Plan

Design Technology teaching uses DT Association's Projects on a Page and Plan Bee units.
Subject leaders use these to inform MTP and teachers then add to this document by planning tasks accordingly.
Assessment is completed using the milestones and is uploaded to Target Tracker half termly.

KS1 – Cycle B *Spring Term*

DT MTP - KS1 Spring Term

Area of DT - Mechanisms, Wheels and Axles **Cycle B** Purpose - Emergency Services Vehicles - Link to History. Florence Nightingale and Mary Seacole. Suggested Visitor - Paramedic? Mechanic?						
	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Knowledge LO:	To know how a wheeled product works.	To understand the purpose of a wheel and axle mechanism.	To understand and use wheels and axles in a given product.	To understand and use wheels and axles in a given product.	To understand and use wheels and axles in a given product.	To evaluate work.
Skills LO	To evaluate and explore a wheeled product.	To investigate using and creating wheels and axles.	To develop and communicate ideas through creating a mock up.	To design a wheeled product.	To select from and use a range of tools and equipment to perform practical skills.	To evaluate a final product.
Pillar focus:	Investigate and experiment.	Investigate and experiment.	Create	Design	Create	Evaluate
Assessment:	Explore objects and designs to identify likes and dislikes of the designs. B - With structured activities, designs of others and evaluated to identify likes and dislikes. A - With growing independence and a growing understanding of design features, likes and dislikes of the designs of others are identified. E- With a high level of independence and a good understanding of design features, likes and dislikes are identified, explained and justified with examples.	Use resources to join materials to make products (such as wheeled vehicles) B - With the support of a teacher, materials are combined to make products. A - With growing independence, materials are combined to make products. E - Good choices of materials and how to combine them are made when making a wide range of products.	Design products that have a clear purpose and an intended user. B- When supported by a teacher, designs to meet a purpose are created. A - With growing independence, designs that have a clear purpose and intended user are created. E- With a high level of independence and a good understanding that designs require a purpose and user, very good designs are created.	Design products that have a clear purpose and an intended user. B- When supported by a teacher, designs to meet a purpose are created. A - With growing independence, designs that have a clear purpose and intended user are created. E- With a high level of independence and a good understanding that designs require a purpose and user, very good designs are created.	Make products, following designs. B - When encouraged by a teacher, designs are improved as the making process develops. A - Generally, good-quality products are made by a process of refinement during the making process. E - High-quality products are made through a process of constant refinement throughout the making process.	Explore objects and designs to identify likes and dislikes of the designs. B - With structured activities, designs of others are evaluated to identify likes and dislikes. A - With growing independence and a growing understanding of design features, likes and dislikes of the designs of others are identified. E - With a high level of independence and a good understanding of design features, likes and dislikes are identified, explained and justified with examples.
Task Ideas	Introduce the term 'Mechanism'. What is a mechanism? Do you know of any mechanisms? Introduce a wheel and an axle.					

LKS2- Cycle B *Spring Term*

DT MTP - LKS2 Spring Term

Area of DT - Electrical Systems, Simple Circuits and Switches Cycle B PURPOSE: To create a night light for Lazlo in 'The Dark' Lemony Snickett. Suggested visitor - Engineer						
	Session 1	**Session 2**	**Session 3**	**Session 4**	**Session 5**	**Session 6**
Learning Objective:	To explore and evaluate a range of battery power products.	To investigate using and creating a simple circuit with a switch.	To demonstrate how to find a fault in a simple circuit and correct it.	To design a torch for Lazlo to use.	To select from and use a range of tools and equipment to perform practical skills.	To evaluate my torch.
Knowledge and skills	To know how batteries can be damaged. To know what a battery is and what it is used for.	To understand how a simple circuit is made.	To understand how series and parallel circuits are made.	**To understand and use electrical systems in their products**	**To understand and use electrical systems in their products**	**To understand and use electrical systems in their products**
Pillar	Investigate and experiment.	Investigate and experiment.	Create	Design	Create	Evaluate
Assessment	Identify some of the great designers in all areas of study (including pioneers in horticultural techniques) to generate ideas for designs. **B** - With support from a teacher, some of the most notable designers' work is examined to provide inspiration for ideas. **A** - A growing knowledge of a range of notable designers is used to provide inspiration for designs. **E**- An in-depth knowledge of some notable designers provides inspiration and ideas for designs.	Create simple and parallel circuits. **B** - When reminded, knowledge of science is applied to create series and parallel circuits in products. **A** - Generally science knowledge is applied well to create series and parallel circuits in products. **E**- Science knowledge is readily applied to good effect creating circuits in products.	Choose suitable techniques to construct products or to repair items. **B** - When reminded by a teacher, suitable techniques are used to construct products or repair items. **A** - Suitable techniques are used to construct products or repair items. E - Suitable techniques are chosen and justified when constructing products or repairing items.	To design with purpose by identifying opportunities to design. **B** - During structured activities, opportunities for designs are realised. **A** - Generally there is a good understanding of opportunities for design. **E** - Excellent examples of suggestions for design show an in-depth understanding of the need for design.	**Refine work and techniques as work progresses, continually evaluating the product design.** **B** - When encouraged, techniques are refined throughout a project to improve the design. **A**- Generally designs are evaluated and refined throughout a project. **E** - Designs are continually evaluated and improved throughout a project, resulting in high-quality products.	**Refine work and techniques as work progresses, continually evaluating the product design.** **B** - When encouraged, techniques are refined throughout a project to improve the design **A** - Generally designs are evaluated and refined throughout a project. **E** - Designs are continually evaluated and improved throughout a project, resulting in high-quality products.
Task ideas						
Resources needed	Battery-powered electrical products switches, aluminium foil, paper fasteners, paper clips, card, corrugated plastic, buzzers, bulbs, bulb holders, zinc carbon or zinc chloride batteries batteries, battery holders, wire, automatic wire strippers					
Vocabulary	Wire, cell, battery, series, clip, parallel, bulbs, buzzers, motors, switches damage, battery, diagnose, fault, water damage, operated, device, battery terminal damage					

UKS2- Cycle B *Spring Term*

DT MTP - UKS2 Spring Term

Area of DT - Food, Celebrating Culture and Seasonality
Cycle B
PURPOSE:
Suggested visitor - Morrisons? Pizza hut? Chef into school?

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
Learning Objective:	To research key chefs and how they promote seasonality, local produce and healthy eating.	To research existing products.	To develop a design brief for an intended user and purpose. Visitor??	To make, decorate and present a food product appropriately, for an intended user and purpose.	To evaluate a final product.	To refine my design brief based on my intended user's feedback.
Knowledge and skills	To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	To use research and develop design criteria fit for purpose, aimed at particular individuals or groups.	Demonstrate a range of baking and cooking techniques	Create and refine recipes including ingredients, methods, cooking times and temperatures	To evaluate ideas and products against their own design criteria and consider the views of others to improve work.
Pillar	Investigate and experiment	Investigate and experiment	Design	Create	Evaluate	Evaluate and design
Assessment	B - With support elements of design from notable key chefs are incorporated into designs. A - Generally there are some well reasoned choices for combining elements from a range of key chefs. E- An in depth knowledge of some key chefs work is reflected in some striking designs. The rationale and background to the design ideas are explained thoughtfully.	B - With support elements of design from notable key chefs are incorporated into designs. A - Generally there are some well reasoned choices for combining elements from a range of key chefs. E- An in depth knowledge of some key chefs work is reflected in some striking designs. The rationale and background to the design ideas are explained thoughtfully.	B - With guidance products are designed with some reference to the user experience. A - Generally the user is used as a rationale for design choices. E - The experience of the user drives the design process. There are many excellent examples and explanations of how choices improve the user experience.	B - A range of baking and cooking techniques are demonstrated. A - A developing range of baking and cooking techniques are demonstrated. E - A good range of baking and cooking techniques are demonstrated.	B - When reminded, evaluations are carried out throughout and at the end of the design process. A - Evaluations are generally ongoing and thorough. They relate to the user experience. E- The user experience drives critical self evaluation and helps to identify current and future improvements.	B - When reminded, evaluations are carried out throughout and at the end of the design process. A - Evaluation are generally ongoing and thorough. They relate to the user experience. E - The user experience drives critical self-evaluation and helps to identify current and future improvements.
Task ideas	(For teachers to add to during planning)					
Resources needed	Information about food from around the world video clips of foods in the context of where they come from, used and eaten range of relevant examples of foods to taste and evaluate basic recipes suitable equipment and utensils to make and cook recipes such as: weighing scales, measuring jugs, bowls, spoons – various sizes, baking trays, parchment paper, plastic film					
Vocabulary	Recipe, utensils, instruction, peeler, grater, knife, rolling pin, Cut, peel, grate, ingredients, knife, cutlery, hygienic, safety. Measure, weigh, scale, accuracy, grams (G), kilogram (KG), pounds (LB), ounces (OZ), millilitres (ML), teaspoon, tablespoon, dessert spoon, ratios Oven, hob, grill. Temperature, Celsius, gas mark, boiling point, simmer, lukewarm, melting point, freezing point. Seasonality, savoury, reared, caught, grown, processed					

DT in the Early Years

During the Early Years Foundation Stage pupils explore and use a variety of media and materials through a combination of child initiated and adult led activities. Adults plan DT activities linked to each topic. Child interests are also explored when they arise and are supported through next step planning.

Children have the opportunity to support their child initiated play through the continuous provision which gives children access to a variety of DT resources such as block play, loose parts, boxes, cable reels, guttering, junk modelling, variety of joining tools (tape, hole punches, glue) and tools.

EYFS Long Term Plan

*This plan shows possibilities linked to Topics. Should childrens particular interests in a particular theme arise, the LTP will be adapted to meet the needs and interests of the children.

CYCLE A

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic *	All about me/superheroes	If you go down to the woods today.	Space and the world/ Homes and transport	mini beasts	Eggs, and Growing	At the seaside People who help us look back to Reception (my history)
Wow Starter or Super Finisher	Super hero dress up day	Teddy bears picnic Christmas performance /party	Alien landing/Spaceship in playground	Butterfly release	Egg incubation	Beach party Visit from emergency service worker
Events/Key Dates	Harvest festival	Bonfire night - 5th Nov Diwali - 4th Nov Christmas - 25th Dec	Chinese new year - 1st feb	Easter Pancake Day - 1st March Mothers Day - 27th March	Fathers Day - 19th June	
Mathematical development	Baseline assessment • Reciting numbers from 0-10 and beyond , number rhymes & songs • Subitising to 5 • Numbers within 5 • Putting 0-10 in order • Counting up to 10 objects from a larger group	• Matching numeral with a group of items up to 10 • Exploring partitioning with objects • Directions and viewpoints • Informal and mathematical language for shape • 2D shape • Subitising to 7 • Numbers within 7	• Estimation • Subitise to 10 • Numbers within 10 • Informal and mathematical language for shape 3D shape • One more, one less • Measures • Estimate, order compare, discuss and explore capacity, • weight and lengths	• Numbers within 15 • Positions, patterns, shapes, size • Exploring patterns - pattern rule	• Numbers within 20 • Doubling and halving • Money • Coin recognition and values	• Depth of numbers within 10 and 20 • Comparing and ordering, • Time-based events,
Science	changes of matter	habitats and hibernation, harvest	planets Habitats	insects	lifecycles	different types of animals / land/sea young and adult e.g puppy/dog
Geography /History	where we live	forests and farms and harvest	homes and travel Earth and its features	Make your own minibeast garden. Find a home for a bug and drawing maps considering scale of the garden.	Sequencing events- lifecycles talking about changes.	landscapes where we live
Religion and World views		The Christmas Story (incarnation) and Diwali	New year and Chinese Lunar year	The Easter Story		
ICT		photographs, filming	bee bots, filming vloggs			
DT	Using construction kits to build for a purpose.	Making sandwiches for Teddy Bear Picnic, Cooking (pumpkins) wreath making (Christmas on the Farm)	Junk modelling (create your own rocket, telescope etc).	Bake Easter cakes Minibeast clay models, Weaving making spider webs Making bug costumes for Ugly Bug Ball.	.Design nests using different materials to consider the features of nests. Making puppets to act out written stories.	Exploring different materials to make a boat.

Children in EYFS have opportunities to learn to:

Explore the textures, movement, feel and look of different media and materials.
Respond to a range of media and materials developing an understanding that they manipulate and create effects with these.
Use different media and materials to express their own ideas.
Construct with a purpose in mind using a variety of resources.
Develop skills to use simple tools and techniques competently and appropriately .
Select appropriate resources for a product and adapt their work where necessary

Assessment in EYFS

Children in the Early Years Foundation Stage (EYFS) are assessed using Tapestry as our assessment tracker to record children's knowledge and skills.

EYFS staff assess Expressive Arts and Design- Creating with Materials (CM) using Development Matters and the new Birth to 5 Matters.

By the end of Reception children in EYFS will be able to:

Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Return to and build on their previous learning, refining ideas and developing their ability to represent them.
Create collaboratively sharing ideas, resources and skills.

Expressive Arts and Design				
Development Matters (DfE 2020)	Birth to 5 Matters (2021)	Development Matters (DfE 2020)	Birth to 5 Matters (2021)	EYFS (ELG)
Nursery	**Range 5**	**Reception**	**Range 6**	**End of Reception**
Creating with Materials	***Creating with materials***	***Creating with Materials***	***Creating with materials***	***Creating with Materials***
• Take part in simple pretend play, using an object to represent something else even though they are not similar. • Begin to develop complex stories using small world equipment like animal sets, dolls and dolls houses etc. • Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order to develop their ideas about how to use them and what to make. • Develop their own ideas and then decide which materials to use to express them. • Join different materials and explore different textures. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects. • Draw with increasing complexity and detail, such as representing a face with a circle and including details. • Use drawing to represent ideas like movement or loud noises. • Show different emotions in their drawings and paintings, like happiness, sadness, fear etc. • Explore colour and colour-mixing.	• Explores and learns how sounds and movements can be changed • Continues to explore moving in a range of ways, e.g. mirroring, creating own movement patterns • Enjoys joining in with moving, dancing and ring games • Sings familiar songs, e.g. pop songs, songs from TV programmes, rhymes, songs from home • Taps out simple repeated rhythms • Develops an understanding of how to create and use sounds intentionally • Continues to explore colour and how colours can be changed • Develops an understanding of using lines to enclose a space, and begins to use drawing to represent actions and objects based on imagination, observation and experience • Uses various construction materials, e.g. joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces • Uses tools for a purpose	• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively sharing ideas, resources and skills.	• Begins to build a collection of songs and dances • Makes music in a range of ways, e.g. plays with sounds creatively, plays along to the beat of the song they are singing or music they are listening to • Uses their increasing knowledge and understanding of tools and materials to explore their interests and enquiries and develop their thinking • Develops their own ideas through experimentation with diverse materials, e.g. light, projected image, loose parts, watercolours, powder paint, to express and communicate their discoveries and understanding. • Expresses and communicates working theories, feelings and understandings using a range of art forms, e.g. movement, dance, drama, music and the visual arts.	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories.
Being Imaginative and Expressive	***Being imaginative and expressive***	***Being Imaginative and Expressive***	***Being imaginative and expressive***	***Being Imaginative and Expressive***
• Listen with increased attention to sounds. • Respond to what they have heard, expressing their thoughts and feelings. • Remember and sing entire songs. • Sing the pitch of a tone sung by another person ('pitch match'). • Sing the melodic shape (moving melody, such as up and down, down and up) of familiar songs. • Create their own songs, or improvise a song around one they know. • Play instruments with increasing control to express their feelings and ideas.	• Uses movement and sounds to express experiences, expertise, ideas and feelings • Experiments and creates movement in response to music, stories and ideas • Sings to self and makes up simple songs • Creates sounds, movements, drawings to accompany stories • Notices what other children and adults do, mirroring what is observed, adding variations and then doing it spontaneously • Engages in imaginative play based on own ideas or first-hand or peer experiences. • Uses available resources to create props or creates imaginary ones to support play • Plays alongside other children who are engaged in the same theme	• Listen attentively, move to and talk about music, expressing their feelings and responses. • Watch and talk about dance and performance art, expressing their feelings and responses. • Sing in a group or on their own, increasingly matching the pitch and following the melody. • Develop storylines in their pretend play. • Explore and engage in music making and dance, performing solo or in groups.	• Creates representations of both imaginary and real life ideas, events, people and objects • Initiates new combinations of movements and gestures in order to express and respond to feelings, ideas and experiences • Chooses particular movements, instruments/ sounds, colours and materials for their own imaginative purposes • Uses combinations of art forms, e.g. moving and singing, making and dramatic play, drawing and talking, constructing and mapping • Responds imaginatively to art works and objects, e.g. this music sounds likes dinosaurs, that sculpture is squishy like this [child physically demonstrates], that peg looks like a mouth • Introduces a storyline or narrative into their play • Plays cooperatively as part of a group to create, develop and act out an imaginary idea or narrative	• Invent, adapt and recount narratives and stories with peers and their teacher. • Sing a range of well-known nursery rhymes and songs. • Perform songs, rhymes, poems and stories with others, and (when appropriate) try to move in time with music.

Skills, Knowledge and Technical Vocabulary

	Learning Objective		Knowledge (National Curriculum)	Skills	Technical Vocabulary
End of KS1	To master practical skills	Food	To know you follow a simple recipe to make food. To know the name of utensils and equipment needed for food. To know how to use utensils and equipment correctly. To know the principles of a healthy and varied diet. (Eat well plate). **To know where food comes from.** **To use the basic principles of a healthy and varied diet to prepare dishes.**	Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components, including ingredients.	Recipe, utensils, instruction, peeler, grater, knife, rolling pin, Cut, peel, grate, ingredients, knife, cutlery, hygienic, safety. Measure, weigh, scale, accuracy, grams, pounds (LB), ounces (OZ), millilitres (ML), teaspoon, tablespoon, dessert spoon.
		Materials	To know the name of tools used to cut. To know how to measure accurately using standard and non-standard measurements. To know how to read a scale to measure. To know shaping techniques. To know the names of joining techniques. To know the names of resources required to join and shape. **To select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To select from and use a wide range of materials and components including construction materials, textiles and ingredients, according to their characteristics.**	Cut materials safely using tools provided. Measure and mark out to the nearest centimetre Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling) Demonstrate a range of joining techniques (such as gluing, using hinges or combining materials to strengthen.	Material, tool, cut, curl, safely, centimetre, glue, fold, tear. Measure, mark, ruler, tape measure, shaping, range, hinges, combine, strengthen, technique, scale
		Textiles	To understand what textiles are. To know how to perform a simple running stitch. To know how to use, dyeing, embellishment and printing techniques. To understand how to join textiles together. **To select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).**	Shape textiles using templates. Join textiles using running stitch. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing)	Shape, textile, template, running stitch, techniques, dyeing, sequins, printing, decorate

			To select from and use a wide range of materials and components including construction materials, textiles and ingredients, according to their characteristics.		
		Electricals and electronics	To know what a battery is and what it is used for. To know how batteries can be damaged.	Diagnose faults in battery – operated devices (such as low battery, water damage or battery terminal damage)	damage, battery, diagnose, fault, water damage, operated, device, battery terminal damage
		Computing	To know what software is and how it is used. **To generate, develop, model and communicate ideas through talking, drawing, templates, mock ups ad where appropriate IT.**	Model designs using software.	Model, design, software
		Construction	To know what materials are. To know how techniques to make and strengthen products. **To select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To select from and use a wide range of materials and components including construction materials, textiles and ingredients, according to their characteristics.** **To build structures, exploring how they can be made stronger, stiffer and more stable.**	Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.	Glue, product, materials, drill, screw, nail, strengthen, ingredients, characteristics, joining, finishing, cutting, shaping, structures, stronger, stiffer, stable
		Mechanics	To know what levers, wheels and winding mechanisms are. To know how to design and create a product. To know how to use given mechanisms to create a product. **To explore and use mechanisms (levers, sliders, wheels, axles)**	Create products using levers, wheels and winding mechanisms.	Mechanism, wheel, lever, winding, product, axles, slider, wheels
	To design, make, evaluate and improve		To know how to design a product based on a design criteria To know how to make and evaluate a product To know who a user is To know which software used to design. **To design purposeful, functional, appealing products for themselves and other users based on design criteria.** **To generate, develop, model and communicate ideas through talking,**	Design products that have a clear purpose and an intended user. Make products, refining the design as work progresses. Use software to design	Design, product, purpose, user, refine, progress, software, functional, criteria, template, mock-up, cutting, shaping, joining, finishing, components, evaluate

			drawing, templates, mock-ups, and where appropriate IT. **To select from and use a range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To select from and use a wide range of materials and components including construction materials, textiles and ingredients, according to their characteristics.** **To explore and evaluate a range of existing products.** **To evaluate ideas and products against design criteria.**		
	To take inspiration from design throughout history		To know how to compare designs To know how to critique To know how to investigate products	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created	Design, explore, improvement, evaluate, objects, products
End of LKS 2	To master practical skills	Food	To know what hygiene means and how to keep surfaces, utensils, and hands clean. To know how to read a scale. To understand units of measure. To know how to follow a recipe. To know the name of utensils and equipment needed for food. To know how to use utensils and equipment correctly. To know how to control an oven or hob for cooking. **To understand and apply the principles of a healthy and varied diet.** **To prepare and cook a variety of predominately savoury dishes using a range of cooking techniques.** **To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.**	Prepare ingredients hygienically using appropriate utensils Measure ingredients to the nearest gram accurately Follow a recipe Assemble or cook ingredients (controlling the temperature of the over or hob if cooking)	Recipe, utensils, instruction, peeler, grater, knife, rolling pin, Cut, peel, grate, ingredients, knife, cutlery, hygienic, safety. Measure, weigh, scale, accuracy, grams (G), kilogram (KG), pounds (LB), ounces (OZ), millilitres (ML), teaspoon, tablespoon, dessert spoon. Oven, hob, grill. Temperature, Celsius, gas mark, boiling point, simmer, lukewarm, melting point, freezing point. Seasonality, savoury, reared, caught, grown, processed.
		Materials	To know how to use tools correctly. To be able to measure accurately. To know how materials are joined together.	Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre	Material, tool, cut, curl, safely, centimetre, glue, fold, tear. Measure, mark, ruler, tape measure, shaping, range, hinges,

			To know what the perimeter is and how to measure it. To know which technique is most effective. **To 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.**	Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs) Select appropriate joining materials	combine, strengthen, technique, scale, slots, cut outs
		Textiles	To know what a seam and where it is To know how to use a seam allowance. To know how to use a needle and thread. To know different techniques when decorating textiles. To recognise and use different materials. **To 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.**	Understand the need for a seam allowance. Join textiles with appropriate stitching Select the most appropriate techniques to decorate textiles	Shape, textile, template, running stitch, techniques, dyeing, sequins, printing, decorate, aesthetic, components, construction, functional
		Electricals and electronics	To understand how a simple circuit is made. To understand how series and parallel circuits are made. **To understand and use electrical systems in their products (series circuits, incorporating switches, bulbs, buzzers and motors)**	Create series and parallel circuits	Wire, cell, battery, series, clip, parallel, bulbs, buzzers, motors, switches
		Computing	**To apply understanding of computing to program, monitor and control products.**	Control and monitor models using software designed for this purpose	Model, design, software, purpose, control, monitor
		Construction	**To select from and use a wide range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To 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.**	Choose suitable techniques to construct products or to repair items Strengthen materials using suitable techniques	Glue, product, materials, drill, screw, nail, strengthen, construct, repair, techniques, cutting, joining, shaping, aesthetic, functional
		Mechanics	**To understand and use mechanical systems in products (gears, pulleys, cams, levers and linkages).**	Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears)	Transference, forces, mechanisms, levers, winding, pulley, gear, cams, levers, linkages, mechanical
	To design, make, evaluate and improve		**To use research and develop design criteria to inform the design of innovative, functional, appealing products that re fit for purpose, aimed at particular individuals or groups.** **To generate, develop, model and communicate ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.** **To select from and use a wide range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To select from and use a wider range of materials and components, including construction materials, textiles and**	Design with purpose by identifying opportunities to design Make products by working efficiently (such as by carefully selecting materials) Refine work and techniques as work progress continually evaluating the product design Use software to design and represent product designs	Materials, refine, product design, software, product, Design, product, purpose, user, refine, progress, software, innovative, prototypes, cross-sectional, annotated, exploded diagrams, pattern pieces, analyse

			ingredients, according to their functional properties and aesthetic qualities. **To investigate and analyse a range of existing products.** **To evaluate ideas and products against their own design criteria and consider the views of others to improve work.** **To understand how key events and individuals in DT have helped shape the world.**		
	To take inspiration from design throughout history		To identify great designers in all areas of study. **To critique, evaluate and test ideas and products and the work of others.** **To understand how key events and individuals in DT have helped shape the world.**	Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs Improve upon existing designs giving reasons for choices Disassemble products to understand how they work	Design, explore, improvement, evaluate, objects, products, horticultural, generate, disassemble, critique,
End of UKS 2	To master practical skills	Food	**To understand and apply the principles of a healthy and varied diet.** **To prepare and cook a variety of predominately savoury dishes using a range of cooking techniques.** **To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.**	Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms) Measure accurately and calculate ratios of ingredients to scale up or down from a recipe Demonstrate a range of baking and cooking techniques Create and refine recipes including ingredients, methods, cooking times and temperatures	Recipe, utensils, instruction, peeler, grater, knife, rolling pin, Cut, peel, grate, ingredients, knife, cutlery, hygienic, safety. Measure, weigh, scale, accuracy, grams (G), kilogram (KG), pounds (LB), ounces (OZ), millilitres (ML), teaspoon, tablespoon, dessert spoon, ratios Oven, hob, grill. Temperature, Celsius, gas mark, boiling point, simmer, lukewarm, melting point, freezing point. Seasonality, savoury, reared, caught, grown, processed.
		Materials	**To 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.**	Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape) Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper)	Material, tool, cut, curl, safely, centimetre, glue, fold, tear. Measure, mark, ruler, tape measure, shaping, range, hinges, combine, strengthen, technique, scale, slots, cut outs, precise, aesthetic, components
		Textiles	**To 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.**	Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration) Use the qualities of materials to create suitable visual and tactile effects in the	Shape, textile, template, running stitch, techniques, dyeing, sequins, printing, decorate, visual, tactile, soft decoration, comfort, aesthetic, components,

				decoration of textiles (such as soft decoration for comfort on a cushion)	
		Electricals and electronics	**To understand and use electrical systems in their products (series circuits, incorporating switches, bulbs, buzzers and motors)**	Create circuits using electronics kits that employ a number of components (such as LEDS, resistors, transistor and chips)	Wire, cell, battery, series, clip, parallel, LEDs, resistors, transistor, chips, circuit, buzzers, resistors, motors
		Construction	**To select from and use a wide range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To 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.**	Develop a range of practical skills to create products and repair items (such as cutting, drilling, screwing, nailing, gluing, filling and sanding)	Glue, product, materials, drill, screw, nail, strengthen, construct, repair, techniques, drill, screw, nail, file, sanding, aesthetic, functional, cutting, shaping, joining, finishing
		Mechanics	**To understand and use mechanical systems in products (gears, pulleys, cams, levers and linkages).**	Convert rotary motion to linear using cams Use innovative combinations of electronics (or computing and mechanics in product designs)	Transference, forces, mechanisms, levers, winding, pulley, gear, rotary, linear, cams, innovative, cams, linkages, levers
	To design, make, evaluate and improve		**To use research and develop design criteria to inform the design of innovative, functional, appealing products that re fit for purpose, aimed at particular individuals or groups.** **To generate, develop, model and communicate ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.** **To select from and use a wide range of tools and equipment to perform practical tasks (cutting, shaping, joining, finishing).** **To 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.** **To investigate and analyse a range of existing products.** **To evaluate ideas and products against their own design criteria and consider the views of others to improve work.** **To understand how key events and individuals in DT have helped shape the world.**	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit) Make products through stages of prototypes, making continual refinements Ensure products have a high quality finish using art skills where appropriate	Materials, refine, product design, software, product, Design, product, purpose, user, refine, progress, software, service, prototypes, refinements, continual, innovative, annotated sketches, cross-sectional, computer-aided, pattern pieces, analyse,
	To take inspiration from design throughout history		**To critique, evaluate and test ideas and products and the work of others.** **To understand how key events and individuals in DT have helped shape the world.**	Combine elements of design from a range of inspirational designers through history giving reasons for choices Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvement to the user experience	Design, explore, improvement, evaluate, objects, products, horticultural, generate, disassemble, critique

Glossary

aesthetics Appreciation of an object's appearance and whether it is pleasing.

annotated diagram Labelled drawing.

appearance The way that something looks.

artefact Any product that has been made, whether by pupils or commercially.

brittle Able to break easily.

card A flat piece of thick paper.

chart:

- bar chart — Type of graph with horizontal or vertical bars representing the values.
- flow chart — Diagram showing a sequence of operations, that is, the order in which they are carried out.
- pie chart — Type of graph which show the proportion of parts to the whole.

components list List of parts needed to make a product.

cross-section A view of an object, either imaginary or made by cutting through it.

customer survey A way of finding out what people think of a product or idea, often by a questionnaire.

design To create a plan or scheme either from new ideas or by presenting existing materials in a new way.

design brief A statement of what needs to be designed and/or made.

design process Process of designing from identifying a need, generating a design, planning and making it and evaluating its performance.

design proposal A possible solution in response to a design brief.

disassembly Breaking down a product into its component parts, either in reality or in an imaginary way.

dismantle To take a product apart.

graphs Diagrams which show how two or more sets of data are related; see also chart.

grid An ordered network of lines, often in squares as in graph paper.

ingredient A component of a mixture, especially in food technology.

ingredients list List of all the components needed to make a product.

investigation In design and technology, analysing a design brief and carrying out research.

landscape Using a piece of paper width-ways, as in a landscape picture.

malleable Able to be worked into different shapes or bent without cracking.

mark out To follow measuring with the appropriate marking tool i.e. pencil or chinagraph pencil.

market research Used to find out people's needs and tastes, often by questionnaire.

mind map Discussing all the ideas that can be thought of on a particular subject and linking ideas.

mobile A light artefact designed to be hung and blown by air currents.

mock up A model which allows you to try out ideas using cheaper materials/temporary joints.

model Usually a 2D or 3D outcome of modelling.

modelling Trying out ideas in ways which are quicker, cheaper or more convenient than making the real thing.

modify To alter or change a design.

net The flat or opened-out shape of an object such as a box.

opaque Cannot be seen through.

orthographic In an orthographic projection, an object is drawn from three views: front, end and aerial.

paper Material made from wood pulp, used for writing, drawing, printing and wrapping.

parts drawing Drawing showing the size and shape of components to make up a product.

parts list List of components required to make a product.

pattern A template used as a guide to cutting out shapes in paper, wood, plastic, metal or fabric.

performance The way in which a product carries out the task which it is designed to do.

perspective drawing Form of drawing, with vanishing points, to show depth and distance.

pictogram Symbol, often used to record statistics, such as in a survey of favourite biscuits.

plan A view of a building or an object, seen from looking on it from above.

planning Setting out an aim and the ways and time by which it might be achieved.

portrait Using a piece of paper with its narrow edge at the bottom, as in a portrait.

primary source Original source of information as opposed to information collected from published materials, for example.

product analysis A way of investigating and describing products in order to develop new designs.

proportion The share of a whole, as in a pie chart which shows how the different parts of something make up its whole.

prototype A model which is made to test whether a design will work.

questionnaire A survey designed to find out people's feelings or likes and dislikes.

recipe A list of ingredients and instructions for preparing food.

research In design and technology, the part of the design process which involves finding information.

rigid Not flexible.

risk assessment Identifying the degree of probability of a hazard or danger and acting accordingly.

secondary source Information collected from non-original sources, e.g. published material, the Internet, CD-ROM.

section drawing Drawing which shows an object as though it has been cut through.

sequential diagram Series of drawings to show how a product is made.

shape Form of an object produced by its outline.

sketch A rough drawing as opposed to a plan or finished drawing.

specification Describes what a product has to do.

stable Firmly fixed, not easily swayed or moved.

style Used in visual judgements e.g. hi-tech, traditional, outdoor.

synthetic Made or manufactured, rather than a natural product.

system A series of components or products organised to perform a task.

taste test Systematic recording of views on a food sample.

technology The use of scientific, material and human resources to meet the needs of society.

template A shape drawn to assist in cutting out.

tessellations Shapes which interlock together and form regular patterns.

texture Surface quality of being, for example, hard, soft, smooth or rough.

three-dimensional Having height, width and length.

translucent A material which when looked through, allows light to pass through but is not clear.

transparent A material through which you can see, such as glass.

two-dimensional Having height and width only, a flat representation.

work plan Plan which shows a sequence of work and the time each stage might take up.

working drawing Drawing which contains the information needed to make a product but is constantly updated as changes are made.

Equipment

drawing tools Key Stage 1 and 2 pupils should be familiar with using the following equipment:

- crayons
- marker pens
- paints
- pastels
- pencils
- pens

and with using the following tools:

- compass — Device for drawing circles.
- protractor — Measuring tool showing angles.
- stencil — Shaped template to draw inside for repeating patterns.

engineering Process of applying scientific principles to designing and making products and solving problems.

enlarged view To show greater detail by making the original larger.

equipment The tools and materials used to carry out a task.

ergonomics Study of how artefacts and environments can be matched to the needs of people.

evaluation Assessment of how an artefact functions compared with its specification.

exploded drawing A 'blown-apart' drawing showing how the components are joined to make a product.

final design Chosen solution from a selection of design ideas.

flexible Able to be bent without breaking.

fold To double material such as paper against itself in the following ways:

- mountain-fold — As an upside-down 'V' shape.
- fan fold — V-folds radiating from a point.
- U-fold — As a rectangular 'V' shape.
- V-fold — Also known as a 'valley' fold.

function The intended use of any product.

graphics Use of pictures and words to communicate ideas and information.

play dough Mouldable material made largely from flour; can be baked.

plywood Manufactured board made by gluing layers of thin wood together.

polycotton Fabric made of a mix of polyester and cotton.

polystyrene Lightweight thermoplastic material, used for model kits, disposable cutlery and as an expanded foam for cups and packaging.

pressure pad A switch which is activated when it is pressed, as in a doormat which rings a bell when it is stepped on.

propeller A shaft with blades.

pulley A grooved wheel over which a rope can run.

PVA Polyvinyl Acetate: a white, ready-mixed glue, used particularly for wood.

ratchet Toothed wheel which a pawl fits in, ensuring that motion is in one direction only.

reclaimed materials Materials such as packaging, which have served their original purpose, or off-cuts which would otherwise be wasted.

reed switch A switch which is operated by a magnet.

resistor A component which restricts the flow of electric current in a circuit.

rivet Fastener for joining sheet metals.

rust Corrosion which affects iron materials.

sandpaper Common term for glasspaper.

screw Fastener made from steel or brass, tapered for wood or used with nuts.

self-tapping screw Fastener made from hardened steel which cuts its own thread when inserted in sheet metal or plastic.

Sellotape Brand name for adhesive tape.

shaft A rod which transmits motion.

silk A natural fibre spun from the silken threads of the silkworm.

slide switch A switch which operates when a slider is pushed.

softwood Generally wood from coniferous trees, such as pine.

hardwood Wood from slow-growing deciduous trees such as oak and beech.

hessian Loosely woven coarse fabric.

hinge Movable joint.

kilojoule Unit of measurement of the energy value of foods.

laminate A thin layer of material, such as wood, plastic or transparent film.

lollipop sticks Strong, pre-cut sticks useful in frame construction.

magnet A product containing iron, which will attract other ferrous metals.

masking tape Low tack adhesive tape

MDF Medium density fibreboard – a board made from wood fibre, smooth on both sides and available in various thicknesses.

membrane switch Thin switch made up from thin plastic layers or membranes of card or baking foil.

mesh The open space between woven threads.

metal A natural element found in the Earth's crust, such as iron or copper.

mouldable material A material which can be shaped, such as plasticine, clay or Plastazote.

nail A fastener made from steel wire.

nut A hexagonal ring with an inner thread into which a bolt screws.

paper clip Light, bendable metal fastener for paper.

parallel circuit A circuit which has a number of possible alternative pathways which may be switched independently e.g. house lighting.

Perspex Brand name for acrylic.

pine A softwood.

Plastazote Brand name for a plastic foam which can be moulded when heated.

plastic A group of synthetic materials which includes acrylic, nylon and polystyrene; 'plastic' means able to be shaped without cracking or breaking.

plasticine Mouldable substance used for modelling.

Section 2 – Materials and components

abrasive Any material which can be used to wear away the surface of another, such as glasspaper.

acrylic A hard, rigid and shiny plastic material available in transparent, translucent and opaque forms and in bright colours; full name: polymethyl methacrylate.

adhesive Substance which holds materials together.

aluminium Light, soft metal and a good conductor, for example, baking foil; used for making switches.

artstraws Bendable straws which can interlock; useful for frameworks.

axle Rod on which one or more wheels can turn.

balsa Lightweight wood useful for model-making .

battery Two or more cells which supply electrical current.

battery snaps Clips which connect on batteries or battery holders.

beam Long piece of timber or metal, supported at both ends.

binca Textile with regular weave, useful for embroidery.

bolt A metal fastener, usually used with a nut.

brass Alloy of copper and zinc; good conductor.

bulb Electrically powered light with a glowing filament.

bulb holder Component which houses a bulb.

buzzer Device which emits a noise when current is supplied.

calico Coarse, heavyweight fabric usually used for producing prototype garments.

cam Specially shaped wheel, or one with a hole off-centre; when it rotates, anything resting on its edge will bob up and down, as in a pull-along toy.

chassis Base frame of a vehicle.

circuit Complete path through which an electrical current passes.

clay Mouldable modelling material.

cog Single tooth or projection on the rim of a gear wheel.

Correx Brand name for corriflute.

corriflute Corrugated plastic sheet.

cotton Lightweight natural fabric or thread for sewing.

dowel Wood cut to a cylindrical shape, available in various widths.

drive belt The belt which connects and transfers movement between two pulleys.

dye Natural or synthetic substance used to colour fabric.

emery cloth Abrasive sheet, used on metals in preference to glasspaper.

fat A nutrient found in plant or animal foods which provides energy; the solid form of oil.

fibreboard Board made from compressed wood fibres (see also MDF).

fibres Threads which can be spun or woven into a fabric.

flux Chemical used to clean a joint before it is soldered.

foil Thin sheet of metal, such as aluminium baking foil.

follower Device which rests on and follows the movement of the cam.

Formafoam Trade name; plastic foam which can be moulded when heated.

gear A wheel with teeth around its edge, usually fixed to a shaft.

gear train Gear wheels whose teeth mesh together so that when one turns so do the others.

glasspaper Abrasive sheet.

glue Adhesive.

hardboard Thin board composed of wood fibre, usually smooth on one side and textured on the other.

solder Alloy of lead and tin, used to join metals together.

spacer A component placed between two parts, such as between a wheel and the side of a buggy.

spring Something that returns to its original shape after it has been stretched; coiled metal wire and elastic bands are examples.

sugar A type of carbohydrate, often used in cooking to sweeten food.

switch A device which makes or breaks a circuit.

terminal block A block in which electrical wires can be joined together.

textile A woven material.

thermoplastic A plastic material which can be shaped when it is heated.

thermosetting material A plastic material which cannot be shaped even when it is heated.

tilt switch A switch which operates when tilted at an angle.

timber Wood, often in bulk, supplied in usable forms and sizes.

toggle switch A switch which operates when a lever is pressed.

washer A component which distributes the load applied on it, as in underneath a nut or screw.

wheel Circular frame or disc which rotates about a centre, enabling linear (straight-line) movement from circular motion.

winch Device to wind string or rope on to a wheel.

wire Metal drawn out into a thread or rod of varying thickness.

wood Material trees are made of.

wool Natural thread spun from the hair of sheep or goats.

Section 3 – Tools, equipment and processes

appliqué Describes method of stitching/gluing patches on to fabric (originally to mend holes in clothes).

apron Protective item of clothing.

baking sheet Flat metal sheet for baking pizzas, rolls etc.

basin China or plastic bowl for mixing ingredients in.

batik Method of dyeing material in which parts to be left uncoloured are waxed.

bench hook Device which hooks over the edge of a table or tightened into bench vice to provide a platform on which to work with materials.

bench vice Holding device for components or materials so they may be worked on.

bodkin Large-eyed blunt needle for weaving or threading.

bradawl Hand tool used to make small holes in wood before inserting screws and nails.

can opener Device for opening metal cans.

chopping board Board (nowadays usually plastic) used for chopping ingredients.

cladding The use of sheet material to cover a frame structure.

compass cutter Hand tool for cutting holes in paper or card.

compression The application of pressure to squeeze an object.

computer control The use of programming a computer in order to instruct a device to carry out a sequence of actions.

conductor A material which allows heat or electricity to pass through it.

construction kit Kit of parts ready to assemble to make models or structures.

control Process of making an action take place; computer control involves programming the computer so it will instruct a device to carry out an action.

ruler Tool for measuring a straight edge; safety rulers are advised when cutting with a sharp knife.

safety ruler Ruler with a raised centre and groove to guard fingers.

saw Cutting tool; see also coping saw, junior hacksaw, shaper saw, tenon saw (safety warning).

scales Device for measuring weight.

scissors Hand tool for cutting (safety warning).

scoring To mark a line to make paper or card easier to fold.

screwdriver Hand tool for inserting and removing screws.

seam allowance Extra fabric allowed for joining together – 15mm for domestic patterns, 10mm for industry.

sensor Device which detects changes in its surroundings, such as light and dark, temperature or movement.

series circuit A circuit with only one possible path for the current. Any switch in this type of circuit will affect all the components in it e.g. Christmas tree lights.

set square Drawing instrument for drawing lines on paper and card at set angles, usually 30°, 45°, 60° and 90°.

sewing terms:

- back-stitch — Stitching where each stitch overlaps the previous one.
- blanket stitch — Hemming stitch, particularly on the edge of blankets.
- cross-stitch — Stitches which form a cross shape.
- running stitch — Stitches which do not overlap.
- tacking stitch — Light stitching to hold material in place.
- tie and dye — Method of tying parts of a piece of cloth before dyeing so that patterns are achieved.
- weaving — Interlacing threads running in two directions.

shaper saw Electric powered saw for cutting out complex shapes such as jigsaw pieces (safety warning).

simmer To almost boil, but where bubbles only break the surface from time to time.

force Something that changes the speed or direction of an object.

framework A structure made by joining together a number of pieces of wood, metal, card or plastic.

friction The resistance trying to prevent two surfaces moving against each other.

fulcrum Point which supports a lever or on which a beam will balance.

G clamp To secure work or equipment e.g. bench hook to table.

gearing A gear train set up to increase or decrease speed.

glue gun Electrical device which heats sticks of glue; low-melt versions are safer for classroom use (safety warning).

goggles Eye protectors, essential for many activities in design and technology and science.

grater Device with rows of cutting edges for grating cheese, lemon peel or vegetables.

hammer Hand tool with a metal head for striking nails or other tools; the range includes small pin hammers, claw hammers and specially headed hammers for beating metals (safety warning).

healthy eating To eat the correct balance of a variety of food to maintain good health.

hole punch Punch for making holes in paper or card.

hydraulics Using a liquid such as water to transmit force over a distance to make actions take place.

hygienic To maintain health through cleanliness.

input What goes into a system.

insulation Protecting from change in temperature, so that gloves insulate hands against cold weather.

insulator A material which does not allow electricity to pass through it, or which slows down heat transfer.

jig Holding device for materials and tools, to aid cutting, drilling or forming.

Jinks' corner A method of joining frameworks together and strengthening them by triangulating the corners.

joint Place where two or more things are joined together, can be rigid or flexible.

junior hacksaw Small saw with removable blades for cutting small sections of wood, metal or plastic. Its teeth face forwards so it cuts on the push stroke (safety warning).

knives Cutting tools, from paring and grapefruit knives to craft knives (safety warning).

ladle Deep, long-handled spoon for soups or sauces.

laminating Putting thin layers of material together as in plywood or covering with a thin layer.

layering The use of several layers to stiffen sheet materials.

lever A mechanism which allows a greater force to be exerted, such as a spoon used as a lever on the lid of a tin.

linear Arranged in a straight line or moving in a straight line as in linear movement.

linkage A means of connecting components together usually so they can move.

load Force acting on a structure.

loom Device for weaving yarn, ranging from peg looms to frames.

machine Equipment designed to apply mechanical power to perform a function.

measuring jug Jug with levels marked for quantities of liquids or solids such as flour.

measuring spoons Set of spoons to measure amounts of ingredients, such as teaspoonful.

mechanism A device for changing the direction and/or amount of movement.

meshing The connecting of gear wheels as they come together.

mixing bowl Bowl for mixing ingredients.

motion Movement.