Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY	Long Term Planning Overview		
	AUTUMN	SPRING	SUMMER
Reception	Food: Christmas Biscuits	Food: Chinese New Year	Food: Teddy Bear Picnic
Year 1		Freestanding Structures (Playground/Park, linked to local area) (Spring 2) (Approximately 6 hours)	Mechanisms, Wheels & Axles (Emergency Vehicles) (Summer 2) (Approximately 6 hours)
Year 2	Mechanisms, Sliders & Levers (Christmas Card) (Autumn 2) (Approximately 6 hours)	Food, Preparing Vegetables (Linked to Zambia Study, Geography) (Spring 2) (Approximately 6 hours)	Textiles, Templates & Joining Techniques (Summer 2) (Approximately 6 hours)
Year 3	Textiles, 2D and 3D Shape (Autumn 2) (Approximately 6 hours)	Structures, Shells and Nets (Spring 2) (Approximately 6 hours)	Structures, Computer Animated Design (C.A.D.) (Summer 2) (Approximately hours)
Year 4	Food, Health & Varied Diet (Greek Pitas, linked to History) (Autumn 2) (Approximately 6 hours)	Electrical Systems, Simple Circuits & Switches (Headtorch, linked to Disaster Evacuation Kit, Geography) (Spring 2) (Approximately 6 hours)	Mechanisms, Levers & Linkages (Link to Romans, History) (Summer 2) (Approximately 6 hours)
Year 5	Frame Structures (Viking Longhouse, History) (Autumn 2) (Approximately 6 hours)	Mechanical Systems, Pulleys (Linked to Science) (Spring 2) (Approximately 6 hours)	Mechanical Systems, Pneumatics (Linked to Rainforest Animals, Geography/Science) (Summer 2) (Approximately 6 hours)
Year 6	Food, Celebrating Culture & Seasonality - Bread (Linked to WWII, History) (Autumn 2) (Approximately 6 hours)	Electrical Systems, Monitoring & Control – Using More Complex Switches & Circuits (Linked to Science) (Spring 2) (Approximately 6 hours)	Textiles, Combining Different Fabric Shapes & Using Computer Aided Design (C.A.D) in Textiles (Summer 2) (Approximately 6 hours)

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)		
EYFS		
Understanding the World and Personal Development		
Understanding the World Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension. **Physical Development** Fine motor control and precision helps with hand-eye co-ordination, which is later linked to early literacy. Repeated and varied opportunities to explore and play with crafts and the practice of using small tools, with feedback and support from adults, allow children to develop proficiency, control and confidence.		
AUTUMN	**SPRING**	**SUMMER**
Unit Focus: Food - Christmas Biscuits	**Unit Focus: Food - Chinese New Year**	**Unit Focus: Food - Teddy Bear's Picnic**
Areas of Learning		
Physical Development **ELG: Fine Motor Skills** Children at the expected level of development will: - Use a range of small tools, including scissors, paint brushes and cutlery; - Begin to show accuracy and care when drawing.		
Key Questions		
• What ingredients and equipment do I need to make my biscuit? • How do I make my biscuit? • What do I need to do to decorate my biscuit?	• What is Chinese New Year and what food is eaten at the celebrations? • What does food traditional with Chinese New Year taste like?	• What food is eaten at a picnic? • What is my favourite sandwich filling? • What ingredients and equipment so I need to make a sandwich? • How do I make a sandwich?
VOCABULARY		
Pour, mix, cut, stir, bake, decorate, spread, biscuit, cutter, Chinese New Year, celebration, rice, spring rolls, fruit, vegetables, dumplings, soup, chopsticks, fortune cookies, Sandwiches, salad, cheese, ham, tuna, butter, margarine, bread, cake,		
KEY LINKS/RESOURCES		
https://www.bbcgoodfood.com/recipes/collection/kids-biscuit-recipes https://www.cookingwithmykids.co.uk/christmas-sugar-cookies/ https://www.youtube.com/watch?v=c8ssHXZ9_qU (Chinese New Year) https://www.youtube.com/watch?v=Knyb4xW5sOw https://www.youtube.com/watch?v=WZMWsVguzTg https://www.pinterest.co.uk/pin/teddy-bears-picnic-tuff-tray--327918416606511366/ https://www.youtube.com/watch?v=rci_LDnIIbQ https://www.twinkl.co.uk/resource/early-years-ages-3-5-topic-making-sandwiches-and-learning-how-to-use-a-knife-to-spread-video-lesson-t-tp-2668860		

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)
YEAR 1
National Curriculum

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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.

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

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

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.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

AUTUMN	SPRING	SUMMER
	Unit Focus: Freestanding Structure - link to local area and playground	**Unit Focus: Wheels and Axles**
	Areas of Learning	
	Prior Learning: ● Experience of using construction kits to build walls, towers and frameworks. ● Experience of using basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. ● Experience of different methods of joining card and paper. **Common Misconceptions:** ● No experience of playgrounds to know how different equipment works	**Prior Learning:** ● Assembled vehicles with moving wheels using construction kits. ● Explored moving vehicles through play. ● Gained some experience of designing, making and evaluating products for a specified user and purpose. ● Developed some cutting, joining and finishing skills with cards. **Common Misconceptions:** ● Fixing wheel in place and expecting it to turn

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

Key Questions		
	• Can I explore structures such as playground equipment, street furniture, walls, towers and bridges in our local area e.g. *What are the structures called and what is their purpose? Who might use them? What materials have been used? Why have these been chosen? How have the parts been joined together? How have the structures been made strong enough? How have they been made stable?* • Can I draw or photograph the structures and label with the correct technical vocabulary in relation to the structure, materials used and shapes e.g. wall, tower, framework, base, joint, metal, wood, plastic, brick, triangle, square, rectangle, cuboid, cube? • Can I demonstrate measuring, marking out, cutting, shaping, joining and finishing techniques with a range of tools and new and reclaimed materials? Can I discuss the suitability of materials for the chosen products? • Can I build and explore a variety of freestanding structures using construction kits, such as wooden blocks, interconnecting plastic bricks and those that make frameworks e.g. *How can you stop your structures from falling over? How can they be made stronger and stiffer in order to carry a load?* Can I make some models of the structures seen in the local area? • Can I fold paper or card in different ways to make freestanding structures, using masking tape where necessary to make joins. Can I make them stronger, stiffer, stand up and be more stable e.g. *Can they support an object on top of their structures without it falling over or breaking?* • Can I design, make and evaluate a freestanding product? FIELD TRIP: Walk to local park to explore playground equipment at start of unit.	• Can I explore and evaluate a range of wheeled products such as toys and everyday objects? e.g. the number, size, position and methods of fixing wheels and axles. *How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round?* • Can I draw an example of a wheeled product, stating the user and purpose, and labelling the main parts e.g. body, chassis, wheels, axles and axle holders? • Can I walk around the school building and grounds, recording how wheels and axles are used in daily life? • Can I use construction kits with wheels and axles, to make a product that moves? • Can I demonstrate how wheels and axles may be assembled as either fixed axles or free axles? • Can I show different ways of making axle holders and stress the importance of making sure the axles run freely within the holders? • Can I mark out, hold, cut and join materials and components correctly? • Can I generate, develop and communicate my ideas as appropriate e.g. through talk and drawing? • Can I evaluate my finished product, communicating how it works and how it matches my original design criteria, including any changes they made?
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 design, make, evaluate, user, purpose, ideas, design criteria, product, function	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools, equipment and materials used, design, make, evaluate, purpose, user, criteria, functional
KEY LINKS/RESOURCES		
Use twinkle resources and videos to support delivery. Projects on a page may also support the unit for technical vocabulary and modelled examples.		

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)
YEAR 2
National Curriculum

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Purpose of study

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Aims

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- 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.

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

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

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.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

AUTUMN	SPRING	SUMMER
Unit Focus: Mechanisms/ Sliders and Levers	**Unit Focus: Food - Seasonal Salads**	**Unit Focus: Templates and joining - fabric bunting**
Areas of Learning		
Prior Learning: ● Early experiences of working with paper and card to make simple flaps and hinges. ● Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.	**Prior Learning:** ● Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. ● Experience of cutting soft fruit and vegetables using appropriate utensils.	**Prior Learning:** ● Explored and used different fabrics. ● Cut and join fabrics with simple techniques. ● Thought about the user and purpose of products.

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

Key Questions		
• Can I explore and evaluate a collection of books and everyday products that have moving parts, including those with levers and sliders. e.g. *What is it? Who is it for? What is it for? What do you think will move? How will you make it move? What part of the product moved and how did it move? How do you think the mechanism works? What else could move in the product? How well does it work?* • Can I understand and use the vocabulary e.g. lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out? • Can I understand how a simple lever and slider works? e.g. *How does the slider move? How does the lever move? Which part of the mechanism is the pivot? What does the movement of the slider and lever remind you of?* • Can I discuss what I will be designing, making and evaluating e.g. *Who will your product be for? What will be its purpose? How do you want it to move? Will you use a lever or a slider?* • Can I generate a product based on a simple design criteria e.g. the mechanism should work smoothly, it should make the right type of movement? • Can I choose the finishing techniques that I might use e.g. using digital text and graphics, paint, felt tipped pens or collage? • Can I evaluate my product against a design criteria?	• Can I examine a range of fruit/vegetables? Use questions to develop children's understanding e.g. *What is this called? Who has eaten this fruit/vegetable before? Where is it grown? When can it be harvested? What are its taste, smell, texture and appearance? What will it look like if we peel it or cut it in half? What are the different parts called?* • Can I handle, smell and taste fruit and vegetables in order to describe them through talking and drawing? e.g. *What words can we use to describe the shape, colour, feel, taste?* • Can I evaluate existing products to determine what I like best and investigate preferences linked to the intended users/suitability for intended purposes e.g. *What do you prefer and why? What might we want to include in our product to meet our user's preferences? Which fruit/vegetables might be the best for our product to match the occasion/purpose?* • Can I discuss basic food hygiene practices when handling food including the importance of following instructions to control risk e.g. *What should we do before we work with food? Why is following instructions important?* • Can I demonstrate how to use simple utensils and practise food-processing skills such as washing, grating, peeling, slicing, squeezing e.g. *Do we eat the whole fruit? Why or why not? Which parts do we eat? What might we have to do before eating this? Why do we cut, grate, peel and slice in this way?* Discuss different effects achieved by different processes. • Can I discuss healthy eating choices, including eating more fruit and vegetables; using *The eatwell plate* model talk about the importance of fruit and vegetables in our balanced diet e.g. *Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day? Why is it important to wash fruit/vegetables before we eat them?* • Can I evaluate the product during each stage of the design and make process?	• Can I investigate and evaluate existing products linked to the chosen project? Explore and compare e.g. fabrics, joining techniques, finishing techniques and fastenings used.Can I answer questions such as… e.g. *How many parts is it made from? What is it joined with? How is it finished? Why do you think these joining techniques have been chosen? How is it fastened? Who might use it and why?* • Can I make drawings of existing products, stating the user and purpose. Identify and label, if appropriate, the fabrics, fastenings and techniques used? • Can I investigate fabrics to determine which is best for the purpose of the product I am creating? • Can I use a template or simple paper pattern? • Can I use joining techniques such as a running stitch including threading my own needle, stapling, lacing and glueing. in a supported, guided group? • Can I use a finishing techniques such as sewing buttons, 3-D fabric paint, glueing sequins, printing in a supported, guided group? • Can I evaluate the product during each stage of the design and make process?

Winwick CE Primary School: Key Knowledge and Progression Map
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VOCABULARY		
design, make, evaluate, user, purpose, ideas, design criteria, product, function. Slider, lever, pivot, slot, bridge, guide. card, paper, masking tape, paper fastener, join. pull, push, up, down, straight, curve, forwards, backwards.	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip,core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria	names of existing products, joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function
KEY LINKS/RESOURCES		
Use twinkle resources and videos to support delivery. Projects on a page may also support the unit for technical vocabulary and modelled examples.		

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)
YEAR 3
National Curriculum

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 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

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

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.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

AUTUMN	SPRING	SUMMER
Unit Focus: Textiles - 2D & 3D Shape	**Unit Focus: Shell Structures**	**Unit Focus: Food - Bread**
Areas of Learning		
Prior Learning: ● Have joined fabric in simple ways by glueing and stitching. ● Have used simple patterns and templates for marking out. ● Have evaluated a range of textile products.	**Prior Learning:** ● Experience of using different joining, cutting and finishing techniques with paper and card. ● A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.	**Prior Learning:** ● Experience of different bread types, including fruit loaf and seeded batch etc. ● A basic understanding of weighing ingredients using grams/kg. ● A basic understanding of changes of states linked to yeast production.
Key Questions		
● Can I investigate a range of textile products that have a selection of stitches, joins, fabrics, finishing techniques, fastenings and purposes? ● How has textile production and products changed over time? e.g. the invention of zips and Velcro. ● Can I disassemble appropriate textiles products to gain an understanding of 3-D shape, patterns and seam allowances? ● Can I sew two small pieces of fabric together, demonstrating the use of, and need for, seam allowances? ● Can I create a paper pattern using 2-D shapes? ● Can I decide if a fabric is suitable for the chosen purpose and user? ● Can I answer the following questions, such as…*Which joining technique makes the strongest seam? Why? Which stitch is appropriate for the purpose? Which joining techniques are suitable for the fabric and purpose? How can you stiffen your fabric? What is the purpose of the fastenings? Which one is most suited to the purpose and user? What decorative techniques have been used? What effect do they have?* ● Can I create a design brief, supported by the teacher, set within a context which is authentic and meaningful? ● Can I sketch and annotate a range of possible ideas using mock-ups and prototypes of their chosen product? ● Can I plan the main stages of making e.g. using a	● Can I investigate a collection of different shell structures including packaging? Can I answer questions? e.g. *What is the purpose of the shell structure – protecting, containing, presenting? What material is it made from? How has it been constructed? Are the materials recyclable or reusable? How has it been stiffened i.e. folded, corrugated, ribbed, laminated? What size/shape/colour is it? What information does it show and why? How attractive is the design?* ● Can I take a small package apart identifying and discuss the parts of a net including the tabs e.g. *How are different faces of the package arranged? How are the tabs used to join the 'free' edges of the net?* ● Can I evaluate existing products to determine which designs children think are the most effective? Can I judge the suitability of the shell structures for their intended users and purposes? Discuss graphics including colours/impact of style/logo/size of font e.g. *What do you prefer and why? What style of graphics and lettering might we want to include in our product to meet users' preferences and its intended purpose? Which packaging might be the best for…?* ● Can I use kit parts with flat faces to construct nets? Practise making nets out of card, joining flat faces with masking tape to create 3-D shapes. Experiment with assembling in nets in numerous ways. ● Can I use the skills and techniques of scoring, cutting out and assembling using pre-drawn nets.	● Can I find out about important people and events in the past that have shaped the way bread is made and sold today? ● Can I investigate and analyse existing products according to their characteristics? ● Can I use research and develop a design criteria to inform the design of an innovative, functional, appealing product that is fit for purpose and aimed at a particular individual or group? ● Can I generate, develop, model and communicate my ideas through discussion and annotated sketches? ● Can I select ingredients and kitchen equipment to help me follow a bread making recipe? ● Can I knead and bake? ● Can I evaluate my final product and make suggestions about changes I would make if I did the process again?

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

flowchart or storyboard? ● Can I evaluate the process and final product in relation to the design brief and criteria?	● Can I use different ways of stiffening and strengthening my shell structure? e.g. folding and shaping, corrugating, ribbing, laminating. ● Can I discuss and explore the graphics techniques and media that could be used to achieve the desired appearance of my product? ● Can I use a computer-aided design (CAD) software to design the net, text and graphics for my product? ● Can I evaluate throughout and my final product against the intended user, drawing on the design criteria previously agreed?	
VOCABULARY		
fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	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, evaluating, design brief design criteria, innovative, prototype	Ingredients, flour, self-raising flour, salt, yeast, water, dough, knead, proof, bake, process, weighing, measuring, grams, kilograms, Mass-production, leavened and non-leavened bread
KEY LINKS/RESOURCES		
Use twinkle resources and videos to support delivery. Projects on a page may also support with the unit for technical vocabulary and modelled examples.		

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)
YEAR 4
National Curriculum

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Purpose of study

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- 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 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

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

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.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

AUTUMN	SPRING	SUMMER
Unit Focus: Food Health and Diet	**Unit Focus: Mechanisms Levers and Linkages**	**Unit Focus: Simple Circuits and Switches**
Areas of Learning		
Prior Learning: ● Know some ways to prepare ingredients safely and hygienically. ● Have some basic knowledge and understanding about healthy eating and *The eatwell plate.* ● Have used some equipment and utensils and prepared and combined ingredients to make a product. ● Understand the measures of g/kg	**Prior Learning:** ● Explored and used mechanisms such as flaps, sliders and levers. ● • Gained experience of basic cutting, joining and finishing techniques with paper and card.	**Prior Learning:** ● Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers. ● Cut and join a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.
Key Questions		
● Can I investigate a range of food products? ● Do I understand the principles of a varied and healthy diet using *The eatwell plate* e.g. *What ingredients have been used? Which food groups do they belong to? What substances are used in the products e.g. nutrients, water and fibre?* ● Can I carry out sensory evaluations on the contents of the food? Can I record my results in a table? ● Can I explain how a variety of ingredients used in products are grown and harvested, reared, caught and processed? ● Can I select and use a range of utensils and use a range of techniques to prepare ingredients hygienically including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking? ● Can I use basic food hygiene practices when handling food?	● Can I investigate, analyse and evaluate books and, where available, other products which have a range of lever and linkage mechanisms? ● Can I answer questions such as… *Who might it be for? What is its purpose? What do you think will move? How will you make it move? What part moved and how did it move? How do you think the mechanism works? What materials have been used? How effective do you think it is and why? What else could move?* ● Can I understand a range of lever and linkage mechanisms and explain how they work? ● Can I follow a design brief to make my own lever book? ● Can I evaluate throughout and my final product against the intended purpose and with the intended user, drawing on the design criteria previously agreed?	● Can I discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products, including those which are commercially available e.g. *Where and why they are used? How does the product work? What are its key features and components? How does the switch work? Is the product manually controlled or controlled by a computer? What materials have been used and why? How is it suited to its intended user and purpose?* ● Can I investigate examples of switches, including those which are commercially available, which work in different ways e.g. push-to-make, push-to-break, toggle switch. Let the children use them in simple circuits e.g. *How might different types of switches be useful in different types of products?* ● Do i understand about the dangers of mains electricity? ● Can I make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers? ● Can I explain which of the components in the circuit are input devices e.g. switches, and which are output devices e.g. bulbs and buzzers? ● Can I explain how to find a fault in a simple circuit and correct it? ● Can I use a simple computer control program with an interface box or standalone control box to physically control output devices e.g. bulbs and buzzers? ● Can i make a variety of switches by using simple classroom materials? e.g. card, corrugated plastic,

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

		aluminium foil, paper fasteners and paper clips. ● Can i make switches that operate in different ways? e.g. when you press them, when you turn them, when you push them from side to side. Ask the children to test their switches in a simple series circuit. ● Can I avoid making short circuits? ● Can I evaluate throughout and my final product against the intended purpose and with the intended user, drawing on the design criteria previously agreed?
VOCABULARY		
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 planning, design criteria, purpose, user, annotated sketch, sensory evaluations	mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief	series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function, prototype, design criteria, innovative, appealing, design brief
KEY LINKS/RESOURCES		
Use twinkle resources and videos to support delivery. Projects on a page may also support the unit for technical vocabulary and modelled examples.		

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)
YEAR 5
National Curriculum

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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 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

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

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.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

AUTUMN	SPRING	SUMMER
Unit Focus: Freestanding Structures	**Unit Focus: Food - Global**	**Unit Focus: Mechanics**
Areas of Learning		
Prior Learning: ● Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. ● Basic understanding of what structures are and how they can be made stronger, stiffer and more stable.	**Prior Learning:** ● Chinese New Year (EYFS) ● Preparing vegetables (Year 2) ● Food Health and Diet (Year 4)	**Prior Learning:** ● Experience of axles, axle holders and wheels that are fixed or free moving. ● Basic understanding of different types of movement. ● Experience of cutting and joining techniques with a range of materials including card, plastic and wood. ● An understanding of how to strengthen and stiffen structures
Key Questions		
● Can I investigate and make annotated drawings of a range of portable and permanent frame structures, e.g. tents, bus shelters, umbrellas. Can I use photographs and web-based research to extend the range e.g. *How well does the frame structure meet users' needs and purposes? Why were materials chosen? What methods of construction have been used? How has the framework been strengthened, reinforced and stiffened? How does the shape of the framework affect its strength? How innovative is the design? When was it made? Who made it? Where was it made?* ● Can I research key events and individuals related to their study of frame structures e.g. Stephen Sauvestre – a designer of the Eiffel Tower; Thomas Farnolls Pritchard – designer of the Iron Bridge? Also cover the local bridges of Thelwall and Mersey Gateway bridge. ● Can I use a construction kit consisting of plastic strips and paper fasteners to build a 2-D framework? Can I compare the strength of square frameworks with triangular frameworks? ● Can I demonstrate how paper tubes can be made from rolling sheets of newspaper diagonally around pieces of e.g. dowel? Can I use these tubes and masking tape or paper straws with pipe cleaners to build 3-D frameworks such as cubes, cuboids and pyramids? ● Can I accurately use tools and equipment and develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and	● Can I name some varied ingredients and say which part of the world they come from? ● Can I explain the different food groups on the eatwell plate? ● Can I use basic food skills, such as peeling, grating, juicing, dicing and chopping, which enables me to prepare a variety of simple savoury dishes? ● Can I explain how eating different ingredients helps to give us a healthy and varied diet and understand the benefits of this? ● Can I explain nutritional similarities between different types of food eaten around the world and say why this is important? ● Can I accurately follow a recipe?	● Can I describe different types of movement: rotary, oscillating and reciprocating using examples of simple models of different types of cams? ● Can I find examples of different types of movement in the home and in school? ● Can I use observational drawings and questions to develop understanding of the products in the handling collection? e.g. *How innovative is the product? What design decisions have been made? What type of movement can be seen? What types of mechanical components are used and where are they positioned? What are the input movement, process and output movement of the system? How well does the product work? Why have the materials and components been chosen? How well has it been designed? How well has it been made?* ● Using pre-cut cams made from MDF or wooden wheels, can I mount on a piece of board and observe their movement with a follower? ● Can I use a hand drill safely, with support, to make an off-centre cam and position it accurately in a housing? ● Can I measure accurately and check before cutting any holes or glueing? ● Can I develop my measuring, marking, cutting, shaping and joining skills using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to make cam mechanisms and construct wooden frames or card housings, as appropriate?

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

hand drills to construct wooden frames, as appropriate?		• Do I understand how to use the equipment safely?
VOCABULARY		
frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional	Different ingredients such as lemongrass, root ginger, pak choi, lime, mango and figs Mix, grate, dice, chop etc.	cam, snail cam, off-centre cam, peg cam, pear shaped cam, follower, axle, shaft, crank, handle, housing, framework, rotation, rotary motion, oscillating motion, reciprocating motion, annotated sketches, exploded diagrams, mechanical system, input movement, process, output movement, design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief
KEY LINKS/RESOURCES		
Use twinkle resources and videos to support delivery. Projects on a page may also support the unit for technical vocabulary and modelled examples.		

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

DESIGN & TECHNOLOGY (DT)
YEAR 6
National Curriculum

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Purpose of study

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- 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

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Subject content

Key stage 2

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Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
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- investigate and analyse a range of existing products
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- 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
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Pupils should be taught to:

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

AUTUMN	SPRING	SUMMER
Unit Focus: Food - Celebrating Culture and Seasonal Cooking	**Unit Focus: Computer programming**	**Unit Focus: Textiles - making own phone cases**
Areas of Learning		
Prior Learning: ● Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. ● Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.	**Prior Learning:** ● Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. ● Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.	**Prior Learning:** ● Experience of basic stitching, joining textiles and finishing techniques. ● Experience of making and using simple pattern pieces.
Key Questions		
● Can I use first hand and secondary sources to carry out relevant research into existing products to include personal/cultural preferences, ensuring a healthy diet, meeting dietary needs and the availability of locally sourced/seasonal/organic ingredients? ● Can I use my senses to evaluate a variety of existing food products and ingredients relating to the project?Can I present my results in a table/graph/chart and use evaluative writing? ● Can I research key chefs and how they have promoted seasonality, local produce and healthy eating? ● Can I measure out, cut, shape and combine e.g. knead, beat, rub and mix ingredients? ● Can I use the appropriate utensils and equipment safely and hygienically? ● Can I follow a basic recipe to prepare and cook a savoury food product? ● Can I change or add to a basic recipe such as types of flour, seeds, garlic, vegetables considering texture, taste, appearance and smell? ● Can I experiment making different shapes to change the appearance of the food product e.g. *Which shape is most appealing and why?* ● Can I evaluate my work as it progresses and the final product against the intended purpose and user reflecting on the design specification previously agreed?	● Can I use research to discuss a range of relevant products that respond to changes in the environment using a computer control program such as automatic nightlights, alarm systems, security lighting e.g. *Who have the products been designed for and for what purpose? How and why is a computer control program used to operate the products? What input devices, e.g. switches, and output devices, e.g. bulbs, have been used?* ● Can I investigate electrical sensors such as light dependent resistors (LDRs) and a range of switches such as push-to-make switches, push-to-break switches, toggle switches, micro switches and reed switches? ● Can I research famous inventors related to the project e.g. Thomas Edison – light bulb? ● Can I measure, mark out, cut and join using construction materials that I will need to create my electrical products? ● Can I practise methods for making secure electrical connections e.g. using automatic wire strippers, twist and tape electrical connections, screw connections and connecting blocks? ● Can I draw on my science understanding about a range of electrical systems that could be used to control my product, including a simple series circuit where a single output device is controlled, a series circuit where two output devices are controlled by one switch and, where appropriate, parallel circuits where two output devices are controlled independently by two separate switches?	● Can I investigate, analyse and evaluate a range of existing products which have been produced by combining fabric shapes? ● Can I investigate work by designers and their impact on fabrics and products? ● Can I answer questions, such as… *Is the product functional or decorative? Who would use this product? What is its purpose? What design decisions have been made? Do the textiles used match the intended purpose? What components have been used to enhance the appearance? To what extent is the design innovative?* ● Can i investigate and analyse how existing products have been constructed? ● Can I disassemble a product and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthened and stiffened, what fastenings have been used and why? ● Can I investigate the properties of textiles e.g. exploring insulating properties, water resistance, wear and strength of textiles? ● Can I develop skills of threading needles and joining textiles using a range of stitches. (This activity must build upon children's earlier experiences of stitches e.g. improving appearance and consistency of stitches and introducing new stitches. If available, demonstrate and allow children to use sewing machines to join fabric with close adult supervision.) ● Can I develop skills of sewing textiles by joining right side

Winwick CE Primary School: Key Knowledge and Progression Map
Subject: DESIGN & TECHNOLOGY (DT)

	• Can I write computer control programs that include inputs, outputs and decision making. • Can I test out the programs using electrical components connected to interface boxes or standalone boxes? • Can I make a high quality product, applying knowledge, understanding and skills from IEAs and FTs? • Can I create and modify a computer control program to enable the product to work automatically in response to changes in the environment? • Can I critically evaluate throughout and the final product, comparing it to the original design specification? • Can I test the system to demonstrate its effectiveness for the intended user and purpose?	together and making seams. • Can I learn how to sew and shape curved edges by snipping seams, how to tack or attach wadding or stiffening and learn how to start and finish off a row of stitches? • Can I develop the skills of 2-D paper pattern making using grid or tracing paper to create a 3-D dipryl mock-up of a chosen product? • Can I use a computer-aided design (CAD) on-line pattern making software to generate pattern pieces? • Can I use an art packages on the computer to design prints that can be applied to textiles using iron transfer paper? • Can I evaluate my final product, comparing it to the original design specification: critically evaluate the quality of the design, the manufacture, functionality, innovation shown and fitness for intended user and purpose, considering others' opinions. • Can I communicate the evaluation in various forms e.g. writing for a particular purpose, giving a well-structured oral evaluation, speaking clearly and fluently.
VOCABULARY		
ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart, function, innovative, design specification, design brief, user, purpose	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype
KEY LINKS/RESOURCES		
Use twinkle resources and videos to support delivery. Projects on a page may also support the unit for technical vocabulary and modelled examples.		