New Earswick Primary School

Design and Technology Curriculum

Design Technology for the pupils of New Earswick Primary School

Our DT curriculum is designed to allow pupils to solve real and relevant problems whilst encouraging pupils to make braver, stronger and smarter decisions. Some DT teaching is discrete whilst other lessons follow the school topic:

- **A Step in Time**
- **Discover**
- **Me, Myself and I**

Skills

We have designed a progression of skills to allow our pupils to become proficient in:

- ***Apply knowledge***
- ***Build understanding***
- ***Make high quality prototypes and products***
- ***Critique and evaluate***
- ***Cooking and nutrition***

Barriers

Stakeholders have identified that our pupils lack confidence and life experiences. Our entire curriculum, including DT, promotes opportunities to be Braver, Stronger and Smarter. We have a current school focus on cooking and nutrition so that our pupils learn how to care for themselves when they leave home.

Whole School Topic: Cooking and nutrition

Nursery	EYFS	Year 1	Year 2
• Workshop • Cooking • Role play	• Workshop • Tinker Table • Dough • Cooking	Cooking and nutrition: • **Know** the basic principles for a healthy diet • Know where some food comes from • Cooking hygiene	Cooking and nutrition: • **Know** the advantages of fruit and vegetables and a varied diet for a healthy diet • Know where foods come from (further away vs local)
Year 3	**Year 4**	**Year 5**	**Year 6**
Cooking and nutrition: • **Apply** the principles of healthy and varied diets	Cooking and nutrition: • Prepare and cook a variety of savoury dishes (predominantly)	Cooking and nutrition: • **Plan**, prepare and cook a variety of savoury dishes **using a range of techniques** (predominantly)	Cooking and nutrition: • Know the seasonality of ingredients including origin **(grown, reared, caught or processed)**

National Curriculum Coverage

Early Years

Physical Development

- Use a range of tools competently, safely and confidently
- Know and talk about factors that support overall health and wellbeing

Expressive Art and Design

- Return to and build on previous learning, refining ideas
- Create collaboratively sharing ideas, resources and skills

Key Stage 1

Design

- Year 1 Space buggies- axels and wheels
- Year 2 castles/ battlements/ weaponry
- Year 2 A product for home, garden or community

Make

- Year 1: Bog babies- sewing
- Year 2 castles/ battlements/ weaponry

Evaluate

- Year 1: Bog babies- sewing
- Year 1 Space buggies- axels and wheels
- Year 2 castles/ battlements/ weaponry

Technical knowledge

- Year 2 castles: levers, sliders **basic pulleys**
- Year 2 A product for home, garden or community

Key Stage 2

Design

- **Cooking and nutrition for all year groups**
- Year 3 Roman/ Greek soldiers- pulleys and levers- troy horse
- Year 3 3D printing- volcano
- Year 4 Expeditions-(gears, pulleys, cams, levers, linkage)
- Year 4 Expeditions- simple circuits (torches)
- Year 5 Settlements- creating housing/shelters (forest school)
- Year 5 Saxon weaving and sewing
- Year 6 Titanic- Room design CAD
- Year 6 War time meal time

Make

- Year 4 Victorian game: marble maze/ games/ zoetropes
- Year 6 Titanic- circuits, buzzers, bulbs and motors
- Year 5 Settlements- creating housing/shelters (forest school)
- Year 5 Saxon weaving and sewing
- Year 6 Titanic- Room design CAD

Evaluate

- Year 4 Victorian game: marble maze

Technical knowledge

- **Cooking and nutrition for all year groups**
- Year 5 Topography (art/Geo) stiffen, strengthen, reinforce
- Year 5 Victorian gruel
- Year 6 War time meal time

Skills Progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	• I can create a simple design for my product that is functional and appealing to myself and others. • I can use words and pictures to describe what I want to do. • I can talk about my design. **Describing what I want to do.** • I can use a computer program (2 design and make) to design a product. **(ipads)**	• I can create a simple design for my product that is purposeful, functional and appealing to myself and others based on design criteria given. • I can generate, develop, model and communicate my ideas through talking drawing, templates and mock ups **and planning.** • I can research my ideas using ICT.	• I can use my knowledge of existing products to design my own functional product. • I can create designs using annotated sketches and prototypes. • I can talk about my design and discuss how it might change from my original idea after research and prototypes **making a note of steps and order.** • **I can explore CAD- 3D printing as an alternative to building.**	• I can use my knowledge of existing products to design a functional and appealing product for a particular purpose and audience. • I can create designs using annotated sketches, exploded diagrams and pattern pieces. • I can research and develop my design from a given design criteria **including what wouldn't work/ don't like.**	• I can use my research into existing products to inform the design of my own innovative product. • I can create designs using annotated sketches and cross sectional designs and pattern pieces.	• I can generate, develop, model and communicate my ideas through discussion, annotated sketches, exploded diagrams and through prototypes and computer aided design. **CAD design/ computer generated design programs etc**
Make	• I can select from and use a range of tools and equipment to perform practical tasks e.g. • cutting, shaping, joining and finishing. • **I can make a list of what materials and tools I will need.**	• I can choose tools I would like to use and select materials based on my knowledge of their properties. • I can safely measure, mark out, cut and shape materials and components using a range of tools.	• I can safely measure, mark out, cut assemble and join with some accuracy. • I can make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them.	• I can use techniques which require more accuracy to cut, shape, join and finish my work. • I can use my knowledge of techniques and the functional and aesthetic qualities of a wide range of materials and plan how to use them.	• I can make careful and precise measurements so that joins, holes and openings are in exactly the right place. • I can produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.	• I can use my technical knowledge and accurate skills to problem solve during the making process. • I can apply my knowledge of material and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.
Evaluate	• I can ask simple questions about existing products and those that I have made.	• I can evaluate and assess existing products and that that I have made using a design criteria. • I can state what I like and dislike about my product.	• I can investigate and analyse existing products and those I have made, considering a wide range of factors **and or a given criteria.** • I can talk about how I would improve my product if I was to make it again.	• I can investigate and analyse a range of existing products and explain how they will help to develop my design. • I can consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.	• I can make detailed evaluations about existing products and my own considering the views of others to improve my work. **Remarking on the skills used: Eg. Joins, strength, flexibility**	• I understand how key events and individuals in design and technology have helped shape the world.
Tech knowledge	• I can build structures, exploring how they can be made stronger, stiffer and more stable. • I can use wheels and axles in a product. • I know basic cooking hygiene, the basic principles of healthy eating and where some food comes from.	• I can explore and use mechanisms such as levers, sliders and wheels in products. • I can investigate different techniques for stiffening a variety of materials and explore different methods of enabling structures to remain stable. • I **Know** the advantages of fruit and vegetables and a varied diet for a healthy diet • Know where foods come from (further away v local)	• I can investigate different techniques for stiffening, strengthening and reinforcing more complex structures **and alter and adapt.** • **I can apply** the principles of healthy and varied diets	• I can understand and use electrical systems in my products. • I can understand how to use more complex mechanical systems. • Prepare and cook a variety of savoury dishes (predominantly)	• I can apply techniques I have learnt to strengthen structures and explore my own ideas. • I can **plan**, prepare and cook a variety of savoury dishes **using a range of techniques** (predominantly)	• I can build more complex 3D structures and apply my knowledge of strengthening techniques to make them stronger and more stable. • I can understand how to use more complex electrical systems. • I can apply my understanding of computer programs to monitor and control my product. • I understand seasonality of ingredients including origin **(grown, reared, caught or processed)**

YEAR 1

	A Step in Time	Discovery	Me, Myself and I
	Autumn 2	**Spring 2**	**Summer 2**
	Year 1 Space buggies	**Year 1 Bog baby**	**Year 1 Baking**
National Curriculum	**Design, make, evaluate- vehicle with wheels and axles**	**Design, make, evaluate- sewn toy**	**Design and make a savoury snack Design and make biscuits (pay it forward)**
	Skills progression and assessment		
Design	I can create a simple design for my product that is functional and appealing to myself and others. I can use words and pictures to describe what I want to do. I can talk about my design. **Describing what I want to do.** I can use a computer program (2 design and make) to design a product. **(ipads)**	I can create a simple design for my product that is functional and appealing to myself and others. I can use words and pictures to describe what I want to do. I can talk about my design. **Describing what I want to do.**	I can create a simple design for my product that is functional and appealing to myself and others. I can use words and pictures to describe what I want to do. I can talk about my design. **Describing what I want to do.**
Make	• I can select from and use a range of tools and equipment to perform practical tasks e.g. • cutting, shaping, joining and finishing. • **I can make a list of what materials and tools I will need.**	• I can select from and use a range of tools and equipment to perform practical tasks e.g. • cutting, shaping, joining and finishing. • **I can make a list of what materials and tools I will need.**	• I can select from and use a range of tools and equipment to perform practical tasks e.g. weighing, measuring, rolling, cutting, grating • **I can make a list of what ingredients and tools I will need. (and follow a simple recipe)**
Evaluate	• I can ask simple questions about existing products and those that I have made	• I can ask simple questions about products that I have made.	• I can ask simple questions about existing products and those that I have made.
Technical Knowledge	• I can build structures, exploring how they can be made stronger, stiffer and more stable. • I can use wheels and axles in a product.	• I can build structures **and know that there are alternatives to glue.**	• I know basic cooking hygiene, the basic principles of healthy eating and where some food comes from.
Suggested Tasks	• Explore a variety of wheels • Use the construction table to build axles with different wheels • Build several frames for a buggy, selecting from given materials to find the strongest • Match pictures of different buggy designs to labels • Find featured you like on buggy designs • Follow the design sheet to make a buggy	• Practise threading a needle • Practise tying a knot in thread • Learn the different basic stitches: running, cross (with support) and blanket (with support) • Explore stitching around complex practise shapes • Plan, design and make a bog baby • Investigate a range of toys and how they are made including some handmade toys • Follow the design sheet to evaluate own product	• Learn how to work hygienically • Compare a range of shop bought products of the same type and evaluate • Explore what a recipe it and practise weighing and measuring • Using a basic recipe, bake or cook a savoury product • Using knowledge of the savoury recipe, plan and make own savoury product by varying ingredients • Follow the design sheet to evaluate own product
Vocabulary 'Juicy Jargon'	Wheels Axles Design Plan Measure Make Decorate Stronger Stiffer Join Fix cut Space Vehicle Buggy Wheels Journey Travel Make Down Much Off Made First Then Two Did your	Needle Thread Knot Line Stitch Cross stich Running stitch Blanket stitch Outline Pattern Fix join Character Toy Stuffing Features Face Eyes Nose Mouth Ears Bog water Of Put Push Pull Could Break pin	Recipe Ingredients Mix Measure Grams Method Cook Bake Oven degrees Food Vegetables Fruit Healthy Diet Cook eat Once Put You Floor Hold After Last Again Half Sugar Make
	Links to learning and assessment points		
Outcomes: DT knowledge	• Know that you need an equipment list to make a product • Know that it is better to plan a design first • Know how to make a frame stronger (preparing for Y2 Castles) • Understand that axles allow wheels to turn	• Know how to thread and knot a needle and thread • Know that you need a back and a front to form a simple pattern • Know that pins can hold a pattern in place • Know that you can make different stitches • Understand that sewing can be used to fix materials rather than gluing	• Know that surfaces and hands must be clean before cooking • Know that long hair should be tied back • Understand what makes food savoury • Know that you can change a recipe and it will change the taste/ look of the product • know that you need to measure your ingredients
Previous ←	EYFS • Return to and build on previous learning, refining ideas	EYFS: • Use a range of tools competently, safely and confidently	EYFS: • Know and talk about factors that support overall health and wellbeing
Next →	YEAR 2 • Castles and battlements (builds on to strengthening structures and combining them with levers and sliders) YEAR 4 • Pulleys (builds on movement with axels to pulleys combined with axels) YEAR 5 • Topography- alternative ways to fix and shape materials	YEAR 5 • Viking sewing and weaving • Multimedia portraits Year 6 • Art (nail art)	YEAR 2 • Varied diets- fruit and veg YEAR 3 • Healthy meals and snacks YEAR 4 • Variety of savoury dishes (pastry, pasta and potatoes) YEAR 5 • Gruel and Victorian cooking YEAR 6 • (pair with y1 in Pay it Forward) biscuits • Trench food/ war tea dance • Seasonal celebration

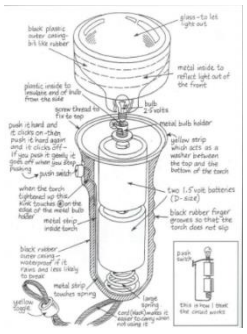
YEAR 2

	A Step in Time	Discovery	Me, Myself and I
	Autumn 2	**Spring 1**	**Summer 1**
	Year 2 Cooking and nutrition Healthy meals: fruit and veg 'Stone Age scavenge'	**Year 2 Castles and battlements**	**Year 2 A product for home, garden or community 'edible plants' *May require pre planting in Forest School**
National Curriculum	**Design and make: cooking/ meals (Know the advantages of fruit and vegetables and where foods come from)**	**Design, make, evaluate**	**Design and make: cooking/ meals (Know the advantages of fruit and vegetables and where foods come from)**
	Skills progression and assessment		
Design	• I can research my ideas using ICT.	• I can create a simple design for my product that is purposeful and functional **based on design criteria given.** • I can generate, develop, model and communicate my ideas through talking drawing, templates and mock ups **and planning.** • I can research my ideas using ICT.	• I can research my ideas using ICT.
Make	• I can choose tools I would like to use: **cutting, rolling, cooking, stirring, measuring etc.**	• I can choose tools I would like to use and select materials based on my knowledge of their properties. • I can safely measure, mark out, cut and shape materials and components using a range of tools.	• I can choose tools I would like to use: **cutting, rolling, cooking, stirring, measuring etc.**
Evaluate	• I can evaluate and assess existing products and that that I have made using a design criteria. • I can state what I like and dislike about my product.	• I can evaluate and assess existing products and that that I have made using a design criteria. • I can state what I like and dislike about my product.	• I can evaluate and assess existing products and that that I have made using a design criteria. • I can state what I like and dislike about my product.
Technical Knowledge	• I **Know** the advantages of fruit and vegetables and a varied diet for a healthy diet • Know where foods come from (further away v local)	• I can explore and use mechanisms such as levers, sliders and wheels in products. • I can investigate different techniques for stiffening a variety of materials and explore different methods of enabling structures to remain stable.	• I **Know** the advantages of fruit and vegetables and a varied diet for a healthy diet • Know where foods come from (further away v local)
Suggested tasks	• Research what and how Stone Age people ate • Look at when cooking began • Look at where our food comes from versus where Stone Age people got their food • Prepare Stone Age recipes and meals: ***http://cookit.e2bn.org/historycookbook/index-29-prehistoric.htmlDesign salads and hot dishes with Stone Age ingredients*** • meals. • Know why fruit and veg are healthy and compare to sweet food.	• Teach, model and practise cutting and joining card • Practise joining card and fixing without glue • Investigate reinforcing using cardboard corners, tapes and hot glue • Model and investigate levers and sliders using trial and error and recording steps and tips • Follow the design sheet to plan, make and evaluate to make either a castle/ battlement/ weapon etc	• List and collect research on plants you can and cannot eat • Taste test plant produce • Investigate raw and cooked plant produce • Distinguish between eating the fruits and seeds of a plant or the leaves, stalk or flower of a plant • Following a brief Follow the design sheet to plan, make and evaluate for a community event (ideas: fruit flavoured jellies, herby snacks, flower salads etc)
Vocabulary 'Juicy Jargon'	Savoury, Sugar, Healthy, Benefits, Grown, Chop, Prepare, Cook, raw Scavenge, Gathered, Collected, Reared, Farmed, Fruit, Vegetables, Protein, Carbohydrates Water, Good, Eat, Everyone, More, Other, Food, Right, Animals, Sea, Fish, Found, Live, Around, garden	Cardboard, Fix, Join, Bend, Fold, Tape, Secure, Strengthen, Hold, Lever, Slider, Cut, measure Tower, Castle, Battlement, Portcullis, Baily, Moat, Arrow loop, Walls, Materials, Weapons, Defence Good, Want, Over, Find, More, Round, Other, Door, Need, King, Every, Think, Stop	Savoury, Sugar, Healthy, Benefits, Grown, Chop, Prepare, Cook, Raw, **Home grown, Produce, Natural, Edible poisonous** Scavenge, Gathered, Collected, Reared, Farmed, Fruit, Vegetables, Protein, Carbohydrates Water, Good, Eat, Everyone, More, Other, Food, Right, Animals, Sea, Fish, Found, Live, Around, garden
	Links to learning and assessment points		
Outcomes: DT knowledge	• Know that some food is bought or grown locally and some come from far away (know examples) • Know which foods are healthier to eat • Know that Stone Age people were hunter gatherers and that they began to cook • Understand the difference between savoury and sweet foods	• Know that cardboard can be fixed using different adhesives (glues or tapes) or non adhesive options • Know what materials will make cardboard stronger • Know how to cut and glue safely • Understand how levers and sliders work and evidence practising these • I can measure accurately (in cm) • Evidence of reinforcements	• Know that some plants can be eaten • Know how to cook some plants • Be able to prepare a flower and leaf salad • Know that food is grown and eaten • Know how to cut safely • Know how to store fresh food • Know that ingredients compliment a recipe to make a final product
Previous ←	YEAR 1 • Basic cooking hygiene and snack making/ cooking	YEAR 1 • Dune buggy bodies	YEAR 1 • Basic cooking hygiene and snack making/ cooking • Biscuit baking (Pay it forward with Y6)
Next →	YEAR 2 • Builds up to cooking using plants in a community project YEAR 3 • Healthy meals and snacks YEAR 4 • Variety of savoury dishes (pastry, pasta and potatoes) YEAR 5 • Gruel and Victorian cooking YEAR 6 • (pair with y1 in Pay it Forward) biscuits • Trench food/ war tea dance • Seasonal celebration	YEAR 3 • Knowledge of levers and sliders build to pulleys (Troy Horse) YEAR 4 • Victorian Toys- build to help measure at cut to mm and working with card and wood • Pulley knowledge in Y3 then prepares for pulleys and cams in expedition vehicles YEAR 5 • Links to Art- topographical maps: prepared children for scoring and forming irregular shapes from card	YEAR 3 • Healthy meals and snacks YEAR 4 • Variety of savoury dishes (pastry, pasta and potatoes) YEAR 5 • Gruel and Victorian cooking YEAR 6 • (pair with y1 in Pay it Forward) biscuits • Trench food/ war tea dance • Seasonal celebration

YEAR 3

	A Step in Time	Discovery	Me, Myself and I
	Autumn 2	**Spring 1**	**Summer 2**
	Year 3 **Pulleys, levers, mechanisms- Trojan Horse**	**Year 3** **3D design and printing Volcanos**	**Year 3** **Baking: community vegetarian hamper**
National Curriculum	**Design, make, evaluate**	**Design, make, evaluate**	**Design: cooking and nutrition**
Design	• I can use my knowledge of existing products to design my own functional product. • I can create designs using annotated sketches and prototypes. • I can talk about my design and discuss how it might change from my original idea after research and prototypes **making a note of steps and order.**	• I can create designs using annotated sketches and prototypes. • I can talk about my design and discuss how it might change from my original idea after research and prototypes **making a note of steps and order.** • **I can explore CAD- 3D printing as an alternative to building.**	• I can use my knowledge of existing products to design my own functional product. • I can talk about my design and discuss how it might change from my original idea after research.
Make	• I can safely measure, mark out, cut assemble and join with some accuracy. • I can use simple pulley and fixed axle with a motor (1 axle- 2 wheel drive)  • I can modify my designs with levers and sliders	• I can measure in mm and programme a printer to make/build • I can make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them.	• I can safely measure **and weigh ingredients with accuracy.** • I can make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them.
Evaluate	• I can talk about how I would improve my product if I was to make it again.	• I can investigate and analyse existing products and those I have made, considering a wide range of factors **and or a given criteria.** • I can talk about how I would improve my product if I was to make it again.	• I can investigate and analyse existing products and those I have made, considering a wide range of factors **and or a given criteria.** • I can talk about how I would improve my product if I was to make it again.
Technical Knowledge	• I can investigate different techniques for stiffening, strengthening and reinforcing more complex structures **and alter and adapt.**	• **I can understand the current limitations of technology and design what I would do if those limitations were not there.**	• **I can apply** the principles of healthy and varied diets
Suggested tasks	• Explore the use of motors powered by batteries and fixed axles • Explore the effect of different sized pulleys (cog) • Practise reinforcing joins with corners, braces and nails (tacks/ furniture pins) • Follow the design sheet to plan, design, make and evaluate a Trojan horse (or own version)	• Explore the different shapes of volcanos • Investigate and research the development of 3D printing • Look at how the 3D printer provides products for weaponry, medicine etc • Follow the design sheet to plan, design, make and evaluate a volcano • Follow detailed instructions to program a 3D printer	• Explore the range of products on the market from basic food hampers to luxury hampers • Visit food and fodder to investigate the range of local ingredients • Sort food into vegetarian and vegan categories (also cover allergies) • Make a range of products from adapted recipes (practising using the original recipe first) • Follow the design sheet to plan and design a unique vegetarian version of a product
Vocabulary **'Juicy Jargon'**	Batteries Wheels Axle Motor Base/frame Power Reinforce Brace Nail Alter Combine Mechanism Trojan Horse Invade Conceal gift Appear Build Complete Increase Experiment Straight Caught Circle Material Noticed Position Through Enough strength	Program Code Build Design Plan Adapt Element Filament 3D print Print bed Display Screen Dimension LxWxD Volcano Cone Lava Surface Texture Form rocks Build Complete Decide Extremely Actual Favourite Height Material Purpose Enough Particular	Grams Milligrams Teaspoon Table spoon Litre Millilitre Measure Compare Product Evaluate Design brief customer local produce Fresh Produce Vegetarian Vegan Calendar Decide Experiment Fruit Group Popular Increase Perhaps Strange Knowledge Medicine Opposite possesses
Outcomes: DT knowledge	• Demonstrate an understanding of the use of pulleys and motorised pulleys • Know how to apply levers and sliders in a new context (drawing upon previous learning) • Show examples of exploration with reinforcement beyond simple corners • Know that pulleys can be man-powered or use a motor.	• Know that computers can print in 3D • Know what the three dimensions are: length, depth and width • Understand that coding controls the program that runs the printer • Understand that planning is important to contribute to producing a high quality design and product	• Know what a vegetarian does and does not eat • Know that some recipes are suitable for different groups of people • Understand how to prepare a vegetarian product • Be able to read and follow a complex recipe
Previous ←	YEAR 1 • Dune buggy- simple joining and fixing YEAR 2 • Castles – reinforcing card • Simple levers and sliders	YEAR 1 • Designing a vehicle- manually build and ipad design	YEAR 1 • Basic cooking hygiene and snack making/ cooking • Biscuit baking (Pay it forward with Y6) YEAR 2 • A stone Age scavenge- local and grown foods
Next →	YEAR 4 • Victorian Toys- build to help measure at cut to mm and working with card and wood • Pulley knowledge in Y3 then prepares for pulleys and cams in expedition vehicles YEAR 5 • Links to Art- topographical maps: prepared children for scoring and forming irregular shapes from card	YEAR 5 • Solving a problem In the community 3D printing YEAR 6 • CAD design room on Titanic	YEAR 4 • Variety of savoury dishes (pastry, pasta and potatoes) YEAR 5 • Gruel and Victorian cooking YEAR 6 • (pair with y1 in Pay it Forward) biscuits • Trench food/ war tea dance • Seasonal celebration

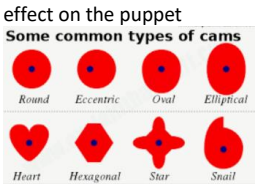
YEAR 4

	A Step in Time	Discovery	Me, Myself and I
	Autumn 1	**Spring 2**	**Summer 2**
	Year 4 **Design and make Victorian games**	**Year 4** **Expedition technology/challenge** **And simple torches**	**Year 4** **Cooking and nutrition**
National Curriculum	**Design, make, evaluate**	**Design, make, evaluate**	**Design: cooking and nutrition**
	Skills progression and assessment		
Design	• I can use my knowledge of existing products to design a functional and appealing product for a particular purpose and audience. • I can research and develop my design from a given design criteria **including what wouldn't work/ don't like.**	• I can use my knowledge of existing products to design a functional and appealing product for a particular purpose and audience. • I can create designs using annotated sketches, exploded diagrams and pattern pieces. • I can research and develop my design from a given design criteria **including what wouldn't work/ don't like.**	• I can use my knowledge of existing products to design a delicious and appealing product for a particular purpose and audience. • I can create designs using annotated sketches, exploded diagrams and pattern pieces. • I can research and develop my design from a given design criteria **including what wouldn't work/ don't like.**
Make	• I can use techniques which require more accuracy to cut, shape, join and finish my work. • I can use my knowledge of techniques and the functional and aesthetic qualities of a wide range of materials and plan how to use them.	• I can use my knowledge of techniques and the functional and aesthetic qualities of a wide range of materials and plan how to use them.	• I can use techniques which require **more steps and stages**
Evaluate	• I can investigate and analyse a range of existing products and explain how they will help to develop my design. • I can consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.	• I can investigate and analyse a range of existing products and explain how they will help to develop my design. • I can consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.	• I can investigate and analyse a range of existing products and explain how they will help to develop my design. • I can consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.
Technical knowledge	• **I can use the right tools to cut and fix accurately.** • **I can identify when to drill, cut or fix wood.** • I can understand and use electrical systems in my products.	• I can understand and use electrical systems in my products. • I can understand how to use more complex mechanical systems.	• Prepare and cook a variety of savoury dishes (predominantly)
Suggested tasks	• Investigate a range of Victorian toys, identifying common features and materials (zoetropes, mazes, moving figures) • Produce diagrams explaining how each toy works • practise cutting accurately to the nearest mm • Select features of toys to replicate in own design (ie. Colour, size, joins, manual CAMS • Follow the design sheet to design, plan and make a toy	Torch • Investigate a range of torches and simple circuits with a switch • Produce annotated sketches of torch design • Produce an exploded diagram • Solving/ correcting errors in circuits • Follow the design sheet to design, plan and make a torch suitable for an expedition  Expedition challenge Manoeuvre expedition supplies from the ship to the sledge across the ice. • Explore motorised pulleys and combinations of pulleys, levers and sliders and motorised CAMS. • Investigate different ideas by using annotated drawings and trail and testing. • Develop own brief from understanding of purpose and functionality. • Follow the design sheet to design, plan and make a system to solve the problem.	• Investigate the process of food manufacturing and processing from start to plate • Observe and investigate food packaging, what is included and why • Investigate variations of selected recipes • Plan amounts of and contents of ingredients including cost per product to produce and basic profit projection • Design and make packaging using knowledge of suitable hygienic materials • Design and make a product to be 'sold' including the packaging and marketing. • Follow the design sheet to design, plan and make food products
Vocabulary 'Juicy Jargon'	Features CAMS Manual Follower Axle Guide Scale Rotate Form Base Saw Pin/ hammer Secure Mount/frame Victorian Toy Traditional Manual Non- motorised Build Complete Consider Decide Difficult Remember Centre Circle Material Position length	**Torches:** Aesthetic Design Function Diagram Purpose **Expedition challenge:** Pulleys Cams Motor Motorised Drive Motion Properties Engineer/ ing machine Circuit Bulb Elements Components Conduct insulate light source Answer Build Address Complete Consider Decide Difficult Experiment Extreme Increase Circle Guide Knowledge Position Weight Pressure Strength	Cook Prepare Hygiene Combine Taste Texture Flavour Production Processed Healthy Diet Variety Source Produce Measure Vitamins Minerals Experience Remember Favourite Knowledge Fruit Group Weight Enough Potatoes Natural
	Links to learning and assessment		
Outcomes: DT knowledge	• Know how to make a product that matches a brief • Evidence of research into similar products • Ability to replicate chosen components of designs for own design • Able to measure and cut with greater accuracy (to the nearest mm)	Torches • Be able to combine components with electricity • Know how to build simple circuits with switches and bulbs • Understand that you may need to identify problems and correct them Expedition • Be able to apply prior knowledge of levers, sliders, pulleys and cams to combine motorisation • Explore problems and issues to find a solution • Know that engineers work with machines	• Know how to combine products to make a healthy product • Know that products which are sold can be packaged and marketed and how to do this • Know that food can be processed at a factory • Know how much a product costs to produce and what profit you could make
Previous ←	YEAR 1 • Dune buggy- simple joining and fixing YEAR 2 • Castles – reinforcing card • Simple levers and sliders YEAR 3 • Trojan horse- pulleys, sliders, levers	YEAR 1 • Dune buggy- simple joining and fixing YEAR 2 • Castles – reinforcing card • Simple levers and sliders YEAR 3 Trojan horse- pulleys, sliders, levers	YEAR 1 • Basic cooking hygiene and snack making/ cooking • Biscuit baking (Pay it forward with Y6) YEAR 2 • A stone Age scavenge- local and grown foods YEAR 3 • Vegetarian hamper- local produce
Next →	YEAR 5 • 3D CAD printing YEAR 6 • Titanic CAD	YEAR 4 and 6 • Electricity (Science) YEAR 5 • 3D CAD printing YEAR 6 • Titanic CAD	YEAR 5 • Gruel and Victorian cooking YEAR 6 • (pair with y1 in Pay it Forward) biscuits • Trench food/ war tea dance • Seasonal celebration

YEAR 5

	A Step in Time	Discovery	Me, Myself and I
	Autumn 2	**Spring 2**	**Summer 1 and 2**
	Year 5 Victorian: cooking	**Year 5 Explorer- solutions Product design**	**Year 5 Saxon settlements topography weaving and sewing**
National Curriculum	**Design: cooking and nutrition**	**Design, make, evaluate**	**Design, make, evaluate**
	Skills progression and assessment		
Design	• I can use my research into existing products to inform the design of my own innovative product. • I can create designs using annotated sketches and cross sectional designs (food based)	• I can use my research into existing products to inform the design of my own innovative product. • I can create designs using annotated sketches and cross sectional designs and pattern pieces.	• I can use my research into existing products to inform the design of my own innovative product. • I can create designs using annotated sketches and cross sectional designs and pattern pieces.
Make	• I can make careful and precise measurements **so that recipes are accurate and repeatable.** • I can produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.	• I can make careful and precise measurements so that joins, holes and openings are in exactly the right place. • I can produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.	• I can make careful and precise measurements so that joins, holes and openings are in exactly the right place. • I can produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.
Evaluate	• I can make detailed evaluations about existing products and my own considering the views of others to improve my work. **Remarking on: taste, texture, appearance**	• I can make detailed evaluations about existing products and my own considering the views of others to improve my work. **Remarking on the functionality after testing: strength, scale, design, functionality (ease of use)**	• I can make detailed evaluations about existing products and my own considering the views of others to improve my work. **Remarking on the skills used: Eg. Joins, strength, flexibility**
Technical knowledge	• I can **plan**, prepare and cook a variety of savoury dishes **using a range of techniques** (predominantly)	• I can apply techniques I have learnt to **suggest improvements and or solutions** structures and explore my own ideas. •	• I can apply techniques I have learnt to strengthen structures and explore my own ideas.
Suggested tasks	• Explore Victorian meals for the upper and lower class http://cookit.e2bn.org/historycookbook/index-23-victorians.html • Recreate and try a range of Victorian recipes • Create designs from given readily available Victorian ingredients: draw and label design ideas • Evaluate own an others creations and products, explain how different or similar to today's meals. Make: Several Victorian dishes eg: kedgeree and gruel Design: Own dishes from ingredients available in Victorian times as an alternative.	• Explore survival items and match to the story- evaluating what would be useful in this situation • Categorise survival equipment: food, water, shelter etC • Research use of 3D printing for survival equipment • Take one category and one design and create cross sectional drawings of the components • Follow design sheet to design, plan and make a survival tool/ equipment- make alternative designs • Make a piece of survival equipment from own design on 3D printer • Evaluate **strength, scale, design, functionality (ease of use) of a range of products including own**	Topography • (combined with Art unit) rehearse and adapt shaping techniques • Explore moulding against plastic and wooden forms using water to soften materials • Provide steps and top tips so that process can be repeated with accuracy Sewing and weaving • Look at and create patterns for Saxon clothing with sketches and drawings • Practise independent use of stitches • Building on Y1, combine stitches to create effective Saxon style patterns and scaled down clothing • Look at examples of Saxon weaving and sort/evaluate purpose (decorative or functional) • Create small weaving samples to support product design
Vocabulary 'Juicy Jargon'	Ingredients Design Consumer Evaluate Similarities Differences Texture Appearance Smell Sketch Classes Victorians Meals Children Adults Upper Lower Poor Work houses Gruel Accompany Appreciate Available Convenience Desperate Excellent Marvellous Temperature Vegetable	Brief 3D Dimension Criteria Solution Categories Components Alternative equipment sketch Rainforest Habitat Inhabitable Extreme Survival task Achieve Attached Develop Equipment Explanation Hindrance Physical Relevant Temperature Vehicle	Form Crease Mould Fix Techniques Explore Weave Needle Loom material Bone Loom Fabrics Function Decorative Thread Design Pattern Ancient Attached Category Community Environment Leisure
	Links to learning and assessment points		
Outcomes	• Be able to sort food and meals and evaluate the reasons for each class • Be able to independently create Victorian recipes and evaluate their taste, texture, appearance and smell • Make links to meals we have now • Show confidence to design plausible meals from ingredients	• Know that 3D printers are used in survival equipment development • Be able to draw cross sections to explain ideas • Know if a product meets a brief by evaluating against set criteria	Topography: • Build on previous learning (joins and fixings) to form shape and depth by moulding, creasing and scoring practise pieces • Be able to use cross-sections to explain join points, fixing and features Sewing and weaving: • Explore range of sewing stiches for purposes- decoration and fixing/ joining • Creation a small-scale pattern and rehearsal of joins
Previous ←	YEAR 1 • Basic cooking hygiene and snack making/ cooking • Biscuit baking (Pay it forward with Y6) YEAR 2 • A stone Age scavenge- local and grown foods YEAR 3 • Vegetarian hamper- local produce YEAR 4 • Product to sell	YEAR 3 • 3D printing know items/shapes/ designs	YEAR 1 • Sewing bog babies YEAR 1-2 • Manipluation of cardboard in Art and DT topics: • Year 1 King and Queen protraits • Year 2 Castles
Next →	YEAR 6 • War time cooking	YEAR 6 • Titanic room CAD design	YEAR 6 • Ice berg landscape art • Nail art (Art)

YEAR 6

	A Step in Time		Discovery	Me, Myself and I
	Autumn 1	**Autumn 2**	**Spring 2**	**Summer 2**
	Year 6 **CAD design and titanic build**	**Year 6** **Circuits and design- Titanic**	**Year 6** **War time cooking**	**Year 6** **Linked topic with Art:** **Folk art Mexican Day of the dead**
National Curriculum	**Design, make, evaluate**	**Design, make, evaluate**	**Design: cooking and nutrition**	**Design, make, evaluate**
	Skills progression and assessment			
Design	• I can generate, develop, model and communicate my ideas through discussion, annotated sketches, exploded diagrams and through prototypes and computer aided design. **CAD design/ computer generated design programs etc**	• I can generate, develop, model and communicate my ideas through discussion, annotated sketches, exploded diagrams and through prototypes and computer aided design. **CAD design/ computer generated design programs etc**		• **I can design combining aesthetics and mechanical features: motorised Cams**
Make	• I can use my technical knowledge and accurate skills to problem solve during the making process.	• I can use my technical knowledge and accurate skills to problem solve during the making process. • I can apply my knowledge of material and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.	• I can use my technical knowledge and accurate skills to problem solve during the making process. • I can apply my knowledge of material and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.	• I can use my technical knowledge and accurate skills to problem solve during the making process. • I can apply my knowledge of material and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.
Evaluate	• I understand how key events and individuals in design and technology have helped shape the world.	• I understand how key events and individuals in design and technology have helped shape the world.	• I understand how key events and individuals in design and technology have helped shape the world.	
Technical knowledge	• I can build more complex 3D structures and apply my knowledge of strengthening techniques to make them stronger and more stable.	• I can build more complex 3D structures and apply my knowledge of strengthening techniques to make them stronger and more stable. • I can understand how to use more complex electrical systems. • I can apply my understanding of computer programs to monitor and control my product.	• I understand seasonality of ingredients including origin **(grown, reared, caught or processed)**	• **I can apply a range of methods including combining Art and DT knowledge and understanding to make a product.** • **I can combine and improve my accuracy with the use of previously learned skills such as sewing, weaving, printing and 3D work.**
Suggested tasks	• Investigate the use of CAD for room and building design • Learn then create a 'users guide' of how 2 as work progresses for future reference • Investigate how to include various given elements/ features • Evaluate and re work ideas, explaining and recording changes	• Design, plan and make/build a replica room using detail construction and methods learning across Ks2 • Investigate who worked on and built the Titanic and its rooms: Andrews, Alexander Carlisle, and Edward Wilding. • Wire a circuit for the room including bulbs, switches and speakers for a selected purpose • Investigate how to control these components with computers: Makey Makey etc combined with ScratchJn (https://www.barefootcomputing.org/input-output-control-equipment)	• Investigate the use of rationing and the impact on feeding and cooking for families during wartime • Look at the range of recipes and advise given to families/ compare to lockdown for us • Follow recipes and teach others to make a variety of war time treats and meals • Follow the design sheet to plan, design and make a war time tea dance meal for families: create own brief, investigate and price up ingredients, plan in stages linked to when to prep food and who should pre what • Study how long food lasts and times for prep	• Explore and investigate own preferences in design features for folk art/Day of the dead celebration puppets • Look at the use of CAMS for puppetry: different shape cams and the effect on the puppet  • Follow design sheet to plan, design and make a motorised cam puppet
Vocabulary 'Juicy Jargon'	CAD Aided Brief Scale Composition Investigate Alternatives adapt Rooms Class Lodgings Furniture Textiles accessories Attached Definite Develop	Combine Fix Scale Detail Fix Architect Designer engineer Code Program Control Check Fix Adapt Run Repeat Monitor Environment Lighting Occupy Neighbour Category Excellent programme	Recipe Price Organise Stages Preparation Storage rationing Rationing Vegetables Supplies Essentials Families Nutritious Available Average Disastrous Environment Vegetable	Cam Follower Shaft Slide Puppet Fold ark Craft Movement Force Mechanism Ancient Cemetery Individual Shoulder Stomach
	Links to learning and assessment points			
Outcomes	• Be able to use CAD to create a room design which has had several adaptations and reviews • To understand and show that the CAD is a prototype for the creation of the real room	• To apply learned skills and knowledge from across KS2 to build and decorate a room from the CAD design • To be able to build a circuit with a light and alarm • To be able to code to control and monitor the circuit • Know that circuits can be controlled by computers	• Know that at times food will be in short supply and name some occasions (seasonal, war and pandemic) • Show evidence of planning with a time line the preparation of food for an event • Follow more complex recipes that are scaled up for larger groups	• Combine knowledge and skills from across Ks2 in Art and DT to plan and make a Day of the dead puppet for the carnival. • Build a successful moving mechanism to fit a brief. • Know that Art and DT can and often are combined. • Demonstrate cams and motors in variation for effect.
Previous ←	YEAR 1 • IPAD space buggies YEAR 3 • Volcano 3D printing and design (links to Computing for all year groups with coding and programming)	YEAR 1 • IPAD space buggies YEAR 3 • Volcano 3D printing and design (links to Computing for all year groups with coding and programming)	YEAR 1 • Basic cooking hygiene and snack making/ cooking • Biscuit baking (Pay it forward with Y6) YEAR 2 • A stone Age scavenge- local and grown foods YEAR 3 • Vegetarian hamper- local produce YEAR 4 • Product to sell YEAR 5 • Victorian meals	YEAR 1 • Sewing bog babies YEAR 1-2 • Manipluation of cardboard in Art and DT topics: • Year 1 King and Queen protraits • Year 2 Castles YEAR 3 • Trojan horse levers, cams etc YEAR 4 • Expeditions- cams, pulleys etc
Next →	KS3 Design • identify and solve their own design problems and understand how to reformulate problems given to them • develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based Evaluate	Design • develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools Make • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties Evaluate	Design • identify and solve their own design problems and understand how to reformulate problems given to them • test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups	Design • use research and exploration, such as the study of different cultures, to identify and understand user needs • identify and solve their own design problems and understand how to reformulate problems given to them • develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations • use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses

	• test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups • understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists			• develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools Make • select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties Evaluate • analyse the work of past and present professionals and others to develop and broaden their understanding