



Ridgmont Lower School

Design and Technology Curriculum

Intent:

Design and Technology is an inspiring and practical subject. Our curriculum allows opportunities for pupils to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Learners are encouraged to take risks, become resourceful, innovative and enterprising. We believe that design and technology gives young people the skills and abilities to engage positively with the designed and made world and to harness the benefits of technology. We want our children to learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them.

Implementation:

- Pupils experience D&T skills planned to allow pupils to acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing & art
- Pupils begin all design projects by gathering research and evaluating existing products
- Pupils are taught how to effectively evaluate past and present designs and develop a critical understanding of its impact on the wider world. They also learn the importance of the target audience and the relevance of market research
- Pupils learn how to write design specifications, developing their ability to plan for products that are fit for purpose
- Pupils are given the opportunity to develop the key skill being taught through focused practical tasks
- Pupils make end products from selecting and using a wider range of tools and equipment to perform practical tasks
- Pupils choose from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Throughout the design and making process, pupils learn how to develop their ability to critique, evaluate and test their ideas and products and the work of others. They do this through peer and self-assessment

Impact:

Ridgmont Lower School will have engineers and chefs who:

- Are passionate and enjoy designing constructing and evaluating
- Develop a desire to learn about technological innovation, products and systems
- Take and link learning from other subjects and apply it logically
- Take safe, creative risks
- Are independent and who work constructively with others
- Analyse and evaluate
- Make mistakes, share them and learn from them

National Curriculum Coverage

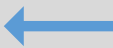
Early Years	Key Stage 1	Lower Key Stage 2
Exploring and Using Media and Materials - Manipulate materials to achieve a planned effect - Constructs with a purpose in mind, using a variety of resources - Selects appropriate resources and adapts work where necessary - Selects tools and techniques needed to shape, assemble and join materials they are using. - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	Design - Stable Structures - Wheels and Axles - Smoothies - Balanced Diet - Simple Stitches - Pouches Make - Stable Structures - Wheels and Axles - Smoothies - Balanced Diet - Simple Stitches - Pouches Evaluate - Stable Structures - Wheels and Axles - Smoothies - Balanced Diet - Simple Stitches - Pouches Technical Knowledge - Stable Structures - Wheels and Axles - Simple Stitches	Design - Roman Helmets - Mechanical Cars - Torches - Eating Seasonally - Adapting a Recipe - Egyptian Collars Make - Roman Helmets - Mechanical Cars - Torches - Eating seasonally - Adapting a Recipe - Egyptian Collars Evaluate - Roman Helmets - Mechanical Cars - Torches - Eating Seasonally - Adapting a Recipe - Egyptian Collars Technical Knowledge - Roman Helmets - Mechanical Cars - Torches

National Curriculum

EYFS	STRAND	KEY STAGE 1	LOWER KEY STAGE 2	UPPER KEY STAGE 2
Explore, use and refine a variety of artistic effects to express ideas and feelings Return to and build on their previous learning, refining idea and developing their ability to represent them	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 Use basic principles of a healthy and varied diet to prepare dishes Understand where food comes from	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	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 group Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Understand and apply principles of a healthy and varied diet

Create collaboratively Know and talk about the different factors that support their overall health and wellbeing; healthy eating Develop small motor skills so that they can use a range of tools competently, safely and confidently Creating with materials: Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and Function Creating with materials: Share their creations, explaining the process they have used Understanding the importance of healthy food choices Fine motor skills: Use a range of small tools, including scissors, paint brushes and cutlery		Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand and apply principles of a healthy and varied diet Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed		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
	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 Use basic principles of a healthy and varied diet to prepare dishes Understand where food comes from Understand and apply 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	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 wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	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 Understand and apply 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
	Evaluate	Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria Use basic principles of a healthy and varied diet to prepare dishes Understand where food comes from Understand and apply 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	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	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 Understand and apply 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
	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	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	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, bubs buzzers and motors] Apply their understanding of computing to program, monitor and control their products

Subject Content Design & Technology		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, garden and playgrounds, the local community, industry and the wider environment].		
Subject Content Cooking & 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 affordable and well, now and in later life.		
Term Taught		Autumn	Spring	Summer
National Curriculum		STRUCTURE	COOKING AND NUTRITION	TEXTILES
Stimulus		Stable Structures	Smoothies	Simple Stitches
KS1	DESIGN	- Thinking about what others might want from a design - Beginning to recognise how products and designs in the world around us solve certain needs - Considering who they are designing for – identifying the user - Stating what they intend to make and why – identifying the purpose - Talking about ideas, with purpose and user in mind - Talking about existing products when generating ideas - Using basic drawing skills to communicate ideas	- Designing smoothie carton packaging by-hand - Learning where and how fruits and vegetables grow	- Stating what they intend to make and why - identifying the purpose - Talking about ideas, with purpose and user in mind - Using basic drawing skills to communicate ideas
	MAKE	- Choosing between a small number of materials, ingredients or components - Explaining their choices based on personal experiences - Requesting equipment appropriate to the purpose (e.g. scissors for cutting, glue for joining) - Beginning to use objects with a fixed width or length to create even spacing of markings or cuts (e.g. a lolly stick) - Refining their grip to cut competently and confidently - Cutting straight lines and evenly spaced lines - Beginning to cut large shapes and thicker materials like card	- Chopping fruit and vegetables safely to make a smoothie - Juicing fruits safely to make a smoothie - Identifying if a food is a fruit	- Choosing between a small number of materials, ingredients or components - Explaining their choices based on personal experiences - Explaining in simple terms why certain tools must be handled carefully - Following and recalling simple safety instructions. - Using a straightedge to draw a straight line - Beginning to use objects with a fixed width or length to create even spacing of markings or cuts. (e.g. a lolly stick) - Using a large plastic needle and large-weave embroidery fabric to begin to create a running stitch - Applying masking tape to fix something in place or join to edges - Adding texture to create visual interest.
	EVALUATE	- Discussing existing products, saying what they like about them - Comparing two products and discuss which is better for a specific purpose - Saying what they like about their peers’ designs and products - Accepting feedback and understanding it is meant to improve their work	- Tasting and evaluating different food combinations - Describing appearance, smell and taste - Suggesting information to be included on packaging - Comparing their own smoothie with someone else’s	- Saying what they like about their peers’ designs and products - Accepting feedback and understanding it is meant to improve their work
	TECHNICAL KNOWLEDGE	- Recognising that different structures are used for different purposes - Exploring the features of structures - Describing structures as buildings or freestanding structures - Making stable structures from card - Creating supporting structures to aid stability - Using stable objects like cylinders to create structures	N/A	- Discussing fabric properties - Threading large needles - Rehearsing sewing techniques with large needles and thick thread, like wool - Sewing a running stitch in large-weave embroidery fabric or hessian - Creating patterns and following them with stitching - Spacing stitches evenly
	ADDITIONAL KNOWLEDGE	- To know that the ‘user’ is the person who will use the product - To know that different users may want different things from a design - To know that who they are designing for makes a difference to what they design - To know that the purpose is what something is for - To know that existing products can help when deciding what to design - To know that drawings are a way to explain ideas - To know that a plan is deciding what to do first and next - To know that different equipment does different things - To know the names of common pieces of equipment. - To know that some products will be better than others - To know that their ideas or products can be made better - To know that their ideas can improve someone else’s work - To know that other people’s ideas can help make their work better - To know that a structure is something that has been made and put together - To know that stable structures do not topple - To know that shapes and structures with wide, flat bases or legs are the most stable - To know that adding weight to the base of a structure can make it more stable	- To know that a blender is a machine which mixes ingredients together into a smooth liquid - To know that a fruit has seeds and a vegetable does not - To know that fruits grow on trees or vines - To know that vegetables can grow either above or below ground - To know that a vegetable is any edible part of a plant	- To know drawings are a way to explain ideas - To know that choosing different materials or components will affect what the product does or looks like - To know the names of common pieces of equipment - To know that following instructions helps with safety - To know that spacing cuts or marks evenly can be useful - To know that texture is how something feels - To know their ideas or products can be made better - To know their final product might be different to their original idea - To know their ideas can make someone else’s work better - To know other people’s ideas can help make their work better - To know evenly spaced stitches help when following a pattern
Vocabulary		Base Better Compare Design Freestanding Stable Structure Unstable Use Worse	Blend Blender Chopping board Compare Cut Design Evaluate flavour Fork Fruit Healthy Ingredients Juice Juicer Leaf Plant Recipe Root Seed Select Smoothie Stem	Design Even Fabric Like Needle Sketch Stitch Thread

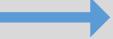
		Table knife Taste Tree Vine Vegetable	
Pupils who are secure will be able to:	➤ Explain that structures are things that are built and have a purpose ➤ Understand that structures with a wider base are more stable than ones with a narrow base ➤ Explain that extra eight added to the base of a structure makes it more stable ➤ Design a product for a particular use ➤ Use a sketch to show ideas ➤ Choose the best method for joining the parts of a product ➤ Use scissors to cut out a shape neatly and accurately ➤ Explain what they like and dislike about their final product	➤ Describe fruit and vegetables and explain how to identify fruit ➤ Name a range of places that fruit and vegetables grow ➤ Describe basic characteristics of fruit and vegetables ➤ Prepare fruit and vegetables to make a smoothie	➤ Name some objects made of fabric ➤ Describe the look and feel of different fabrics ➤ Thread a needle ➤ Make a series of stitches that match each other in embroidery fabric ➤ Choose colours and shapes for a design ➤ Explain their ideas to others verbally and with a sketch ➤ Choose materials based on their texture ➤ Follow the general position of the lines of a design with stitches ➤ Say what they like about some else’s stitching and what could be made better
These outcomes are in addition to the ones outlined above for the Cooking and Nutrition strand	<u>For the children accessing this in Year 1:</u> To know we need food and drink to stay alive To know that people need food and drink to stay alive. To know that food and drink help us to grow, be active and stay healthy. To know we need more of some foods than others. To know that everyone should eat at least 5 portions of fruit and vegetables every day. To talk about foods they like and dislike and explain why. To know that we eat different foods depending on the time of day, occasion and our lifestyle <u>In addition to the above, for the children accessing this in Year 2:</u> To know we need a variety and balance of food (and drinks) to stay healthy, as depicted in the Eatwell Guide To recognise the Eatwell Guide as a model which shows how to eat healthily. To sort a selection of foods into the five Eatwell Guide food groups. To put together a simple, balanced meal (and include a drink) by choosing foods from the Eatwell Guide. To know that different people eat or avoid certain foods for different reasons and I can give some of these reasons, e.g. allergy, intolerance, religious belief		
Cross Curricular Links	❖ Science ❖ PE ❖ Art ❖ British Values: Mutual respect	❖ Science ❖ PE ❖ Art ❖ British Values: Mutual respect	❖ Art and Design ❖ Science
Building on from... 	• Knowing what object need a push or a pull • Deciding what to build before it is built • Exploring what be done or used to fix things • Understanding how to handle a product so it does not get broken		

KS1

SECOND YEAR

Subject Content Design & Technology		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, garden and playgrounds, the local community, industry and the wider environment].		
Subject Content Cooking & 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 affordable and well, now and in later life.		
Term Taught		Autumn	Spring	Summer
National Curriculum		MECHANISM	COOKING AND NUTRITION	TEXTILES
Stimulus		Wheels and Axles	Balanced Diet	Pouches
KS1	DESIGN	●Thinking about what others might want from a design ●Beginning to recognise how products and designs in the world around us solve certain needs ●Considering who they are designing for - by identifying the user ●Stating what they intend to make and why - by identifying the purpose ●Talking about ideas with purpose and user in mind ●Talking about existing products when generating ideas ●Using basic drawing skills to communicate ideas	• Designing three wrap ideas	• Designing a pouch
	MAKE	●Planning more than one step ahead ●Choosing between a small number of materials, ingredients or components ●Explaining their choices based on personal experiences ●Requesting equipment appropriate to the purpose (e.g. scissors for cutting and glue for joining) ●Explaining in simple terms why certain tools must be handled carefully ●Following and recalling simple safety instructions ●Finding the middle of an object ●Refining their grip to cut competently and confidently ●Cutting straight lines and evenly spaced lines ●Beginning to cut large shapes and thicker materials like card ●Puncturing holes	• Chopping foods safely to make a wrap • Constructing a wrap that meets a design brief • Grating foods to make a wrap • Snipping smaller foods instead of cutting • Spreading soft foods to make a wrap • Identifying the five food groups • Learning about a balanced diet	• Selecting and cutting fabrics for sewing • Decorating a pouch using fabric glue or running stitch • Threading a needle • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric • Neatly pinning and cutting fabric using a template

		●Recognising the edges of paper and card need to be stuck firmly using a glue stick ●Using tools, like scissors, to create shapes ●Beginning to cut large shapes and thicker materials like card ●Beginning to use controlled painting or colouring techniques to finish a product ●Adding texture to create visual interest		
	EVALUATE	●Discussing existing products, saying what they like about them ●Comparing two products and discussing which is better for a specific purpose ●Discussing how their products could be improved based on personal preferences ●Comparing their finished products with their original designs ●Saying what they like about their peers’ designs and products ●Accepting feedback and understanding it is meant to improve their work	• Describing appearance, smell and taste • Tasting and evaluating different food combinations • Describing the information that should be included on a label	• Troubleshooting scenarios posed by teacher • Evaluating the quality of the stitching on others’ work • Discussing as a class, the success of their stitching against the success criteria • Identifying aspects of their peers’ work that they particularly like and why
	TECHNICAL KNOWLEDGE	●Recognising and exploring everyday objects that have mechanisms ●Many things that move have parts inside to help them work ●Mechanisms usually limit unwanted movement ●An axle allows the wheel to turn without falling off		
	ADDITIONAL KNOWLEDGE	●To know that the ‘user’ is the person who will use the product ●To know that different users may want different things from a design ●To know that designers usually design and make something to solve a problem ●To know that who they are designing for makes a difference to what they design ●To know that the purpose is what something is for ●To know that existing products can help when deciding what to design ●To know that drawings are a way to explain ideas ●To know that a plan is deciding what to do first and next ●To know that choosing different materials or components will have an effect on what their product does or looks like ●To know that different equipment does different things ●To know the names of common pieces of equipment ●To know that some tools are sharp like scissors and knives ●To know that following instructions helps with safety ●To know that cutting in a straight line can be helpful when making ●To know that tools can be used to shape objects ●To know that different materials can be shaped by different tools ●To know that some products will be better than others ●To know that their ideas or products can be made better ●To know that their final product might be different to their original idea ●To know that their ideas can make someone else’s work better ●To know that other people’s ideas can help make their work better	• To know that ‘diet’ means the food and drink that a person or animal usually eats • To know what makes a balanced diet • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar • To know that I should eat a range of different foods from each food group, and roughly how much of each food group • To know that ‘ingredients’ means the items in a mixture or recipe • To know how to cut, grate, snip and spread to prepare foods • To know how to review and give a score to evaluate.	• To know that sewing is a method of joining fabric • To know that different stitches can be used when sewing • To understand the importance of tying a knot after sewing the final stitch • To know that a thimble can be used to protect my fingers when sewing
Vocabulary		Axle Axle holder Better Careful Choose Compare Design Dislike Like Mechanism Movement Product Straight line Tool Turn User Wheel Worse	Appearance Balanced Carbohydrates Chopping board Combination Cut Dairy Design Design brief Diet Evaluate Feel Fruit Grate Grater Ingredients Menu Oils Proteins Review Scissors Smell Snip Spread Table knife Taste Vegetables	Decorate Fabric Fabric glue Knot Needle Needle threader Running stitch Sew Template Thread
Pupils who are secure will be able to:		➤ Choose and use the most suitable tool for cutting out different shapes accurately ➤ Test and compare wheels of different shapes, thickness and smoothness ➤ Estimate the middle of a circle ➤ Design, draw and label a product that uses a simple mechanism ➤ Identify the needs of the user ➤ Make and finish a simple pull-along toy ➤ Evaluate a product against a simple design criteria and provide feedback	➤ Name the main food groups and identify foods that belong to each group ➤ Describe the taste, feel and smell of a given food ➤ Think of three different wrap ideas, considering flavour combinations ➤ Construct a wrap that meets the design brief and their plan	➤ Sew a running stitch with regular-sized stitches and understand that both ends must be knotted ➤ Prepare and cut fabric to make a pouch from a template ➤ Use a running stitch to join two pieces of fabric together ➤ Decorate their pouch using materials provided
These outcomes are in addition to the ones outlined above for the Cooking and Nutrition strand		<u>For the children accessing this in Year 1:</u> To know we need food and drink to stay alive To know that people need food and drink to stay alive. To know that food and drink help us to grow, be active and stay healthy. To know we need more of some foods than others. To know that everyone should eat at least 5 portions of fruit and vegetables every day. To talk about foods they like and dislike and explain why. To know that we eat different foods depending on the time of day, occasion and our lifestyle		

	<u>In addition to the above, for the children accessing this in Year 2:</u> To know we need a variety and balance of food (and drinks) to stay healthy, as depicted in the Eatwell Guide To recognise the Eatwell Guide as a model which shows how to eat healthily. To sort a selection of foods into the five Eatwell Guide food groups. To put together a simple, balanced meal (and include a drink) by choosing foods from the Eatwell Guide. To know that different people eat or avoid certain foods for different reasons and I can give some of these reasons, e.g. allergy, intolerance, religious belief		
Cross Curricular Links	❖ History ❖ RE ❖ PSHE	❖ PSHE ❖ Science	N/A
What comes next... 	- Knowing how to create series and parallel electrical circuits to control movement. - Using learnt knowledge of forces to make a mechanism perform a function - Exploring what joining techniques can be used to ensure materials are securely joined together - Appreciating accurate measuring is crucial to ensure a perfect finished product - Understanding that measuring time is important when cooking a product - Understanding the importance of following a recipe in order		

LKS2

FIRST YEAR

Subject Content Design & Technology		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, garden and playgrounds, the local community, industry and the wider environment].		
Subject Content Cooking & 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 affordable and well, now and in later life.		
Term Taught		Autumn	Spring	Summer
National Curriculum		STRUCTURE	COOKING AND NUTRITION	TEXTILES
Stimulus		Roman Helmets	Eating Seasonally	Egyptian Collars
LKS2	DESIGN	- Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences - Noticing simple problems or needs in everyday life - Developing drawing and sketching skills with a focus on clarity and simplicity	Describing how climate affects where foods grow	Designing and making a template and applying individual design criteria
	MAKE	- Selecting materials, components or ingredients based on their form as well as their functional properties - Explaining choices with regard to function and form - Choosing shapes to suit the function of a product	- Identifying seasonal ingredients from the UK - Following the instructions within a recipe - Tasting seasonal ingredients - Peeling foods by hand or with a peeler - Cutting ingredients safely - Choosing ingredients based on a design brief.	- Following design criteria to create an Egyptian collar - Selecting and cutting fabrics with ease using fabric scissors - Threading needles with greater independence - Tying knots with greater independence - Sewing cross stitch to join fabric - Decorating fabric using appliqué - Completing design ideas by embellishing the collars based on design ideas
	EVALUATE	- Evaluating designs by comparing them against design criteria - Considering feedback from peers to suggest improvements - Evaluating how effective the chosen materials were in fulfilling the design brief	- Describing the texture and flavour of ingredients - Describing the benefits of seasonal fruits and vegetables and the impact on the environment	Evaluating an end product and thinking of other ways in which to create similar items
	TECHNICAL KNOWLEDGE	- Strengthening structures by layering materials (lamination) - Strengthening structures by ribbing - To know how some different structures are built - To know that structures can be strengthened by manipulating materials and shapes - To know a shell structure is a hollow shape with a thin outer layer	N/A	N/A
	ADDITIONAL KNOWLEDGE	- To know form is the look and shape of something - To know function is what something does and how it works - To know that creating accurate shapes improves how they look and sometimes their function - To know choices of materials and equipment can affect the final product	- To know that seasonal means foods that grow in a given season in a given country - To know some seasonal foods that grow in the UK and what season they grow in - To know that eating seasonal foods can have a positive impact on the environment - To know how to describe the flavour and texture of foods	- To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces - To know that when two edges of fabric have been joined together it is called a seam - To know that it is important to leave space on the fabric for the seam

			• To know how to cut and peel safely • To know that the appearance of food is as important as taste • To know that similar coloured fruits and vegetables often have similar nutritional benefits	•To understand that some products are turned inside out after sewing so the stitching is hidden
	Vocabulary	Analyse Effective Iteration Reflect Strengthen	Appearance Arid Climate Complementary Country Cut Design Evaluate Export Fruit Grate Import Ingredients Mediterranean Mock-up Mountain Peel Polar Seasonal Seasons Snip Taste Temperate Texture Tropical Vegetable Weather	Asymmetrical Appliqué Cotton Cross-stitch Embellish Fabric Patch Pinking Polyester Running stitch Silk Symmetrical Template Thread Unique
	Pupils who are secure will be able to:	➤ Describe what a shell structure is and describe what makes an effective helmet ➤ Design a helmet for s specific user by choosing appropriate features ➤ Explain layering techniques used to strengthen a helmet ➤ Use layering techniques to make a helmet and reflect on the process ➤ Evaluate the strengthening required in the helmet and justify appropriate strengthening techniques ➤ Follow a design plan and use appropriate techniques to strengthen and stiffen the helmet ➤ Communicate with peers when making improvements ➤ Analyse helmets’ strengths and weaknesses and evaluate how they work for their purpose	➤ Explain that fruits and vegetables grow in different countries based on their climates and identify where they grow ➤ Understand that seasonal fruits and vegetables grow in a given season and that eating them in season positively affects the environment ➤ Identify which foods grow in which season and find recipes that contain seasonal foods ➤ Know that importing food impacts the environment ➤ Identify the equipment used to prepare food and explain why food needs to be prepared safely ➤ Describe the taste of various fruits and vegetables and identify flavours ➤ Design a seasonal dish and describe the ingredients’ nutritional benefits ➤ Evaluate the dishes and give and receive feedback to identify strengths	➤ Demonstrate their ability to use cross-stitch as a decorative feature or to join pieces of fabric together ➤ Develop appliqué designs based on design criteria ➤ Design, cut and shape their template for an usekh or wesek collar with increasing accuracy ➤ Decorate their Egyptian collar using a variety of techniques, such as appliqué, cross-stitch, beads, buttons and pinking ➤ Measure and attach a ribbon with a running stitch ➤ Recognise different types and qualities of fabrics ➤ Explain the aesthetic and functional properties of some of their material choices
	These outcomes are in addition to the ones outlined above for the Cooking and Nutrition strand	<u>For the children accessing this in Year 3:</u> To know people around the world choose and combine different foods and drinks to make meals and snacks. To know that what people around the world eat depends on reasons such as availability, preference, resources, time, culture and religion. To know that what is eaten in different countries around the world can look different but it usually includes combinations of foods from the same the Eatwell Guide groups. To know that the word ‘diet’ means the amount and range of food eaten. To know that a variety and balance of food and drink is needed to make a healthy diet. To know that I need to have 6-8 drinks a day and more if it is hot or I am active. <u>In addition to the above, for the children accessing this in Year 4:</u> To know we need to eat foods in the proportions shown by the Eatwell Guide (as well as eating a variety of foods from within the groups) to have a healthy diet. To understand that the different proportions of the Eatwell Guide reflect the proportions of foods which should be eaten from each group. To identify and classify ingredients in composite dishes according to the Eatwell Guide food groups. To know how to use the Eatwell Guide model and messages to help me make healthy choices and plan healthy meals and menus for myself and others. To know that different factors can affect our food choices and I can give some examples of these. E.g. availability, cost, advertising, pressure		
	Cross Curricular Links	❖ History ❖ RE ❖ PSHE	❖ PSHE ❖ Geography ❖ Science	❖ History ❖ PSHE
	What comes next... 	• Knowing how to create series and parallel electrical circuits to control movement. • Using learnt knowledge of forces to make a mechanism perform a function • Exploring what joining techniques can be used to ensure materials are securely joined together • Appreciating accurate measuring is crucial to ensure a perfect finished product • Understanding that measuring time is important when cooking a product • Understanding the importance of following a recipe in order		

LKS2

SECOND YEAR

Subject Content Design & Technology		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].		
Subject Content Cooking & 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 affordable and well, now and in later life.		
Term Taught		Autumn	Spring	Summer
National Curriculum		ELECTRICAL SYSTEMS	COOKING AND NUTRITION	MECHANISMS
Stimulus		Torches	Adapting a Recipe	Mechanical Cars
LKS2	DESIGN	Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas	- Designing a biscuit within a given budget - Conducting market research	- Taking part in structured brainstorming sessions - Developing drawing and sketching skills with a focus on clarity and simplicity - Beginning to recognise the benefit of a range of diagram types or prototypes to communicate ideas. (e.g. sketches, cross-sectional diagram, thumbnail sketches and exploded diagrams) - Creating prototypes using materials with similar properties to their final design - Creating simple design criteria that outline basic functionality and appeal to individual users or target audiences - Developing designs by adding detail and justifications about materials, tools, methods
	MAKE	- Making a torch with a working electrical circuit and switch - Using appropriate equipment to cut and attach materials - Assembling a torch according to the design and success criteria	- Following a baking recipe - Understanding safety and hygiene rules - Adapting a recipe	- Following detailed safety instructions - Using a ruler as a measuring tool with increasing accuracy by creating spaced marks using millimetres and measuring lengths of objects - Handle different sizes and types of scissors with confidence - With close supervision using a hot glue gun to join wooden materials (e.g. lolly sticks) - Selecting equipment required for a series of tasks based on the plan. Explain why each piece is suitable for each stage - Selecting materials, components or ingredients from a wider choice but within a limited design space (e.g. seasonal ingredients from May and June in the UK)
	EVALUATE	- Evaluating electrical products - Testing and evaluating the success of a final product	- Evaluating an adapted recipe - Evaluating and comparing a range of products - Suggesting modifications	- Explaining why they think certain aspects of a peer's design are effective or why they suggested specific improvements - Reflecting on feedback to decide if and how it could be used to improve future iterations - Investigating and analysing a range of existing products by looking at their functionality and appeal - Analysing why specific products, designers or inventors are successful - Evaluating their designs by comparing them against design criteria and considering feedback from peers to suggest improvements - Evaluating how effective their chosen materials and tools were in fulfilling the design brief
	TECHNICAL KNOWLEDGE	- To understand that electrical conductors are materials which electricity can pass through - To understand that electrical insulators are materials which electricity cannot pass through - To know that a battery contains stored electricity that can be used to power products - To know that an electrical circuit must be complete for electricity to flow - To know that a switch can be used to complete and break an electrical circuit	N/A	- To understand that a mechanical system can allow us to move something more easily - To know that mechanical systems have more than one mechanism that moves to make them work - To know that mechanical systems are often hidden in products to make them look more appealing
	ADDITIONAL KNOWLEDGE	- To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens - To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison	- To know that the amount of an ingredient in a recipe is known as the 'quantity' - To know that safety and hygiene are important when cooking - To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping - To know the importance of budgeting while planning ingredients for a recipe - To know that products often have a target audience	- To know that extra information on drawings or diagrams can help the user understand a design or idea - To know that an exploded diagram shows how the parts of a product fit together - To know that a prototype is a detailed model that helps a user understand how a product will work - To know that a target audience is a group of people that might like the idea - To know that different tools and equipment have different dangers - To know that a ruler can be used to measure length - To know that a hot glue gun can be used to join materials - To know that better suggestions of improvements mean better feedback - To know that they can choose to use feedback or not - To know that some products are more successful than other because of their function - To know that choices of materials and equipment can affect the final product - To know that feedback is ideas and suggestions from other people that can help improve their work
Vocabulary		Battery Bulb Buzzer Circuit diagram Component Conductor Electrical item Electricity Electronic item Insulator Series circuit Switch Target audience Test Torch		

	Wire		
Pupils who are secure will be able to:	➤ Identify electrical products and explain why they are useful ➤ Help to make a working switch ➤ Identify the features of a torch and how it works ➤ Describe what makes a torch successful ➤ Create suitable designs that fit the success criteria and their own design criteria ➤ Create a functioning torch with a switch according to their design criteria	➤ Describe features of biscuits using taste, texture and appearance ➤ Explain why some biscuits might be made for children, adults or special occasions ➤ Remember and follow simple rules for working in a safe and clean way ➤ Follow a recipe with support ➤ Use a budget to plan a recipe ➤ Adapt a recipe using additional ingredients to fit a design or budget ➤ Measure and mix ingredients properly ➤ Contribute to a discussion about criteria for evaluation	
Cross Curricular Links	❖ Science	❖ PSHE ❖ Science ❖ PE ❖ Computing	❖ History ❖ French
What comes next... 	Please refer to your child's chosen middle school curriculum		