Lewknor Church of England Primary School Design and Technology Long Term Plan

"I've not failed. I've just found 10,000 ways that won't work" Thomas Edison

Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems, within a variety of contexts, considering their own and others' needs, wants and values.

Design and Technology gives children the skills and abilities to engage positively with the designed and made world, and to harness the benefits of technology. At Lewknor aim to develop aspirational, creative, and technical designers, who are confident with their knowledge and understanding of the ever-changing technological world; and are passionate and able to make a creative difference. They 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. Our curriculum aims to develop each child individually as a designer through the teaching of a progression of key skills in **mechanism**, **cooking and nutrition**, **textiles**, **structure** and the safe and careful use of **electricity**. As well as this, children will be getting the chance to improve their investigative and evaluation skills. These latter two, crucial skills, will be further developed across other curriculum areas such as Science.

The design and technology curriculum has been carefully designed to help further children's understanding in other topic areas. From being healthy in PSHE and Science to programming in Computers and exploring the world in Geography. This is crucial to allow the children to achieve a greater depth understanding of these various topics as they are approached from different subject points.

	Autumn	Spring	Summer
Infants Cycle A Year 1/2	Textiles – Delightful Decorations	Cooking and Nutrition – Perfect Pizzas *Links – PSHE: Healthy Me*	Mechanisms – Moving Pictures
	Children will be exploding with Christmas spirit with this festive topic. The class will develop their cutting and sewing skills whilst making a delightful decoration for the Christmas tree! They will explore, cut, sew, design, make and evaluate their Christmas tree decorations in this seasonally themed series of lessons. Covered Objectives: • To explore different decorations. • To practise cutting skills. • To practise sewing skills. • To design a Christmas tree decoration.	The children will get the opportunity to investigate healthy eating as they explore pizzas, discovering what a variety of toppings and bases look, taste and feel like. They will they have the challenge of designing and making their pizza to meet a design brief and evaluate it, based on the criteria. Covered Objectives: • To find out what the favourite pizzas in the class are. • To examine, describe and categorise a variety of bread-based products.	Children will get their creative juices flowing as they think up exciting and inventive ways to bring their pictures to life through a variety of moving mechanisms. They will explore sliders, levers, pivots and wheel mechanisms as well as how they can be used to make different parts of a picture move. Covered Objectives: • To be able to create a sliding mechanism. • To be able to use levers to create a moving mechanism.

	• To make a Christmas tree decoration. To evaluate a Christmas tree decoration.	• To examine, describe and categorise a variety of pizza toppings. • To design a balanced, healthy pizza. • To be able to make and evaluate a food product based on a design.	• To investigate and create wheel mechanisms. • To be able to design a picture with moving mechanisms. • To be able to make a moving picture based on a design. • To be able to evaluate a moving picture.
Infants Cycle B Year 1/2	Mechanisms, Structure – Wacky Windmills *Links – Geography: Wonderful Weather*	Cooking and Nutrition – Seaside Snacks *Links – PSHE: Healthy Me, Geography: Beside the Seaside*	Textiles – Puppets *Links – History: Toys*
	Children will look at a variety of windmills around the world and get their builder hats on. The class will explore different ways of making windmill bases and sails with classroom and craft materials, learning how to join materials together and make axels allowing sails to spin in the wind. They will design, make and evaluate their own wacky windmill. Covered Objectives: • To explore what windmills are and how they are used. • To explore ways of making strong bases. • To explore how to make sails for windmills. • To be able to design your own windmill. • To be able to follow a plan to make a windmill. • To be able to evaluate your finished windmill.	The children will be thinking about, tasting and exploring a range of foods. The lessons centre about a different element of a picnic, encouraging the class to experience the flavours, textures, and colours of different foods. This will culminate in a lesson where the children will have the opportunity to design their own seaside picnic, while thinking carefully about what makes a balanced meal. Covered Objectives: • To follow instructions to make sandwiches. • To make edible boats. • To make fruit sculptures. • To make edible cake decorations. • To create frozen seaside snacks. • To design a seaside picnic.	Children will throw themselves into the world of puppets. Through fun activities and projects the class will learn how to work with fabric to create their own puppets. Starting off by looking at simple finger puppets, the class will then develop and refine their sewing skills before designing, creating and evaluating their own glove puppets. Covered Objectives: • To investigate a range of puppets and their features. • To be able to work with fabric to create finger puppets. • To develop and practise sewing skills. • To be able to design a glove puppet. • To be able to follow a design to make a glove puppet. • To be able to evaluate a finished product.
Lower Juniors	Textiles – Seasonal Stockings	Cooking and Nutrition – Sandwich Snacks *Links –PSHE: Healthy Me*	Structures – Making Mini Greenhouses *Links – Science: Living things and their habitats*

Cycle A **Year 3/4**	Children will have the chance to develop on their festive sowing skills from KS1. They will develop and use their knowledge of, and skills in, a variety of sewing techniques for joining and decorating fabric in order to design and make their very own Christmas stocking. Covered Objectives: • To explore and analyse existing products. • To explore different ways to join fabric using sewing skills. • To explore different ways to decorate fabric using sewing skills. • To design a Christmas stocking. • To use sewing skills to make a Christmas stocking. • To evaluate a finished product.	Children will get the chance to explore the different food groups and learn how to translate these into healthy, balanced sandwiches. The class will get their taste-buds tingling as they taste and test a variety of sandwich fillings and types of bread. Then the children will be challenged to design, make, eat and evaluate their own healthy sandwich snacks. Covered Objectives: • To learn that food can be divided into different groups and that sandwiches can form part of a healthy diet. • To taste a variety of different breads and sandwiches and examine flavours and textures. • To design and plan a sandwich for a particular purpose. • To be able to create a healthy sandwich. • To be able to evaluate a finished product.	Children will become aspiring engineers and architects with this topic of DT. The class will find out the purpose of a greenhouse and how it works, before moving on to explore how strictures like these can be made stable, and what materials would be the most appropriate to use. They will then apply this knowledge and understanding when designing, making and evaluating their very own mini greenhouses. Covered Objectives: • To explore existing greenhouses. • To investigate stable structures. • To investigate materials for making a mini greenhouse. • To design a mini greenhouse. • To make a mini greenhouse. • To evaluate a finished product.
Lower Juniors **Cycle B** **Year 3/4**	Mechanism, Structure, Electricity – Light-Up Signs *Links – Science: Light, Electricity*	Textiles – Pencil Cases	Cooking and Nutrition – American Food *Links – Geography: All around the World*
	Children will get the chance to work with woodworking tools and materials, card and paper or even scrap materials to make a decorative light box with illuminated words or letters. The layout of this series of lessons will allow the children to decide precisely what tools and materials they would like to use in the design and creation of an attractive product. Covered Objectives:	Children will get the chance to create their very own pencil cases. They will have to think about different materials used to make pencil cases and the different ways they are opened and closed. The class will learn how to use a variety of stitches including running stitch, whip stitch and back stitch, as well as how to decorate their pencil case creations. Covered Objectives: • To investigate a range of pencil cases.	Children will learn all about American favourite foods as well as the many, varied cultural influences that make American cuisine special. From the diversity of foods growing in American climates to the ways indigenous Americans grew, caught, gathered and prepared and cooked food this topic will allow the children to step into another country's culinary culture. Covered Objectives:

	• To investigate and analyse illuminated signs. • To understand how LEDs may be used instead of traditional incandescent bulbs in series circuits. • To develop ideas for a decorative illuminated sign. • To select and use tools, equipment, materials and components to make the enclosure of a decorative illuminated sign. • To construct a working circuit with one or more lights, and fit it in a decorative illuminated sign. • To investigate ways in which computers can be used to program and control lights in a product.	• To practise and compare sewing stitches. • To investigate ways of opening and closing pencil cases. • To be able to sew embellishments to a piece of fabric. • To be able to design a pencil case. • To be able to make and evaluate a pencil case based on a design.	• To find out about the diversity of foods grown in American's diverse climates, and develop cooking skills, while following a recipe for a traditional American food. • To discover some ways in which indigenous Americans grew, caught, gathered, prepared and cooked food. • To find out about important, traditional staple foods in America, and how the slave trade influenced American cuisine. • To learn about the cultural significance of chillies in Mexican cooking, and about how American food is heavily influenced by food from other cultures. • To consider why certain foods are unhealthy if eaten regularly, and recognise the value of eating food together.
Upper Juniors Cycle A Year 5/6	Cooking and Nutrition, Structure – Gingerbread Houses	Textiles – Fashion and Textiles *Links – Science: Properties and changes in materials*	Mechanisms, Electricity – Programming Pioneers *Links – Computers: Programming*
	Children will get into the festive spirit as they are challenged to make their own edible houses. The class will research various housing structures, considering which food would make the most stable houses and what the best shapes are to ensure the construction stays upright. Following this they will attempt to make their own edible houses using a variety of edible resources and essential tools. They will have the chance to evaluate their houses and consider what they would have done differently after finishing. Covered Objectives:	Children will take a look at how textiles are used in the fashion industry and, using what they were taught when making pencil cases in lower juniors, be challenged to design, cut, stitch and decorate a drawstring bag. They will learn how cotton cloth is manufactured, then go onto look at how textiles like this are used to make clothes and other items. As they learn about the design and manufacturing processes of the fashion industry, they'll also develop their own skills designing and making a fashionable product of their own. Covered Objectives:	Children will be asked to consider how the electrical products all around us work. They will be challenged to consider this and many other questions about computer-controlled products as they discover how simple computer systems may be constructed and programmed to make products work. They will focus on designing, developing, testing and prototyping computer-controlled electronic systems for rooms such as motion-sensor activated alarms, door buzzer entry systems or even 'smart home' automatic lights! Covered Objectives:

	• To investigate existing edible houses to inspire a design. • To use a computer to design a pattern template. • To test and improve a design. • To construct a house out of edible resources. • To construct and decorate a house out of edible resources using a variety of tools. • To evaluate their product against a design criteria.	• To investigate and analyse items made using textiles: the materials used and how they are made. • To explore some ways in which textiles are joined and decorated. • To design an item made using textiles, and draw pattern pieces. • To use pattern pieces to measure, mark and cut fabric; to sew design elements according to a design. • To join fabric pieces by hand sewing. • To sew hems on an item made using textiles; to add design details.	• To explore how computers and computer programs are used in a variety of products. • To develop ideas for a product with an embedded computer system that controls it. • To develop, model and communicate ideas for an embedded system which monitors and controls a door, a room or both. • To develop ideas for a product and start to write programs to monitor and control them. • To model and communicate ideas, using either prototype models or computer-aided design. • To evaluate your design for a computer-controlled system and consider the views of others to improve your work.
Upper Juniors Cycle B Year 5/6	Mechanism – Moving Toys	Cooking and Nutrition – Great British Dishes *Links – PSHE: Healthy Me*	Structure – Building Bridges *Links – Maths: Measuring Units*
	Children will transform the classroom into a toy workshop in time for Christmas. The class get the chance to investigate cam mechanisms and toys that contain them. They will discover how different shaped cams can alter the movement of the follower and how to create a sturdy structure using a variety of tools and techniques. These toymakers will then have the chance to design, make and evaluate their own moving toy with a cam mechanism. Covered Objectives: • To investigate toys with moving cam mechanisms.	Children will learn all about the various foods from different parts of Great Britain. They will explore some sweet and savoury dishes of England, Scotland and Wales, before moving onto developing an understanding of how cuisines from other countries have influenced what is eaten in Britain today. Finally, children will practise the important life skill of how to plan and shop for a meal. Covered Objectives: • To learn about a make some national English savoury dishes. • To know about and make some traditional English sweet dishes.	Children will use readily available materials such as card, paper or art-straws to explore ways in which forces act on bridge structures, how they are constructed and how they are strengthened. Children must be able to work well in a team as they get to grips with designing, making and evaluating a variety of bridge designs. They will learn to consider ways in which bridge models may be strengthened, stiffened or reinforced. Covered Objectives: • To explore ways in which pillars and beams are used to span gaps.

	• To investigate different types of cam mechanisms. • To investigate ways of strengthening structures for a moving toy. • To be able to design a moving toy with a cam mechanism. • To be able to follow a design to create a moving toy with a cam mechanism. • To be able to evaluate a finished moving toy.	• To learn about and make some national Scottish dishes. • To learn about and make some national Welsh dishes. • To learn about the influences of and similarities between cuisines from other countries. • To know how to plan and shop for a meal.	• To explore ways in which trusses can be used to strengthen bridges. • To explore ways in which arches are used to strengthen bridges. • To understand how suspension bridges are able to span long distances. • To develop criteria and design a prototype bridge for a purpose. • To analyse and evaluate products according to design criteria.

Assessment

At Lewknor we ensure that all children are making progress in all subjects. In our design and technology curriculum we have identified the different areas that we will be focusing on in each lesson to signify improvement and progress. There is no formal assessment for DT, we our own observations in lessons as well as the children's work to monitor progression.

	Autumn	**Spring**	**Summer**
Infants Cycle A Year 1/2	Textiles – Delightful Decorations	Cooking and Nutrition – Perfect Pizzas *Links – PSHE: Healthy Me*	Mechanisms – Moving Pictures
	To explore different decorations: • Do children know what a decoration is and when they can be used? • Can children describe different types of Christmas decorations? • Can children share and explain their opinions about different Christmas decorations? To practise cutting skills: • Do children know how to use scissors safely? • Can children cut lines accurately? • Can children cut out shapes accurately?	To find out what the favourite pizzas in the class are: • Can the children identify the different parts of a pizza? • Can the children sort foods into different food groups? • Can the children discuss different types of pizzas and begin to categorise them into healthy and unhealthy? To examine, describe and categorise a variety of bread-based products: • Can the children name and describe a variety of breads? • Can the children say which breads they like?	To be able to create a sliding mechanism: • Can children identify the direction of movement in a sliding mechanism? • Can children investigate different ways of making sliders? • Can children evaluate their work and identify areas for future development? To be able to use levers to create a moving mechanism: • Do children understand the terms 'lever' and 'pivot'? • Can children combine and join materials to make lever mechanisms?

	To practise sewing skills: • Can children sew two pieces of material together? • Can children attach buttons and other decorative materials onto a piece of fabric? • Can children use the tools needed for sewing safely and sensibly? To design a Christmas tree decoration: • Do children know what design criteria are? • Can children describe what materials, tools and skills they will need to make their decoration? • Can children describe the steps they will need to take to make their decoration? To make a Christmas decoration: • Can children follow their design to make a completed product? • Can children use cutting and sewing skills? • Can they work safely and sensibly with the tools and materials they have? To evaluate a Christmas decoration: • Do children understand what it means to evaluate? • Can children evaluate their own decoration? • Can children identify ways to improve their decoration?	• Can the children use the features of the bread to decide if it is fit for purpose? To examine, describe and categorise a variety of pizza toppings: • Can the children name and describe a variety of toppings? • Can the children state their opinions and preferences about different toppings? • Do the children understand eating healthily means having a balanced diet? To design a balanced healthy pizza: • Do children understand that pizzas can be part of a healthy diet? • Can children design a healthy pizza? • Can children identify what ingredients and tools they will need to make their pizza? To be able to make and evaluate a food product based on a design: • • Can children identify and follow rules for food safety and hygiene? • Can children follow a design to make a pizza? • Can children evaluate their finished products and say what they think and feel about them?	• Can children generate ideas for different ways of using lever mechanisms in moving pictures? To investigate and create wheel mechanisms: • Can children describe what a pivot is? • Can children cut out and join components to create a wheel mechanism? • Can children evaluate their work and identify areas for future development? To be able to design a picture with a moving mechanism: • Can children discuss ideas for how they could incorporate moving mechanisms into pictures? • Can children draw on previous experience of moving mechanisms to design a moving picture? • Can children convey in pictures and words how they will create their moving picture? To be able to make a moving picture based on a design: • Can children follow a design to create a picture with a moving mechanism? • Can children work safely with a variety of tools and materials to create a moving mechanism? • Can children identify ways in which they can improve their finished products? To be able to evaluate a moving picture:

			• Can children evaluate their own moving pictures and say what they think and feel about them? • Can children identify what they have done well and suggest how they could make improvements? • Can children give their opinion about the work of other children and give positive feedback?
Infants Cycle B Year 1/2	Mechanisms, Structure – Wacky Windmills *Links – Geography: Wonderful Weather*	Cooking and Nutrition – Seaside Snacks *Links – PSHE: Healthy Me, Geography: Beside the Seaside*	Textiles – Puppets *Links – History: Toys*
	To explore what windmills are and what they are used for: • Can children explain what a windmill is and what they are used for? • Can children describe the features of a windmill? • Do children know why farmers don't use the traditional windmills as much now? To explore ways of making strong bases: • Can children use materials to construct a base? • Do children understand that some materials are stronger than others? • Do children know how to join materials together successfully? To explore how to make sails for windmills: • Do children understand that some materials are better to catch the wind than others? • Can children choose appropriate materials to create a structure? • Can children explain how to make a structure spin on an axis?	To follow instructions to make a sandwich: • Can children select appropriate ingredients? • Can children effectively and safely use tools? • Can children talk about what they have made? To make edible boats: • Can children name different foods? • Can children select a variety of ingredients? • Can children manipulate materials? To make fruit sculptures: • Can children name and describe a variety of fruits? • Can children manipulate and shape fruits into animals and pictures? • Do children know why they should eat fruit? To make edible cake decorations: • Can children join items together? • Can children arrange items to make an animal or a picture?	To investigate a range of puppets and their features: • Can children describe what puppets are and how they are used? • Can children recognise and describe a variety of different types of puppets? • Can children identify the features of a variety of puppets? To be able to work with fabric to create a finger puppet: • Can children use a template to cut out appropriate sizes of fabric? • Can children develop ideas by putting components together? • Can children discuss their finished work and evaluate what went well and what could be improved? To develop and practise sewing skills: • Can children use running stitch and/or over stitch to join two pieces of fabric together? • Can children use a needle and thread to attach buttons and other features to material?

	To be able to design your own windmills: • Can children design a windmill that follows a theme? • Can children explain what materials to use to construct a windmill? • Can children make predictions about the construction process? To be able to follow a plan to make a windmill: • Can children follow a design to create a windmill? • Can children choose appropriate materials to make a windmill? • Can children construct a windmill that represents a particular theme? To be able to evaluate your finished windmill: • Can children describe the design and construction process clearly? • Do children understand how to evaluate a process? • Can children share their experience with other class members?	• Can children talk about their work? To create frozen seaside snacks: • Do children know what ice is made from? • Can children combine ingredients? • Can children reflect on their learning? To design a seaside picnic: • Do children know what a balanced meal is? • Can children select ingredients to make a balanced picnic? • Can children reflect on their learning?	• Do children know how to work safely with a variety of sharp tools, such as needles and scissors? To be able to design a glove puppet: • Can children design a glove puppet for a particular purpose? • Can children describe what materials and tools they will need to make their puppet? • Can children describe the steps they will need to take to make their puppet? To be able to follow a design to make a puppet: • Can children describe the steps they will need to take to create their puppet? • Can children follow their designs to create their puppets? • Can children work safely and sensibly when working with a variety of materials and tools? To be able to evaluate a finished product: • Can children evaluate their own finished products and say what they think and feel about them? • Can children comment on the work of others and offer their opinions? • Can children identify ways in which they could improve their work in the future?
Lower Juniors Cycle A Year 3/4	Textiles – Seasonal Stockings	Cooking and Nutrition – Sandwich Snacks *Links –PSHE: Healthy Me*	Structures – Making Mini Greenhouses *Links – Science: Living things and their habitats*
	To explore and analyse existing products:	To learn that food can be divided into different groups and that sandwiches can form part of a healthy diet:	To explore existing greenhouses: • Do children know what a greenhouse is used for?

	• Can children discuss and assess the functionality of a variety of Christmas stockings? • Can children discuss and assess the visual appeal of a variety of different Christmas stockings? • Can children compare and contrast different Christmas stockings? To explore different ways to join fabric using sewing skills: • Can children identify different sewing stitches? • Can children thread a needle and secure a knot? • Can children join two pieces of fabric together using a sewing stitch? To explore different ways to decorate a fabric using sewing skills: • Can children use stitching for decorative purposes? • Can children sew a button/bead/sequin/ribbon onto fabric accurately? • Can children see how to combine these skills to create a design for a product? To design a Christmas stocking: • Can children use their knowledge of joining stitches when designing their product? • Can children use their knowledge of decorative techniques when designing their product? • Can children identify which parts of the making process they may find challenging?	• Do children know that food can be divided into different groups? • Can children name the different food groups and describe their purpose? • Do children know that people have different preferences? To taste a variety of different breads and sandwiches and examine flavours and textures: • Do children know that there are a variety of different sandwiches? • Can children taste and describe different foods? • Do children know that different combinations of ingredients affect the taste and texture of the product? To design and plan a sandwich for a particular purpose: • Can children choose a purpose for their sandwich design? • Can children describe each step in the process of making their sandwich? • Can children design a healthy sandwich? To be able to create a healthy sandwich: • Do children know how to work safely and appropriately with food? • Can children follow their designs to create a sandwich? • Can children present their sandwich in a appealing way? To be able to evaluate a finished product: • Can children evaluate their work fairly and constructively?	• Do children know how a greenhouse helps plants to grow? • Can children analyse and discuss different types of greenhouses? To investigate stable structures: • Do children understand the term ‘stable’? • Can they identify factors that make a structure stable? • Can they discuss how to make a structure more/less stable? To investigate materials for making a mini greenhouse: • Can children identify suitable materials for a mini greenhouse? • Can children explain why these materials are suitable? • Can children discuss ways of joining these two materials together? To design a mini greenhouse: • Can children apply their knowledge of stable structures and suitable materials when designing a mini greenhouse? • Can children follow specific design criteria? • Can children identify possible challenging parts of their design/help others to find solutions? To make a mini greenhouse: • Can children follow a design to create a successful product? • Can children amend their design to improve a product/ give suggestions to others as solutions to problems?

	To use sewing skills to make a Christmas stocking: • Can children follow a design to create a successful product? • Can children use appropriate sewing stitches to join and decorate fabric? • Can children work safely and sensibly with a range of materials and tools? To evaluate a finished product: • Do children understand the importance of evaluating a finished product? • Can children identify what has been successful with their design? • Can children identify any improvements that could be made to the design?	• Can children suggest improvements to their design? • Can children incorporate new design features based on their experience of the product?	• Can children work safely and sensibly with a range of materials and tools? To evaluate a finished product: • Do children understand the importance of evaluating a finished product? • Can children identify what has been successful with their design? • Can children identify any improvements that could be made to the design?
Lower Juniors Cycle B Year 3/4	Mechanism, Structure, Electricity – Light-Up Signs *Links – Science: Light, Electricity*	Textiles – Pencil Cases	Cooking and Nutrition – American Food *Links – Geography: All around the World*
	To investigate and analyse illuminated signs: • Can children suggest reasons why it is helpful to illuminate signs? • Can children identify distinguishing features of a variety of illuminated signs? • Can children investigate ways in which very simple circuits for illuminated signage might be constructed? To understand how LEDs may be used instead of traditional incandescent bulbs in series circuits:	To investigate a range of pencil cases: • Can children identify the features of pencil cases? • Can children discuss how pencil cases are made and describe what features they have? • Can children compare pencil cases based on design criteria? To practise and compare sewing stitches: • Can children sew a running stitch? • Can children sew a backstitch? • Can children sew a whip stitch?	To find out about the diversity of foods grown in American's diverse climates, and develop cooking skills, while following a recipe for a traditional American food: • Can children suggest ways in which America's diverse climate regions affect the food they grow? • Can children measure and mix ingredients? • Can children cut out, shape and mould pastry? To discover some ways in which indigenous Americans grew, caught, gathered, prepared and cooked food:

	• Can children suggest some problems with using traditional, incandescent bulbs in products? • Can children suggest some aesthetic and practical reasons for using LEDs instead? • Can children construct a circuit with an LED? To develop ideas for a decorative illuminated sign: • Can children identify potential audiences and purposes for a product design? • Can children suggest practical considerations about how to fit essential components in/on a product? • Can children consider tools and techniques they may need to use when constructing a product of their own design? To select and use tools, equipment, materials and components to make the enclosure of a decorative illuminated sign: • Can children identify ways in which their existing designs could be adapted for the materials available? • Can children select appropriate tools and materials for construction of their design? • Can children identify ways in which they can work safely while constructing their design? To construct a working circuit with one or more lights, and fit it in a decorative illuminated sign:	To investigate ways of opening and closing pencil cases: • Can children create a secure button fastening? • Can children create a secure popper fastening? • Can children create a secure toggle fastening? To be able to sew embellishments to a piece of fabric. • Can children describe different ways of adding embellishments to fabric? • Can children securely add buttons, beads and sequins to felt? • Can children use appropriate stitching to attach ribbons and fabric offcuts to felt? To be able to design a pencil case: • Can children describe different ways of adding embellishments to fabric? • Can children securely add buttons, beads and sequins to felt? • Can children use appropriate stitching to attach ribbons and fabric offcuts to felt? To be able to make and evaluate a pencil case based on a design: • Can children follow a design accurately to make a pencil case? • Can children create a pencil case using sewn seams and sewn embellishments? • Can children evaluate their finished work fairly and accurately?	• Can children describe some ways in which food was traditionally preserved by indigenous Americans? • Can children modify a simple recipe? • Can children use safe knife techniques for cutting medium and higher resistance foods? To find out about important, traditional staple foods in America, and how the slave trade influenced American cuisine: • Can children suggest differences between foods eaten by rich and poor, or free and enslaved, Americans? • Can children select and use appropriate apparatus to measure, sift, mix and pour when following a recipe? • Can children explain how and why some food changes when it is heated? To learn about the cultural significance of chillies in Mexican cooking, and about how American food is heavily influenced by food from other cultures: • Can children describe features of Mexican food? • Can children snip, cut and shred food safely, using appropriate apparatus? • Can some children, with support and supervision, use a hob to heat food? To consider why certain foods are unhealthy if eaten regularly, and recognise the value of eating food together: • Can children describe ingredients which are unhealthy when eaten regularly in large quantities?

	• Can children recall how to create a simple series circuit with a light? • Can children select and use appropriate tools, materials and components to construct a circuit? • Can children decide on an appropriate way to fit electrical components inside their designs? To investigate ways in which computers can be used to program and control lights in a product: • Can children identify products which contain microcontrollers which control lights? • Can children make algorithms with simple sets of instructions which describe how a flashing LED is controlled? • Can children write or edit programs to control an LED?		• Can children identify aspects of their own cooking skills which they wish to improve? • Can children work together to prepare a shared meal?
Upper Juniors Cycle A Year 5/6	Cooking and Nutrition, Structure – Gingerbread Houses	Textiles – Fashion and Textiles *Links – Science: Properties and changes in materials*	Mechanisms, Electricity – Programming Pioneers *Links – Computers: Programming*
	To investigate existing edible houses to inspire a design: • Are children able to design a product which meets a design criteria? • Can children plan a simple method of construction for their product? • Can children draw inspiration from existing products and incorporate similar features into their own design? To use a computer to design a pattern template:	To investigate and analyse items made using textiles: the materials used and how they are made: • Can children identify the materials used in the manufacture of some items made using textiles? • Can children identify ways in which materials are joined in some items made using textiles? • Do children understand the main stages in the production of cotton cloth?	To explore how computers and computer programs are used in a variety of products: • Can children communicate and develop their ideas by discussing, annotating diagrams and writing instructions? • Can children begin to explain how embedded systems monitor and control products? • Can some children explain how computer scientists have helped shape the world?

	• Are children able to use computers to create a design? • Can children come up with a success criteria based on existing ideas? • Can children use computers to create accurate shapes and measurements? To test and improve a design: • Are children able to amend a design based on testing? • Can children identify challenges? • Can children able to identify solutions to challenges they've come across? To construct a house out of edible resources: • Can children follow a simple method or recipe? • Can children measure ingredients or dimensions accurately? • Can children follow their own designs? To construct and decorate a house out of edible resources using a variety of tools: • Can children use tools for a specific purpose? • Are children able to follow their design when decorating their house? • Can children choose between different tools depending on their suitability for a task? To evaluate their product against a design criteria: • Can children evaluate an edible house against the original criteria? • Are children able to suggest ways they could improve their finished product?	To explore some ways in which textiles are joined and decorated: • Can children identify different sewing stitches on items made using textiles? • Can children distinguish between functional and decorative sewing stitches on items made using textiles? • Can children identify potential uses for different sewing stitches? To design an item made using textiles, and draw pattern pieces: • Do children understand that design criteria are used by fashion designers to develop designs? • Can children design an item made using textiles according to design criteria? • Can children draw pattern pieces, adding details such as seam allowances? To use pattern pieces to measure, mark and cut fabric; to sew design elements according to a design: • Can children use pattern pieces to mark fabric for cutting and sewing? • Can children cut fabric according to a pattern? • Can children add design details to a product according to their own design? To join fabric pieces by hand sewing: • Can children thread a needle by themselves? • Can children join fabric pieces using a simple hand-sewing stitch?	To develop ideas for a product with an embedded computer system that controls it: • Can children develop prototypes of a computer-controlled electrical system? • Can children incorporate one or more different electrical components in their system? • Can children improve their prototype designs by 'debugging' their software and/or hardware? To develop, model and communicate ideas for an embedded system which monitors and controls a door, a room or both: • Can children develop a design brief for a product? • Can children develop their ideas for their product through discussion and annotated sketches? • Can children incorporate electrical systems in their product design? To develop ideas for a product and start to write programs to monitor and control them: • Can children suggest ways in which a given product idea might be developed and improved? • Can children debug a defective algorithm for a given product idea? • Can children develop and debug their own computer controlled product ideas? To model and communicate ideas, using either prototype models or computer-aided design: • Can children suggest ways in which models can better communicate ideas

	• Can children explain what they would do differently if they were to make their house again?	• Can children tie threads to ensure seams do not unravel? To sew hems on an item made using textiles; to add design details: • Can children use simple stitches to sew hems on an item made using textiles? • Can children evaluate their own work? • Can children add detail to an item made using textiles to improve it?	than written/verbal descriptions alone? • Can children make prototype models to communicate their ideas? • Can children control their prototypes using electronic components and computers? To evaluate your design for a computer-controlled system and consider the views of others to improve your work: • Can children explain ways in which they debugged and improved their programs for controlling products? • Can children explain how they learned from others and improved their own designs? • Can children identify ways in which their DT and programming skills have developed, and ways in which they could further develop their learning?
Upper Juniors Cycle B Year 5/6	Mechanism – Moving Toys	Cooking and Nutrition – Great British Dishes *Links – PSHE: Healthy Me*	Structure – Building Bridges *Links – Maths: Measuring Units*
	To investigate toys with moving cam mechanisms: • Can children recognise the movement of a mechanism within a toy or model? • Do children understand that a cam mechanism will change rotary motion into linear motion? • Can children investigate examples of cam toys and comment on how they work? To investigate different types of cam mechanisms:	To learn about a make some national English savoury dishes: • Do children know the origins of some traditional English savoury dishes? • Can children cut and chop vegetables safely? • Can children combine ingredients and follow a recipe? To know about and make some traditional English sweet dishes: • Can children name some English desserts?	To explore ways in which pillars and beams are used to span gaps: • Can children use technical vocabulary to explain how beam bridges are constructed? • Do children understand the impact better bridge design has had on daily life? • Can children investigate and explore the effectiveness of different beam/pillar designs? To explore ways in which trusses can be used to strengthen bridges:

	• Can children describe how cams work using appropriate vocabulary? • Can children explore how different shaped cams affect the movement of the follower? • Can children make suggestions for how different cams could be used for different kinds of toys? To investigate ways of strengthening structures for a moving toy: • Can children make suggestions for how they could make a sturdy structure for a moving toy? • Can children experiment with a variety of materials, tools and techniques? • Can children identify ways of strengthening a structure? To be able to design a moving toy with a cam mechanism: • Can children state the purpose and audience of their design? • Can children design a moving toy with a cam mechanism? • Can children describe how they will create their toy and what materials and tools they will need? To be able to follow a design to create a moving toy with a cam mechanism: • Can children follow a design to create a moving toy? • Can children work safely with a variety of materials and tools? • Can children identify areas of their toy that could be improved upon?	• Do children understand their RDA for sugar and how to identify the sugar content on food packaging? • Do children understand the seasonality of different British fruits? To learn about and make some national Scottish dishes: • Do children know how oats are grown, harvested and produced? • Do children know some traditional Scottish dishes and their main ingredients? • Can children design/follow a simple recipe? To learn about and make some national Welsh dishes: • Do children know some traditional Welsh dishes and their main ingredients? • Can children give their opinion of different ingredients? • Can children follow and adapt a given recipe? To learn about the influences of and similarities between cuisines from other countries: • Do children understand what 'cuisine' means? • Do children understand that the cuisine of different countries can influence and be similar to each other? • Can children research, record and share their knowledge? To know how to plan and shop for a meal:	• Can children use technical vocabulary to explain how truss bridges spread the load of objects travelling across them? • Can children apply their knowledge of how to stiffen and strengthen structures? • Can children evaluate their models against established design criteria? To explore ways in which arches are used to strengthen bridges: • Can children use technical vocabulary to explain how arch bridges are constructed? • Can children use technical vocabulary to explain how arch bridges work? • Can children build and test models to find a strong bridge design? To understand how suspension bridges are able to span long distances: • Can children explain how tension and compression forces are distributed by suspension bridges? • Can children build a model suspension bridge that will support a given weight? • Can children evaluate the designs of others and consider their views? To develop criteria and design a prototype bridge for a purpose: • Can children write design criteria according to a given brief? • Can children design a prototype model according to design criteria?

	To be able to evaluate a finished moving toy: • Can children evaluate a finished product fairly? • Can children suggest ways they could improve their product if they were to make it again? • Can children recognise ways in which they have been successful?	• Do children understand that different food products have different 'shelf-lives'? • Do children understand how to plan and cost a meal? • Can children give general kitchen health and safety advice?	• Can children work collaboratively to produce a prototype according to an agreed design? To analyse and evaluate products according to design criteria: • Can children devise tests to analyse a product according to design criteria? • Can children evaluate their product according to design criteria? • Can children consider the views of others and think of ways to improve their work?