	All Saints CE Primary School & Nursery	
	Subject: **DT**	**Foundation Subject Overview**

HOW DOES THIS SUBJECT FIT IN?

EYFS Curriculum

In Design and technology, we look at the ways that things work and the jobs they do. We learn to research, design and make products. Learning about food and nutrition is also part of D.T and we link this to our topics in class throughout the year. In EYFS, Technology content is found in these areas of learning: Expressive Arts and Design, Understanding the World, Personal, Social and Emotional Development and Physical Development. Children are given the opportunity throughout the year to take part in activities that develop the skills outlined below. These skills start from Nursery leading onto Reception.

Physical Development

Scissors: Scissors are a type of cutting tool. -They can be used to cut things like card and paper. -To hold scissors, put your thumb in the front hole. -Put your index and middle fingers in the back hole. - Other fingers support on the outside. -When you bring your fingers apart, the scissors open. - When fingers are brought together, the scissors close.

Using Simple Tools: Tools are objects that help us to change things. They do many different jobs. Some examples of tools are: Arts and crafts: pencil, felt tips, paint brush, eraser. Cooking: wooden spoon, spatula, peeler, rolling pin Gardening: shovel, rake, watering can, trowel.

- Use large-muscle movements to wave flags and streamers, paint and make marks.
- Choose the right resources to carry out their own plan.
- Use one-handed tools and equipment, for example, making snips in paper with scissors.
- Progress towards a more fluent style of moving, with developing control and grace.
- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.

Personal, Social and Emotional Development

- Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.

Understanding the World

- Explore how things work.

Expressive Arts and Design– Creating with materials

- Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.
- Explore different materials freely, in order to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Join different materials and explore different textures.
- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
- Explore, use and refine a variety of artistic effects to express their ideas and feelings.
- Adapt their construction to achieve a desired outcome, e.g. add an extra layer to a model to represent "upstairs" when their pretend-play requires it.
- Use a range of tools and equipment and selects the most appropriate tool or joining material for the job.
- Explain how they created something to their peers including why they chose a particular technique/material and how it is fit for purpose, e.g. "I used sellotape because the glue was too runny to hold something heavy".
- Return to and extend their creative learning, e.g. rebuilding a tower made the day before but making it more stable, developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills.

At the end of Reception, these are the Early Learning Goals that the children should have met linked to DT.

ELG: Physical Development—Fine Motor Skills

- Use a range of small tools, including scissors, paintbrushes and cutlery.

ELG: Expressive Arts and Design- Creating with Materials

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.

Those working at greater depth may

- Make considered/purposeful decisions on how media and materials can be used, combined and matched to a purpose.
- Draw inspiration from the work of others as starting points or to improve their own work, e.g. recreating the work of a famous artist.
- Show mastery and confidence in techniques eg, combining materials

KS1 National Curriculum:	KS2 National Curriculum:
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, such as the home and school, gardens and playgrounds, the local community, industry and the wider environment. When designing and making, pupils should be taught to: **Design** • design purposeful, functional, appealing products for themselves and other users based on design criteria. • generate develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. **Make** • select from and use a range of tools and equipment to perform practical tasks such as cutting, shaping, joining and finishing. • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • explore and evaluate a range of existing products. • evaluate their ideas and products against design criteria. **Technical knowledge** • build structures, exploring how they can be made stronger, stiffer and more stable. • explore and use mechanisms, such as levers, sliders, wheels and axles, in their products. **Cooking and nutrition** • use the basic principles of a healthy and varied diet to prepare dishes.	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, such as the home, school, leisure, culture, enterprise, industry and the wider environment. When designing and making, pupils should be taught to: **Design** • use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately. • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • investigate and analyse a range of existing products. • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • understand how key events and individuals in design and technology have helped shape the world **Technical knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures. • understand and use mechanical systems in their products, such as gears, pulleys, cams, levers and linkages. • understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors. • apply their understanding of computing to programme, monitor and control their products. **Cooking and nutrition** • understand and apply the principles of a healthy and varied diet. • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.

• understand where food comes from.	• understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed

Characteristics of DT (from National Curriculum):

- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- An excellent attitude to learning and independent working.
- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.

What this looks like:

Pupils should develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world; build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users; critique, evaluate and test their ideas and products and the work of others; understand and apply the principles of nutrition and learn how to cook.

KS1 National Curriculum		Key Stage 1 Units					
		Windmills	Moving Books	Fruit & Vegetable Smoothies	Fairground Wheel	A balanced Diet	Puppets
Design purposeful, functional, appealing products for themselves and other users based on design criteria	**Design**	✓	✓		✓		✓
Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology	**Design**	✓	✓		✓		✓
Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining, and finishing]	**Make**	✓	✓	✓	✓		✓
Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	**Make**	✓	✓	✓	✓	✓	✓
Explore and evaluate a range of existing products	**Evaluate**	✓	✓	✓	✓	✓	
Evaluate their ideas and products against design criteria	**Evaluate**	✓	✓		✓		✓
Build structures, exploring how they can be made stronger, stiffer and more stable	**Technical Knowledge**	✓			✓		
Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	**Technical Knowledge**	✓	✓		✓		

Use basic principles of a healthy and varied diet to prepare dishes	**Technical Knowledge**			✓		✓	
Understand where food comes from	**Technical Knowledge**			✓		✓	

	Structures **Windmill**	**Mechanisms** **Moving Book**	**Cooking** **Fruit and Vegetables**
Year 1 Objectives:	•Learning the importance of a clear design criteria • Including individual preferences and requirements in a design • Generating and communicating ideas using sketching and modelling • Learning about different types of structures, found in the natural world and in everyday objects • Making stable structures from card, tape and glue • Learning how to turn 2D nets into 3D structures • Following instructions to cut and assemble the supporting structure of a windmill • Making functioning turbines and axles which are assembled into a main supporting structure • To understand that the shape of materials can be changed to improve the strength and stiffness of structures • To understand that cylinders are a strong type of structure (e.g.the main shape used for windmills and lighthouses) • To understand that axles are used in structures and mechanisms to make parts turn in a circle • To begin to understand that different structures are used for different purposes • To know that a structure is something that has been made and put together	•Explaining how to adapt mechanisms, using bridges or guides to control the movement • Designing a moving story book for a given audience •Following a design to create moving models that use levers and sliders • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed • Reviewing the success of a product by testing it with its intended audience • To know that a mechanism is the parts of an object that move together •To know that a slider mechanism moves an object from side to side • To know that a slider mechanism has a slider, slots , guides and an object • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider	• Chopping fruit and vegetables safely to make a smoothie • Identifying if a food is a fruit or a vegetable • Learning where and how fruits and vegetables grow • Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging • Designing smoothie carton packaging by-hand or on ICT software • Understanding the difference between fruits and vegetables • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber) • 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 vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber)

Year 2 Objectives:			
	Mechanisms **Fairground Wheel**	**Cooking** A balanced diet	**Textiles** Puppets
	•Selecting a suitable linkage system to produce the desired motions • Designing a wheel Selecting appropriate materials based on their properties • Selecting materials according to their characteristics • Following a design brief Evaluating different designs • Testing and adapting a design •To know that different materials have different properties and are therefore suitable for different uses • To know the features of a fairground wheel include the wheel, frame, pods, a base an axle and an axle holder • To know that it is important to test my design as I go along so that I can solve any problems that may occur	• Designing a healthy wrap based on a food combination which work well together • Slicing food safely using the bridge or claw grip • Constructing a wrap that meets a design brief •Describing the taste, texture and smell of fruit and vegetables • Taste testing food combinations and final products • Describing the information that should be included on a label • Evaluating which grip was most effective • To know that 'diet' means the food and drink that a person or animal usually eats • To understand what makes a balanced diet • To know where to find the nutritional information on packaging • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group • To know that nutrients are substances in food that all living things need to make energy, grow and develop • To know that 'ingredients' means the items in a mixture or recipe • To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy • To know that many food and drinks we do not expect to contain sugar do; we call	• Using a template to create a design for cutting fabric neatly with scissors • Using joining methods to decorate a puppet • Sequencing steps for construction a puppet • Reflecting on a finished product, explaining likes and dislikes• To know that 'joining technique' means connecting two pieces of material together • To know that there are various temporary methods of joining fabric by using staples. glue or pins •To use running stitch • To understand that different techniques for joining materials can be used for different purposes • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times • To know that drawing a design idea is useful to see how an idea will look

		these ‘hidden sugars’	

KS2 National Curriculum		Lower Key Stage 2 Units					
		Pneumatic Toys	Eating Seasonally	Cross Stich and applique Cushions	Bridges	Torches	Mindful Moments
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	**Design**	✓	✓	✓	✓	✓	✓
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design	**Design**	✓		✓	✓	✓	
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	**Make**	✓		✓	✓	✓	✓
Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	**Make**	✓	✓	✓	✓	✓	
Investigate and analyse a range of existing products	**Evaluate**	✓			✓	✓	✓
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	**Evaluate**	✓		✓	✓	✓	✓
Understand how key events and individuals in design and technology have helped shape the world	**Evaluate**	✓				✓	
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	**Technical Knowledge**				✓		
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	**Technical Knowledge**	✓					
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	**Technical Knowledge**					✓	
Apply their understanding of computing to program, monitor and control their products	**Technical Knowledge**						✓
Understand and apply principles of a healthy and varied diet	**Cooking and Nutrition**		✓				

Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques	**Cooking and Nutrition**		✓				
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	**Cooking and Nutrition**		✓				

	Mechanisms Pneumatics	**Cooking** Food Seasons	**Textiles** Cushions
Year 3 Objectives:	• Designing a toy which uses a pneumatic system • Developing design criteria from a design brief • Generating ideas using thumbnail sketches and exploded diagrams • Learning that different types of drawings are used in design to explain ideas clearly • Creating a pneumatic system to create a desired motion • Building secure housing for a pneumatic system • Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy • Selecting materials due to their functional and aesthetic characteristics • Manipulating materials to create different effects by cutting, creasing, folding, weaving using the views of others to improve designs • Testing and modifying the outcome, suggesting improvements • Understanding the purpose of exploded diagrams through the eyes of a designer and their client • To understand how pneumatic systems work • To understand that pneumatic systems can be used as part of a mechanism • To know that pneumatic systems operate by drawing in, releasing and compressing air To understand how sketches, drawings and diagrams can be used to communicate design ideas • To know that exploded diagrams are used to show how different parts of a product fit together	• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish • Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination • Following the instructions within a recipe Establishing and using design criteria to help test and review dishes • Describing the benefits of seasonal fruits and vegetables and the impact on the environment • Suggesting points for improvement when making a seasonal tart •To know that not all fruits and vegetables can be grown in the UK • To know that climate affects food growth • To know that vegetables and fruit grow in certain seasons • To know that cooking instructions are known as a 'recipe' • To know that imported food is food which has been brought into the country • To know that exported food is food which has been sent to another country. • To understand that imported foods travel from far away and this can negatively impact the environment • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre	•Designing and making a template from an existing cushion and applying individual design criteria • Following design criteria to create a cushion • 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 with stuffing and sewing the edges • Making and testing a paper template with accuracy and in keeping with the design criteria • Measuring, marking and cutting fabric using a paper template • Selecting a stitch style to join fabric, working neatly sewing small, neat stitches (overstitch/ blanket stitch) • Incorporating fastening to a design • Evaluating an end product and thinking of other ways in which to create similar items •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 understand that some products are turned inside out after sewing so the

	• To know that thumbnail sketches are small drawings to get ideas down on paper quickly	• To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health • To know safety rules for using, storing and cleaning a knife safely • To know that similar coloured fruits and vegetables often have similar nutritional benefits	stitching is hidden

Year 4 Objectives:	**Structures** Bridges	**Electrical** Torches	**Digital** Mindful Moments
	• Designing a stable structure that is able to support weight • Creating frame structure with focus on triangulation Making a range of different shaped beam bridges • Using triangles to create truss bridges that span a given distance and supports a load • Building a wooden bridge structure • Independently measuring and marking wood accurately • Selecting appropriate tools and equipment for particular tasks • Using the correct techniques to saws safely • Identifying where a structure needs reinforcement and using card corners for support • Explaining why selecting appropriating materials is an important part of the design process • Understanding basic wood functional properties • Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary • Suggesting points for improvements for own bridges and those designed by others • To understand some different ways to reinforce structures • To understand how triangles can be used to reinforce bridges • To know that properties are words that describe the form and function of materials • To understand why material selection is important based on their properties • To understand the material (functional and aesthetic) properties of wood To understand the difference between arch, beam, truss and suspension bridges • To understand how to carry and use a saw safely	•Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas • 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 •Evaluating electrical products • Testing and evaluating the success of a final product • 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 • 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	•Writing design criteria for a programmed timer (Micro: bit) • Exploring different mindfulness strategies • Applying the results of my research to further inform my design criteria • Developing a prototype case for my mindful moment timer • Using and manipulating shapes and clipart, using computer-aided design (CAD), to produce a logo • Following a list of design requirements •Developing a prototype case for my mindful moment timer • Creating a 3D structure using a net • Programming a micro: bit in the Microsoft micro: bit editor, to time a set number of seconds/minutes upon button press • Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages • Evaluating my micro: bit program against points on my design criteria and amending them to include any changes I made • Documenting and evaluating my project • Understanding what a logo is and why they are important in the world of design and business • Testing my program for bugs (errors in the code) • Finding and fixing the bugs (debug) in my code • To understand what variables are in programming • To know some of the features of a Micro: bit • To know that an algorithm is a set of instructions to be followed by the computer • To know that it is important to check my code for errors (bugs) • To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device •Understand the terms 'ergonomic' and 'aesthetic' •Know that a prototype is a 3D model made from cheap materials, that allows us •To test design ideas and make better decisions about size, shape and materials

KS2 National Curriculum		Upper KS2 Units					
		Cams	Stuffed Toys	Monitoring Device	Playground	Come Dine with me	Navigate the World
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	**Design**	✓	✓	✓	✓	✓	✓
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design	**Design**	✓	✓	✓	✓		✓
Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately	**Make**	✓	✓		✓		✓
Select from and use a wide range of materials and components, including construction materials, textiles, and ingredients, according to their characteristics	**Make**		✓		✓	✓	
Investigate and analyse a range of existing products	**Evaluate**	✓	✓		✓		
Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work	**Evaluate**	✓	✓	✓	✓		✓
Understand how key events and individuals in design and technology have helped shape the world	**Evaluate**	✓		✓		✓	
Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	**Technical Knowledge**			✓	✓		
Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	**Technical Knowledge**	✓			Revisit CAMS and Levers		
Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	**Technical Knowledge**				Include electrical system		
Apply their understanding of computing to program, monitor and control their products	**Technical Knowledge**			✓			✓
Understand and apply principles of a healthy and varied diet	**Cooking and Nutrition**					✓	
Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques	**Cooking and Nutrition**					✓	
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed	**Cooking and Nutrition**					✓	

	Mechanisms Cams	**Textiles** Stuffed Toys	**Digital** Monitoring Devices
Year 5 Objectives:	•Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement • Understanding how linkages change the direction of a force • Making things move at the same time • Understanding and drawing cross-sectional diagrams to show the inner working •Measuring, marking and checking the accuracy of the jelutong and dowel pieces required • Measuring, marking and cutting components accurately using a ruler and scissors • Assembling components accurately to make a stable frame • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set • Evaluating the work of others and receiving feedback on own work • Applying points of improvements • Describing changes they would make/do if they were to do the project again •To understand that the mechanism in an automata uses a system of cams, axles and followers • To understand that different shaped cams produce different outputs •To know that an automata is a hand powered mechanical toy • To know that a cross-sectional diagram shows the inner workings of a product • To understand how to use a bench hook and saw safely • To know that a set square can be used to help mark 90° angles	• Designing a stuffed toy considering the main component shapes required and creating an appropriate template • Considering the proportions of individual components •Creating a 3D stuffed toy from a 2D design • Measuring, marking and cutting fabric accurately and independently • Creating strong and secure blanket stitches when joining fabric • Threading needles independently • Using applique to attach pieces of fabric decoration • Sewing blanket stitch to join fabric • Applying blanket stitch so the space between the stitches are even and regular •Testing and evaluating an end product and giving point for further Improvements • To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric • To understand that it is easier to finish simpler designs to a high standard • To know that soft toys are often made by creating appendages separately and then attaching them to the main body • To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely	•Researching (books, internet) for a particular (user's) animal's needs • Developing design criteria based on research • Generating multiple housing ideas using building bricks • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD •Understanding the functional and aesthetic properties of plastics • Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range •Stating an event or fact from the last 100 years of plastic history • Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices • Explaining key functions in my program (audible alert, visuals) • Explaining how my product would be useful for an animal carer including programmed features •To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record • To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose • To understand that conditional statements (and, or, if) in programming are a set of rules which are followed if certain conditions are met • To understand key developments in thermometer history • To know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future • To know the 6Rs of sustainability • To understand what a virtual model is and the pros and cons of traditional vs CAD modelling

Year 6 Objectives:	**Structures** Playgrounds	**Cooking** Come Dine with me	**Digital World** Navigate the world
	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs • Building a range of play apparatus structures drawing upon new and prior knowledge of structures • Measuring, marking and cutting wood to create a range of structures • Using a range of materials to reinforce and add decoration to structures • Improving a design plan based on peer evaluation • Testing and adapting a design to improve it as it is developed • Identifying what makes a successful structure • To know that structures can be strengthened by manipulating materials and shapes • To understand what a 'footprint plan' is • To understand that in the real world, design , can impact users in positive and negative ways • To know that a prototype is a cheap model to test a design idea • To apply knowledge of CAMS and levers from earlier units To apply knowledge of electrical systems from previous units	• Writing a recipe, explaining the key steps, method and ingredients • Including facts and drawings from research undertaken • Following a recipe, including using the correct quantities of each ingredient • Adapting a recipe based on research • Working to a given timescale • Working safely and hygienically with independence •Evaluating a recipe, considering: taste, smell, texture and origin of the food group • Taste testing and scoring final products • Suggesting and writing up points of improvements in productions • Evaluating health and safety in production to minimise cross contamination •To know that 'flavour' is how a food or drink tastes • To know that many countries have 'national dishes' which are recipes associated with that country • To know that 'processed food' means food that has been put through multiple changes in a factory • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork)	•Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD •Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as part of a product concept • Programming an N, E, S,W cardinal compass •Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Developing an awareness of sustainable design • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client's request and how it will benefit the customers • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept • To know that accelerometers can detect movement • To understand that sensors can be useful in products as they mean the product can function without human input • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request

			• To know that ‘multifunctional’ means an object or product has more than one function • To know that magnetometers are devices that measure the Earth’s magnetic field to determine which direction you are facing