Tilston Parochial
CE Primary School

Tilston Parochial Primary School

Our School Curriculum

A creative and thematic approach to learning.

Curriculum Intent and Progression Map

Subject: Design and Technology

Tilston Parochial CE Primary School

Curriculum Statement

"Design is a funny word. Some people think design means how it looks but of course, if you look deeper, it is really how it works."

Steve Jobs

We believe at Tilston Parochial CE Primary School, Design and Technology prepares children to deal with tomorrows rapidly changing world. It encourages children to become independent, creative problem solvers and thinkers, as individuals and as part of a team. It enables them to identify needs and opportunities, and to respond to them by developing a range of ideas and by making products and systems. Through the study of Design and Technology, they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industry. This allows them to reflect on and evaluate past and present technology, it's uses and impacts within our community.

From the early years in school all the way up to year 6, we want children to gain a curiosity on how and why things work, which then will progress onto their desire to design and make things. At Tilston we are blessed with beautiful surroundings with a plethora of natural materials to create dens, models outside in the environment as well as smaller projects within the classrooms. We aim to provide the children with countless experiences that enhance their sense of joy and wonder.

Creativity, friendship and communication, and imagination are all key to a fulfilled childhood. We want these to play a fundamental role in our design and technology curriculum to ensure every child's experience within school is meaningful and brings out the best in everyone.

Tilston Parochial CE Primary School

Computing Curriculum **Intent**

"The essential part of creativity is not being afraid to fail"

Edwin H Land

At Tilston Parochial CE Primary School, we understand the importance of integrated Design and Technology throughout the curriculum and giving children the opportunity to explore and investigate. We aim for our pupil's curiosity and creativity to help develop resilience, confidence and critical thinking skills whilst they consider their own and others' needs, wants and values.

We follow a design cycle of design, make and evaluate and where possible link it to real life and relevant context to give purpose for learning. When designing their products, children will be given the option of a range of materials, tools and equipment to choose from freely, allowing them to think carefully about their products and drawing upon knowledge from other areas of the curriculum. Design and Technology is planned within each term and is clearly mapped with progression of skills across each class and key stages, which they build on from prior learning.

Inclusion

Children of all abilities can benefit from the study of design and technology. Where children have special educational needs this is catered for by planning for differentiation. It may be necessary to seek further guidance from the subject leader, SENCO and other agencies. Teachers will be aware of any physical disability that may affect a child's performance and make appropriate provision. More-able children are given opportunities to tackle more complex issues and use a wider range of resources to research further and extend their learning.

TRUST
'May the God of hope fill you with all joy and peace as we trust in him.' Romans 15:13

COURAGE
'Be strong and courageous, do not be frightened or dismayed, for the Lord your God is with you wherever you go.' Joshua 1:9

COMMUNITY
How good and pleasant it is when God's people live together in unity.' Psalm 133.1

RESPECT
'Do to others as you would have them do to you.' Matthew 7:12

JOY
'A happy heart makes the face cheerful.' Proverbs 15:13

FRIENDSHIP
'There is a friend who sticks closer than a brother.' Proverbs 18:24

Tilston Parochial CE Primary School

Implementation

The teaching of Design Technology across the school follows the 2014 National Curriculum. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this.
Design and technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high quality Design and Technology curriculum; through well planned and resourced projects and experiences.

Design and Technology is an inspiring, rigorous and practical subject, requiring creativity, resourcefulness, and imagination. Pupils design and make products that solve real and relevant problems within a variety of contexts. It is very cross - curricular and draws upon subject knowledge and skills within Mathematics, Science, History, Computing and Art, thus giving children opportunities to learn life skills and apply skills to 'hands on' situations in a purposeful context. Children learn to take risks, be reflective, innovative, enterprising and resilient. Through their evaluations of past and present technology they can reflect upon the impact of Design Technology on everyday life and the wider world.

The delivery of design and technology follows a clear design process of design, make and evaluate. Research through Primary and secondary resources is encouraged to ensure analysis and skills development. A range of skills are taught to ensure that children are aware of health and safety issues related to the tasks undertaken. Children undertake design tasks and use skills from across the curriculum to fully explore the design process evaluating work ensuring that it is of the highest possible quality.

In design technology children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and at times lead their own learning in Design Technology. We also encourage collaborative learning to work as part of a team learning to question ideas and changes, and to support and help one another

Tilston Parochial CE Primary School

Impact

"Failure is success if you learn from it"
Malcolm Forbes

"Just because something doesn't do what you planned it to do doesn't mean it's useless"
Thomas Edison

Our design and technology curriculum is well thought out and is planned to show progression by children building on their prior learning from one unit to the next. We make informal assessments of the children's work as we observe them working in the classroom during lessons and from their own reflections of their work. At the end of a module we measure the impact through pupil discussions about their learning; discussions on thoughts, ideas, processing and evaluations of work. Through showcasing and the evaluation process of past and present design and technology, the children develop a critical understanding of its impact on daily life and the wider world through utilising final products, reinforcing purpose and celebrating achievements.

Children develop confidence and gain clear enjoyment in design and technology that they then apply to other areas of the curriculum. They ultimately know more, remember more and understand more about the subject, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school.

As designers, children develop skills and attributes they can use beyond school and into adulthood. They have a deeper understanding of industries that provide vital services through the application of design and technology.

Design and Technology			
EYFS	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively sharing ideas, resources and skills.		
	Robins Year 1/ 2	**House Martins Year 3/ 4**	**Kestrels Year 5/6**
Cycle	A	A	A
	Structures – Baby Bear's Chair	**Mechanical System – Making a pneumatic toy**	**Textiles - waistcoats**
<u>Key skills</u> Design	Generating and communicating ideas using sketching and modelling. Learning about different types of structures, found in the natural world and in everyday objects.	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.	Designing a waistcoat in accordance to a specification linked to set of design criteria. Annotating designs, to explain their decisions.
Make	Making a structure according to design criteria. Creating joints and structures from paper/card and tape. Building a strong and stiff structure by folding paper.	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 and weaving	Using a template when cutting fabric to ensure they achieve the correct shape. Using pins effectively to secure a template to fabric without creases or bulges. Marking and cutting fabric accurately, in accordance with their design. Sewing a strong running stitch, making small, neat stitches and following the edge. Tying strong knots. Decorating a waistcoat, attaching features (such as appliqué) using thread. Finishing the waistcoat with a secure fastening (such as buttons). Learning different decorative stitches. Sewing accurately with evenly spaced, neat stitches
Evaluate	Exploring the features of structures. Comparing the stability of different shapes. Testing the strength of own structures. Identifying the weakest part of a structure. Evaluating the strength, stiffness and stability of own structure	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	Reflecting on their work continually throughout the design, make and evaluate process.
<u>Key Knowledge</u> Technical	To know that shapes and structures with wide, flat bases or legs are the most stable.	To understand how pneumatic systems work. To understand that pneumatic systems can be used as part of a mechanism.	To understand that it is important to design clothing with the client/ target customer in mind.

	To understand that the shape of a structure affects its strength. To know that materials can be manipulated to improve strength and stiffness. To know that a structure is something which has been formed or made from parts. To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. To know that a 'strong' structure is one which does not break easily. To know that a 'stiff' structure or material is one which does not bend easily	To know that pneumatic systems operate by drawing in, releasing and compressing air.	To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. To understand the importance of consistently sized stitches
Additional	To know that natural structures are those found in nature. To know that man-made structures are those made by people	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. To know that thumbnail sketches are small drawings to get ideas down on paper quickly.	
Key Vocabulary	● Function ● Man-made ● Mould ● Natural ● Stable ● Stiff ● Strong ● Structure ● Test ● Weak	● Exploded-diagram ● Function ● Input ● Lever ● Linkage ● Mechanism ● Motion ● Net ● Output ● Pivot ● Pneumatic system ● Thumbnail sketch	Accurate ● Adapt ● Annotate ● Design ● Design criteria ● Detail ● Fabric ● Fastening ● Knot ● Properties ● Running-stitch ● Seam ● Sew ● Shape ● Target audience ● Target customer ● Template ● Thread ● Unique ● Waistcoat
	Mechanisms- Making a Moving Dragon	**Structure – Pavilions**	**Mechanical – Pop-up book**
Key skills Design	Creating a class design criteria for a moving monster. Designing a moving monster for a specific audience in accordance with a design criteria.	Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. Building frame structures designed to support weight.	Designing a pop-up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book.
Make	Making linkages using card for levers and split pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling components neatly	Creating a range of different shaped frame structures. Making a variety of free standing frame structures of different shapes and sizes. Selecting appropriate materials to build a strong structure and cladding. Reinforcing corners to strengthen a structure. Creating a design in accordance with a plan. Learning to create different textural effects with materials.	Following a design brief to make a pop-up book, neatly and with focus on accuracy. Making mechanisms and/or structures using sliders, pivots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result
Evaluate	Evaluating own designs against design criteria. Using peer feedback to modify a final design.	Evaluating structures made by the class. Describing what characteristics of a design and construction made it the most effective. Considering effective and ineffective designs.	Evaluating the work of others and receiving feedback on own work. Suggesting points for improvement.

Key Knowledge Technical	To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. To know that there is always an input and output in a mechanism. To know that an input is the energy that is used to start something working. To know that an output is the movement that happens as a result of the input. To know that a lever is something that turns on a pivot. To know that a linkage mechanism is made up of a series of levers.	To understand what a frame structure is To know that a 'free-standing' structure is one which can stand on its own	To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms
Additional	To know some real-life objects that contain mechanisms	To know that a pavilion is a decorative building or structure for leisure activities. To know that cladding can be applied to structures for different effects. To know that aesthetics are how a product looks. To know that a product's function means its purpose. To understand that the target audience means the person or group of people a product is designed for. To know that architects consider light, shadow and patterns when designing.	To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.
Key Vocabulary	● Evaluation ● Input ● Lever ● Linear motion ● Linkage ● Mechanical ● Mechanism ● Motion ● Oscillating motion ● Output ● Pivot ● Reciprocating motion ● Rotary motion ● Survey	● Aesthetic ● Cladding ● Design criteria ● Evaluation ● Frame structure ● Function ● Inspiration ● Pavilion ● Reinforce ● Stable ● Structure ● Target audience ● Target customer ● Texture ● Theme	● Aesthetic ● Computer-aided design (CAD) ● Caption ● Design ● Design brief ● Design criteria ● Exploded-diagram ● Function ● Input ● Linkage ● Mechanism ● Motion ● Output ● Pivot ● Prototype ● Slider ● Structure ● Template
	Food- Smoothies (Fruit and Vegetables)	**Food – Eating Seasonally**	**Digital World -Navigating the World**
Key skills Design	Designing smoothie carton packaging by-hand or on ICT software.	Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.	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 combining one or more 3D objects, using CAD.
Make	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.	Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. Following the instructions within a recipe.	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.

Evaluate	Tasting and evaluating different food combinations. Describing appearance, smell and taste. Suggesting information to be included on packaging.	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.	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 explaining 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 pitch
Key Knowledge Technical	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).	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. 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.	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
Additional			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.

Key Vocabulary	● Blender ● Carton ● Fruit ● Healthy ● Ingredients ● Peel ● Peeler ● Recipe ● Slice ● Smoothie ● Stencil ● Template ● Vegetable	● Climate ● Dry climate ● Exported ● Imported ● Mediterranean climate ● Nationality ● Nutrients ● Polar climate ● Recipe ● Seasonal food ● Seasons ● Temperate climate ● Tropical climate	● 3D CAD ● Application (apps) ● Biodegradable ● Boolean ● Cardinal compass ● Client ● Compass ● Concept ● Convince ● Corrode ● Duplicate ● Environmentally friendly ● Equipment ● Feature ● Finite ● Function ● Functional ● GPS tracker ● If statement ● Infinite● Investment ● Lightweight ● Loop ● Manufacture ● Materials (wood, metal, plastic etc.) ● Mouldable ● Navigation ● Non-recyclable ● Product lifecycle ● Product lifespan ● Program ● Recyclable ● Smart ● Sustainable ● Sustainable design ● Unsustainable design ● Variable ● Workplane

Design and Technology			
EYFS	Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively sharing ideas, resources and skills.		
	Robins Year 1/ 2	**House Martins Year 3/ 4**	**Kestrels Year 5/6**
Cycle	B	B	B
	Food – Healthy Wrap for a Troll	**Exciting Electricity - Torches**	**Food -What could be Healthier?**
<u>Key skills</u> Design	Designing a healthy wrap based on a food combination which works well together.	Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. Writing an amended method for a recipe to incorporate the relevant changes to ingredients. Designing appealing packaging to reflect a recipe
Make	Slicing food safely using the bridge or claw grip. Constructing a wrap that meets a design brief.	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.	Cutting and preparing vegetables safely. Using equipment safely, including knives, hot pans and hobs. Knowing how to avoid cross-contamination. Following a step by step method carefully to make a recipe.
Evaluate	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 electrical products. Testing and evaluating the success of a final product.	Identifying the nutritional differences between different products and recipes. Identifying and describing healthy benefits of food groups.

	Evaluating which grip was most effective.		
Key Knowledge Technical	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 these 'hidden sugars'	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 understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients. To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects
Additional		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.	
Key Vocabulary	● Alternative ● Diet ● Balanced diet ● Evaluation ● Expensive ● Healthy ● Ingredients ● Nutrients ● Packaging ● Refrigerator ● Sugar ● Substitute	Battery ● Bulb ● Buzzer ● Cell ● Component ● Conductor ● Copper ● Design criteria ● Electrical item ● Electricity ● Electronic item ● Function ● Insulator ● Series circuit ● Switch ● Test ● Torch ● Wire	Beef ● Cross-contamination ● Diet ● Ethical issues ● Farm ● Healthy ● Ingredients ● Method ● Nutrients ● Packaging ● Reared ● Recipe ● Research ● Substitute ● Supermarket ● Vegan ● Vegetarian ● Welfare
	Textiles – Explorer's Pouch	**Textiles – Greek Sandals**	**Electrical Systems – Steady Hand Game**
Key skills Design	Designing a pouch.	Writing design criteria for a product, articulating decisions made. Designing a sandal with fastening	Designing a steady hand game - identifying and naming the components required. Drawing a design from three different perspectives. Generating ideas through sketching and discussion. Modelling ideas through prototypes. Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'
Make	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.	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.	Constructing a stable base for a game. Accurately cutting, folding and assembling a net. Decorating the base of the game to a high quality finish. Making and testing a circuit. Incorporating a circuit into a base.

	Neatly pinning and cutting fabric using a template.	Working neatly by sewing small, straight stitches. Incorporating a fastening to a design.	
Evaluate	Troubleshooting scenarios posed by the 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 explaining why.	Testing and evaluating an end product against the original design criteria. Deciding how many of the criteria should be met for the product to be considered successful. Suggesting modifications for improvement. Articulating the advantages and disadvantages of different fastening types.	Testing own and others finished games, identifying what went well and making suggestions for improvement. Gathering images and information about existing children's toys. Analysing a selection of existing children's toys.
Key Knowledge Technical	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.	To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro. To know that different fastening types are useful for different purposes. To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.	To know that batteries contain acid, which can be dangerous if they leak. To know the names of the components in a basic series circuit, including a buzzer
Additional			To know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'. To understand that 'fit for purpose' means that a product works how it should and is easy to use. To know that form over purpose means that a product looks good but does not work very well. To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. To understand the diagram perspectives 'top view', 'side view' and 'back'
Key Vocabulary	● Accurate ● Fabric ● Knot ● Pouch ● Running-stitch ● Sew ● Shape ● Stencil ● Template ● Thimble	Aesthetic ● Assemble ● Book sleeve ● Design criteria ● Evaluation ● Fabric ● Fastening ● Mock-up ● Net ● Running-stitch ● Stencil ● Target audience ● Target customer ● Template	● Assemble ● Battery ● Battery pack ● Benefit ● Bulb ● Bulb holder ● Buzzer ● Circuit ● Circuit symbol ● Component ● Conductor ● Copper ● Design ● Design criteria ● Evaluation ● Fine motor skills ● Fit for purpose ● Form ● Function ● Gross motor skill Insulator ● LED ● User
	Mechanisms – African Savannah Buggy	**Food – Adapting recipes**	**Structures - Bridges**
Key skills Design	Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. Creating clearly labelled drawings that illustrate movement.	Designing a biscuit within a given budget, drawing upon previous taste testing judgements.	Designing a stable structure that is able to support weight. • Creating a frame structure with a focus on triangulation
Make	Adapting mechanisms, when: -they do not work as they should. -to fit their vehicle design. -to improve how they work after testing their vehicle.	Following a baking recipe, from start to finish, including the preparation of ingredients. Cooking safely, following basic hygiene rules. Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).	Making a range of different shaped beam bridges. Using triangles to create truss bridges that span a given distance and support 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.
Evaluate	Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.	Evaluating a recipe, considering: taste, smell, texture and appearance. Describing the impact of the budget on the selection of ingredients. Evaluating and comparing a range of food products. Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins.).	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.
Key Knowledge Technical	To know that wheels need to be round to rotate and move. To understand that for a wheel to move it must be attached to a rotating axle. To know that an axle moves within an axle holder which is fixed to the vehicle or toy. To know that the frame of a vehicle (chassis) needs to be balanced.	To know that the amount of an ingredient in a recipe is known as the 'quantity.' To know that it is important to use oven gloves when removing hot food from an oven. To know the following cooking techniques: sieving, creaming, rubbing method, cooling. To understand the importance of budgeting while planning ingredients for biscuits.	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 properties. To understand the material (functional and aesthetic) properties of wood.
Additional	To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.		To understand the difference between arch, beam, truss and suspension bridges. To understand how to carry and use a saw safely
Key Vocabulary	● Axle ● Axle holder ● Chassis ● Design ● Evaluation ● Fix ● Mechanic ● Mechanism ● Model ● Test ● Wheel	● Adapt ● Budget ● Cooling rack ● Creaming ● Equipment ● Evaluation ● Flavour ● Ingredients ● Method ● Net ● Packaging ● Prototype ● Quantity ● Recipe ● Rubbing ● Sieving ● Target audience ● Unit of measurement ● Utilities	● Abutment ● Accurate ● Arched bridge ● Beam bridge ● Coping saw ● Evaluation ● File ● Mark out ● Material properties ● Measure ● Predict ● Reinforce ● Research ● Sandpaper ● Set square ● Suspension bridge ● Tenon saw ● Test ● Truss bridge ● Wood