

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> 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; 	Food	Something we eat to give us energy and helps us grow	Build	To make something larger or stronger	Art—colour, texture Science—food, materials, everyday objects
	tool	An object used to help us to do a job	Create	To make something	
	materials	What objects are made from e.g. wood, paper, bricks	fix	To repair something	
	evaluate	Deciding what is good about your	Problem-solve	Thinking of a way to over-	

Preparing for...	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Selecting tools	Children to know how to hold scissors (thumb on top, finger below) and cut with increasing accuracy. Children will know how to hold scissors when moving around the classroom. Children will have access to a variety of tools in their classroom and be encouraged to self select when creating.	To understand that different tools can be used for different purposes
2.structures	Children will have materials both inside and outside of the classroom to build with. Children will use blocks and construction materials. Children to make imaginative 'small world' with blocks and construction kits including different buildings and a park.	To understand that different structures can be made using different tools and materials
3. Range of materials	Children will learn to explore different materials freely in order to develop their own ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. To use large muscle movement to wave flags and streamers, paint and make marks.	To understand that it is important to plan a design before we make it
4. Problem-solving	Children will learn to use the right resources to carry out their plan. Adults will encourage children to problem solve or experiment through the use of questioning or 'I wonder...' thinking e.g. 'Which is better, the flat block or the curved block? Why do you think that?' 'Why do you think that falls down when we add...?' 'If you make your tower on bean bag, why do you think it falls down? Where might be better?'	To understand that different materials have different properties and can be used for different purposes
5. Food and nutrition	Children will learn about different foods and their names.	To understand that asking questions and revisiting plans can help you to improve your design and generate new ideas
6. Evaluation/discussion	Return to and build on their previous learning, refining ideas and developing their ability to represent them.	To understand what some foods are called
7. Design	Children will be able to draw a simple picture or communicate what they plan to make.	To understand that creations can always be improved

Themes		Diversity in the Curriculum
<i>Food</i>	Children to name some simple food e.g. apple, carrot. Explore the idea of healthy and unhealthy foods	<ul style="list-style-type: none"> Create the Eiffel tower—French week Red nose day—making noses and red nose day biscuits Diwali—diva lamps Easter—decorating Easter eggs and creating Easter cards
<i>Broadening horizons</i>	Children will get the experience of putting theoretical learning into practise in the 'real world.'	
<i>Innovation</i>	Children will select tools and techniques needed to shape, assemble and join materials they are using	

Outcome	Character Traits	Stickability	WOW
Children will create basic structures, a snack and explore a variety of materials.	Ambitious Resilient Kind Articulate Curious Respectful	Recap key vocabulary and skills learnt	DT projects will be displayed on twitter account

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<ul style="list-style-type: none"> 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; 	Food	Something we eat to give us energy and helps us grow	Build	To make something larger or stronger	Art—colour, texture Science—food, materials, everyday objects
	tool	An object used to help us to do a job	Create	To make something	
	materials	What objects are made from e.g. wood, paper, bricks	fix	To repair something	
	evaluate	Deciding what is good about your product and what can be improved	Problem-solve	Thinking of a way to overcome a problem	

Preparing for...	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Selecting tools	Children will continue to develop the accuracy of their cutting skills. Children will continue to be able to self select a wider variety / different materials to create with. Children will experience different or more challenging tools e.g. hammers and sewing needles. Children will also access tools in different settings such as during Forest School sessions.	To understand that different tools can be used for different purposes
2. Structures	Learning to construct with a purpose in mind. Children will use building blocks and create junk models.	To understand that different structures can be made using different tools and materials
3. Range of materials	As part of continuous provision, children will have ever-changing materials to use to create with. Children will also develop their understanding when using different materials through more formal directed teaching e.g. making themed cards, making puppets, creating fire-work pictures, using sticks. As part of their Forest School learning, children will also use natural materials to build and create.	To understand that different materials have different properties and can be used for different purposes
4. Problem-solving	Adults will support children to evaluate their creations using stem sentences such as, 'I really like...' 'I don't like...' 'If I made it again, I would change...'	To understand that asking questions and revisiting plans can help you to improve your design and generate new ideas
5. Food and nutrition	Children will experience using different tools and ingredients regularly to create savoury and sweet food. Children will grow their own vegetables and have an understanding of where different foods come from. Children will know what constitutes a healthy or unhealthy choice.	To understand what some foods are called and what some foods can be used for. To know some healthy and unhealthy foods.
6. Evaluation/discussion	Return to and build on their previous learning, refining ideas and developing their ability to represent them. Children will be given opportunities to discuss reasons that make activities safe or unsafe, for example hygiene, electrical awareness, and appropriate use of senses when tasting different flavourings.	To understand that creations can always be improved
7. Significant people	Children will learn about significant designers e.g. Elon musk (Tesla), Norman Foster (architect) and Tom Kerridge (Chef)	To understand
7. Design	Children will have the opportunities to draw and design things. Adults will facilitate conversation about what children are building / making to encourage children to articulate their design process and use questioning to extend the children's reasoning e.g. 'What does ... do?' 'How does that work?' 'Why have you put ___ there?' 'I wonder what would happen if you...'	To understand that it is important to plan a design before we make it

Themes		Diversity in the Curriculum
Food	Children to name some simple food e.g. apple, carrot. Explore the idea of healthy and unhealthy foods	<ul style="list-style-type: none"> To make masks for Chinese New Year Bake Easter cakes Design and make a prayer mat—Eid Create the Eiffel tower—French week Diva lamps—Diwali Design henna patterns—Diwali
Broadening horizons	Children will get the experience of putting theoretical learning into practise in the 'real world.'	
Innovation	Children will select tools and techniques needed to shape, assemble and join materials they are using	

Outcome	Character Traits	Stickability	WOW
Children will create basic structures, prepare food, sew the outline of an animal and explore a range of materials.	Ambitious Resilient Kind Articulate Curious Respectful	Recap key vocabulary and skills learnt	

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To design purposeful, functional, appealing products for themselves and other users based on design criteria To select from and use a range of tools and equipment to perform practical tasks To evaluate their ideas and products against design criteria 	peel	To take the skin off with a peeler .	tear	To tear apart with your hands.	History—School days Safe guarding - food safety and hygiene - Packaging—allergies
	slice	To cut into thin, flat pieces .	chop	To cut into small pieces.	
	mash	To crush and soften.	grate	To shred using a grater	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Do you know what specific tools are used for particular purposes. Kitchen rules	Children will learn that knives are used for slicing and chopping, a grater is used for grating, a vegetable peeler is used for peeling and a masher is used for crushing. Children will prepare different fruits and vegetables. Children will learn that hand washing and good hygiene are important parts of a	Explain why hand washing and cleanliness are important. Select the appropriate tool for a simple practical task.
2. Do you know where food comes from.?	Children will learn that some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and nuts.	Sort foods into groups by whether they are from an animal or plant source
3. Can you make a healthy salad?	Children will learn that fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least five portions of fruit and vegetables every day. Fruits and vegetables can be mixed to make a healthy salad. Salad dressings can improve the flavour of salads.	Create a design to meet simple design criteria. Describe why a
4. What makes a good sandwich design?	Children will learn the importance of a product may be that it fulfils its goals and performs a useful purpose. Children will learn that design criteria are the explicit goals that a project must achieve. It must be healthy, contain at least three ingredients, look appealing, taste good and be easy to eat by hand. Use the useful words to help.	To create and design a sandwich. To design the food packaging for a sandwich.
5. Can you make a supermarket sandwich?	To learn about George Samworth—Samworth brothers Children will learn that rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate and washing hands before touching food.	Follow the rules to keep safe during a practical task.
6. How can I evaluate my product?	Children will learn to evaluate their ideas and products against design criteria. Children will learn that a strength is a good quality of a piece of work. A weakness is an area that could be improved.	Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

Themes		Diversity in the Curriculum
<i>Food</i>	Children will be introduced to more tools and ingredients. They will be taught the rules and safety instructions for using new tools. Children will learn to design a food product and evaluate it.	George Samworth—Samworth brothers
<i>Broadening horizons</i>		
<i>Innovation</i>		

Outcome	Character Traits	Stickability	WOW
To innovate, design and make a supermarket sandwich	Ambitious Resilient Articulate Curious	Recap key vocabulary and skills learnt	Display different types of supermarket sandwiches. Ask children to describe their favourite and give a reason why.

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about wheels, axles and chassis and how they work together to make a vehicle move. 	axle	A rod or spindle passing through the centre of a wheel	Strength	The positives and effectiveness of the product	Geography—bright lights, big city
	chassis	The base frame of a car	weakness	The negatives of the product	
	wheel	A circular object that spins on an	Vehicle	a machine with wheels and an en-	
	rod	A thin straight bar	Taxi	a car with a driver who you pay to	
	spindle	A thin, rounded rod	construction	To build something	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you explore different moving objects and identify the wheels, chassis and axles on each?	The children will learn that a wheel is a circular object that is connected to an axle that makes vehicles and machines move. An axle is a rod that is connected to the centre of a wheel, which allows it to turn. A chassis is the frame of a vehicle.	Name and explore a range of everyday products and describe how they are used.
2.To learn about the famous mechanical engineer—Henry Ford	Children to learn about the significant inventor Henry Ford. Who is Henry Ford? What did he invent?	
2. Can you create a moving vehicle using construction kit?	The children will learn that an axle is a rod or spindle that passes through the centre of a wheel to connect two wheels. Most vehicles that move on land have axles and wheels that are fixed to a chassis.	Use wheels and axles to make a simple moving model.
3.Can you create a moving vehicle prototype?	The children will learn that axles and wheels can be attached to chassis in different ways: an axle fixed to a chassis has freely moving wheels, whereas a freely moving axle has fixed wheels.	Describe the similarities and differences between two products.
4. Can you design a London taxi model vehicle?	The children will learn that a design criteria are the explicit goals that a project must achieve.	Create a design to meet simple design criteria.
5. Can you make a London taxi?	The children will learn that an axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.	Use wheels and axles to make a simple moving model.
6. Can you evaluate your model?	The children will learn that a strength is a good quality of a piece of work. A weakness is an area that could be improved.	Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

Themes		Diversity in the Curriculum
<i>Food</i>		<ul style="list-style-type: none"> Discuss how transport can be iconic and symbolical of different places, cities and countries Discuss the symbolism of the London black cab Henry Ford—American inventor/mechanical engineer
<i>Broadening horizons</i>		
<i>Innovation</i>	Children will learn about new materials and their functions—axles, chassis, spindles, wheels and rods. Children will fit more complex parts together with a clear purpose of creating a product. They will evaluate their product in more detail	

Outcome	Character Traits	Stickability	WOW
To create a London taxi model	Articulate Resilient Curious	Recap key vocabulary and skills learnt	Engage children with a selection of everyday objects that can be 'push and pulled' e.g. skateboard, toy cars & suitcase. Allow them to explore how they move.

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about the purpose of shelters and their materials. Name and describe shelters and design and make shelter prototypes. Children then design and build a play den as a group and evaluate their completed product. 	shelter	Shelters are what people and animals use to protect themselves from their surroundings.	difference	Things that are not the same	History—School days Science—materials and their properties Forest school link
	shade	To be sheltered from sunlight and heat	Similarity	Things that are the same or close to the same	
	den	A shelter or hiding place	Temporary	Lasting for only a short amount of time	
	Strength	Something that is strong	prototype	An original model which designers take their ideas from	

Lessons Sequence	Substantive knowledge/Key Knowledge	Disciplinary Knowledge / Skills
1. Do you know what a shelter is?	Children will learn that two products can be compared by looking at a set of criteria and scoring both products against each one. Children will learn shelter is a structure designed to give protection from weather or danger. A shelter can be permanent, like a house or garage,	Describe the similarities and differences between two products Name and explore a range of everyday products and describe how they are used. Advancement
2. Can you identify and describe different materials?	A material is what an object is made from. Everyday materials include wood, plastic, glass, metal, water, rock, brick, paper and fabric.	Identify and name what an object is made from, including wood, plastic, glass, metal, water and rock . Explain why particular materials are used for different shelters.
3. Can you design a temporary outdoor shelter?	Children will design purposeful, functional, appealing shelter for themselves and other users based on design criteria. Children will generate, develop, model and communicate their ideas through talking and drawing. Design criteria are the explicit goals that a project must	Create a design to meet simple design criteria. Evaluate their own designs.
4. Can you build an outdoor shelter prototype model?	Children will learn that a structure should have strong, sturdy supports that are joined so that they do not move. The roof and walls should have a covering for protection against the weather, and there should be an entry point.	Construct simple structures, models or other products using a range of materials. Select and use a range of materials, beginning to explain their choices.
5. Can you design and build an outdoor den?	Children will learn that rules are made to keep people safe from danger. Safety rules include always listening carefully and following instructions, using equipment only as and when directed, wearing protective clothing if appropriate. Children will learn that different materials can be used for different purposes, depending on their properties. For example, cardboard is a stronger building material than paper. Plastic is light and can float. Clay is heavy and will sink.	Follow the rules to keep safe during a practical task. Construct simple structures, models or other products using a range of materials.
6. Can you evaluate your shelter	Children will learn that a strength is a good quality of a piece of work. A weakness is an area that could be improved.	Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

Themes		Diversity in the Curriculum
Food		<ul style="list-style-type: none"> To look at different types of shelters from around the world
Broadening horizons	Children will get the experience of putting theoretical learning (material and their properties) into practise in the 'real world.' Children will explore the outdoors and collect materials based on their properties. Children will problem solve and express their creativity through the designing and building of	
Innovation	Children will learn about the purpose of different shelters. They will explore different materials and problem solve to decide which materials are best fitted for the purpose of a shelter.	

Outcome	Character Traits	Stickability	WOW
To build a temporary outdoor shelter	Ambitious Articulate Resilient respectful	Recap key vocabulary and skills learnt	Shelter spotting activity

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about sources of food and tools used for food preparation. They also discover why some foods are cooked and learn to read a simple recipe. The children choose and make a new school meal that fulfils specific design criteria. 	hygiene	definition	poultry	Chickens, geese and ducks raised for meat	Science -states of matter Safe guarding - food safety and hygiene
	Healthy food	Food that gives you all the nutrients and vitamins you need	germs	A microorganism that causes disease	
	bacteria	A microorganism that causes disease	pork	Meat from pigs	
	ham	Meat from pigs	recipe	A set of instructions for preparing a meal or making a food	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Do you know different ways to prepare ingredients?	Children will learn that different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials. Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples.	Select the appropriate tool for a task and explain their choice. Prepare ingredients by peeling, grating, chopping and slicing.
2. Where does our food come from?	Children will learn that food comes from two main sources: animals and plants. Cows provide beef, sheep provide lamb and mutton and pigs provide pork, ham and bacon. Examples of poultry include chickens, geese and turkeys. Examples of fish include cod, salmon and shellfish. Milk comes mainly from cows but also from goats and sheep. Most eggs come from chickens. Honey is made by bees. Fruit and vegetables come from plants. Oils are made from parts of plants. Sugar is made from plants called sugar cane and sugar beet. Plants also give us nuts, such as almonds, walnuts and hazelnuts.	Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables).
3. Why do we cook our food?	Children will learn that some foods, such as ice and chocolate, melt when heated, but then harden (solidify or freeze) when cooled.	Observe what happens when a range of everyday materials, including foods, are heated and cooled, sorting and grouping them based
4. How do we read a recipe?	Children will learn about personal hygiene and germs including bacteria, viruses, how they are spread and treated, and the importance of handwashing. Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology. Hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills.	Generate and communicate their ideas through a range of different methods. Work safely and hygienically in construction and
5. How do we plan a school meal?	Children will learn that many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles. School kitchen staff are important people because they provide healthy, nutritious, appealing and	Explain why a designer or inventor is important. Generate and communicate their ideas through a range of different methods.
6. How do we present a school	Children will learn to use the basic principles of a healthy and varied diet to prepare dishes. They will learn that a healthy diet should	Describe the types of food needed for a healthy and varied diet
7. Did the meal fulfil the design	Children will learn that their finished products can be compared with design criteria to see how closely they match. Improvements can	Explain how closely their finished products meet their design cri-

Themes		Diversity in the Curriculum
Food	Children learnt in Y1 about where food comes from. Children have already learnt about some different tools used in food preparation. Children have a basic understanding of 'healthy foods' and 'unhealthy foods.' Children will learn that many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles. School kitchen staff are important people because they provide healthy, nutritious, appealing and balanced meals. Children will look more in depth at where different foods come from, why food is cooked and they will read simple recipes.	Jamie Oliver—British chef
Broadening horizons		
Innovation		

Outcome	Character Traits	Stickability	WOW
To prepare and make a school meal.	Ambitious Articulate Curious	Recap key vocabulary and skills learnt	Big question—use pictures and see if the children can guess where foods come from—e.g. beef—cow, pork—pigs

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about different types of mechanism: sliders, levers and linkages. They make models of each mechanism before designing and making a moving picture based on the seaside. 	slider	a rigid bar which moves backwards and forwards along a straight line.	slot	A long, narrow opening	Geography—coastline
	lever	a bar used to pry or move something.	linkage	a system of links that are joined together to change movement.	
	Mechanism	a system or structure of moving parts that performs a particular function, especially in a machine	Force	an action that changes or maintains the motion of a body or object.	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you explore different machines and mechanisms and dis-	People build machines to make their work easier. A machine is made up of different parts that all work together to perform a task. Individual parts of a machine are called components. The part that brings about movement is called the mechanism.	Use a range of mechanisms (levers, sliders, wheels and axles) in models or products.
2. Can you create a slider mechanism?	A mechanism is a device that takes one type of motion or force and produces a different one. A mechanism makes a job easier to do. A slider mechanism moves in a straight line. This can be up and down or from side to side. It is made up of a slider and slider support to direct the movement. Real-life examples of slider mechanisms include door bolts and drawers.	Use a range of mechanisms (levers, sliders, wheels and axles) in models or products. Make models with moving parts.
3. Can you create a lever mechanism?	A lever mechanism is a bar that moves around a fixed point called a pivot. The amount of movement depends on the position of the pivot. Levers move an object in an arc shape. Real-life uses of levers include scissors and seesaws.	Use a range of mechanisms (levers, sliders, wheels and axles) in models or products. Make models with moving parts.
4. Can you make a linkage mechanism?	A linkage mechanism combines levers and sliders. It consists of two or more bars joined together by pivots. Fixed pivots attach the linkage mechanism to a fixed base to keep the joint still. Moving pivots join two bars together, but the bars can still move freely. Real-life uses of linkages include toolboxes and scissor lifts.	Use a range of mechanisms (levers, sliders, wheels and axles) in models or products. Make models with moving parts.
5. Can you design an 'under the sea' or 'seaside' moving picture?	Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive.	Explain how an everyday product could be improved.
6. Can you create an 'under the sea' or 'seaside' moving picture?	Moving mechanisms are made using stiff materials, such as card, plastic or metal, so as not to bend or break when force is applied. Materials should be cut, joined and finished carefully and appropriately to make sure the product works, looks appealing and achieves the design criteria.	Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
7. Can you evaluate your completed moving picture?	Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.	Explain how closely their finished products meet their design criteria and say what they could do better in the future.

Themes		Diversity in the Curriculum
Food		<ul style="list-style-type: none"> Children to base on 'the great British seaside'
Broadening horizons		
Innovation	Children will now learn about other mechanism that can create movement in a different type of product—levers, sliders and linkages.	

Outcome	Character Traits	Stickability	WOW
Children will complete a moving picture (under the sea or seaside themed)	Articulate Resilient Curious	Recap key vocabulary and skills learnt	Engage children with the video of different machines and mechanisms.

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about different fabrics and 	Running stitch	a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth	Tapestry	a heavy cloth that has designs or pictures woven/painted/or drawn onto it	History—Magnificent monarchs
	improved	Made better	needle	A fine piece of metal with a point at one end and an eye for a	
	sewing	Using a needle and thread to attach pieces of fabric together	embellishment	A decorative detail	

Lessons Sequence	Key Knowledge	Disciplinary Knowledge / Skills
1. Can you suggest how everyday products could be improved?	Children will learn that products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive. There are many fabric home products. These include bedding, tea towels, cushions, tea cosies, toiletry bags and other containers.	Explain how an everyday product could be improved. (stitching, seams, fabrics and finishing).
2. What is tapestry art? (The original designer)	Children to learn about the history and cultural influence of tapestry art. Tapestry is an ancient form of textile art which has been practised all over the world for thousands of years. Ancient Egyptians and the Incas used woven tapestries as shrouds in which to bury their dead. The Greeks and Romans used them as wall-coverings for civic buildings and temples like the Parthenon. British monarchs—For many centuries tapestries were <i>the primary decorative form at the royal court</i> , far exceeding paintings or other works of art in status and	Explain how tapestry art has been significant throughout history and how it is influenced by different cultures.
3. Can you use the appropriate tools to cut out and create a sew-	Children will learn that different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials. A sewing pattern is a template of the parts needed to make a garment or product. Pattern pieces are usually made from paper.	Select the appropriate tool for a task and explain their choice.
4. Can you create a basic running stitch to join two pieces of fabric?	Children will learn that a running stitch is a basic stitch that is used to join fabric. It is made by passing a needle in and out of fabric at an even distance.	Use different methods of joining fabrics, including glue and running stitch. Create a running stitch pattern along the edge of the
5. Can you create an embellish-	Children to learn that an embellishment is a decorative detail or feature added to something to make it more attractive.	Add simple decorative embellishments, such as buttons, prints, sequins and appliqué.
6.. Can you design a tapestry background?	Children to learn that ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology.	Generate and communicate their ideas through a range of different methods.
7.. Can you make a tapestry background?	Children to learn that properties of components and materials determine how they can and cannot be used. For example, plastic is shiny and strong but it can be difficult to paint.	Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
8. Can you evaluate your finished tapestry background?	Children to learn that finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.	Explain how closely their finished products meet their design criteria and say what they could do better in the future.

Themes		Diversity in the Curriculum
Food		<ul style="list-style-type: none"> Children to explore the history of tapestry worldwide Children to create a British monarch portrait inspired tapestry
Innovation	In different contexts Children will practise and create a running stitch. Children will create an embellishment.	
Broadening horizons	Children will learn about tapestry and explore its history and significance.	

Outcome	Character Traits	Stickability	WOW
Children to create a royal portrait tapestry wall hanger background (to combine with art - portraits & poses—paint portrait onto)	Ambitious Resilient Articulate Curious	Recap key vocabulary and skills learnt	Engage children by displaying a variety of different tapestry art. Display tapestries in a gallery.

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about food groups and the Eatwell guide. They learn about methods of cooking and explore these by cooking potatoes and ratatouille. The children choose and make a taco filling according to specific design criteria. 	dice	To cut foods into small squares	roast	To cook something in oil in the dry heat of an oven.	Geography—food harvesting and climate PSHE—Health eating
	fry	To cook something in hot oil.	bake	To heat in an oven	
	marinate	To leave foods in a mixture, usually containing herbs and spices, before cooking to add extra flavour.	grill	To heat on a grill	
	drizzle	To pour liquid slowly over something.	nutrients	the substances in food that our bodies process to enable it to function	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. What is a healthy balanced diet?	The children will learn the key inventions in design and technology have changed the way people live. There are five main food groups that should be eaten regularly as part of a balanced diet: fruit and vegetables; carbohydrates (potatoes, bread, rice and pasta); proteins (beans, pulses, fish, eggs and meat); dairy and alternatives (milk, cheese and yoghurt) and fats (oils and spreads). Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet. Humans have to get nutrition from what they eat. It is important to have a balanced diet made up of the main food groups, including proteins, carbohydrates, fruit and vegetables, dairy products and alternatives, and fats and spreads. Humans need to stay hydrated by drinking water.	Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars) . Describe how key events in design and technology have shaped the world. Explain the importance and characteristics of a healthy, balanced diet.
2. How can we cook potatoes?	The children will learn about preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning. Electrical appliances must only be used under the supervision of an adult. Safety rules must also be followed when using electricity: fingers and other objects must not be put into electrical outlets, anything with a cord or plug should never be used around water and a plug should never be pulled out by its cord.	Use appliances safely with adult supervision . Prepare and cook a simple savoury dish.
3. What are the different ways to cook food? What are the different appliances that we use to cook food?	The children will learn the preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning. The children will learn that food can be cooked using different appliances.	Prepare and cook a simple savoury dish.
4. What fillings can we have in a taco?	The children will learn that the design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user. The types of food that will grow in a particular area depend on a range of factors, such as the rainfall, climate and soil type. For example, many crops, such as potatoes and sugar beet, are grown in the south-east of England. Wheat, barley and vegetables grow well in the east of England. Tacos are a traditional Mexican street food made from wheat or corn tortillas, filled with a meat or vegetarian filling and topped with salsa, lettuce or cheese.	Develop design criteria to inform a design. Identify and name foods that are produced in different places.
5. What are the different ways to cook food? What are the different appliances that we use to cook food?	The children will learn the preparation techniques for savoury dishes include peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.	Prepare and cook a simple savoury dish
6. Did your taco filling include food from all food groups?	Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model.	Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account

Themes		Diversity in the Curriculum
<i>Food</i>	Children will now be introduced to and learn about the different food groups which will help to reinforce and embed their understanding of what a healthy diet should be. They will talk about the different nutrients that foods provide. Children will make and taste foods from different and new	Tasting food from different countries of origin- Mexico and Italy Martha Ortiz (Mexican)
<i>Broadening horizons</i>	To introduce children to foods from different countries that they may not have tried before e.g. ratatouille and tacos	
<i>Innovation</i>		

Outcome	Character Traits	Stickability	WOW
To design and make a taco filling of their choice.	Articulate Curious	Recap key vocabulary and skills learnt	Food group—sorting cards. Assess what they may already know and then talk through.

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about cam mechanisms. They experiment with different shaped cams before designing, making and evaluating a child's automaton toy. Explore the work of a well-known toy maker. 	sliders	a rigid bar which moves backwards and forwards along a straight line	axles	A rod or spindle passing through the centre of a wheel	Geography—rocks, relics and rumbles
	levers	a fixed bar used to move a heavy load	wheels	A circular object that spins on an axle	
	linkages	a system of links that are joined together to change movement.	cam		
	Machine		Mechanism		

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you construct a simple mechanism model and describe how its parts create movement?	Children to learn that levers consist of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion.	Explain how an existing product benefits the user. Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.
2. Can you learn about a significant toy maker? - Ron Fuller	Children to learn about the automata toy maker—Ron Fuller (toy designer). Who is he? What did he make?	To be able to explain the significant work of a famous designer
2. Can you make a simple cams mechanism?	Children to learn that different tools can be used for specific purposes. Levers consist of a rigid bar that rotates around a fixed point, called a fulcrum. They reduce the amount of work needed to lift a heavy object. Sliders move from side to side or up and down, and are often used to make moving parts in books. Axles are shafts on which wheels can rotate to make a moving vehicle. Cams are devices that can convert circular motion into up-and-down motion. Cam mechanisms consist of an axle, a cam and a follower. The cam is fixed to the axle and the follower sits on the cam. When the axle is rotated, the follower moves up and down, following the shape of the cam. Cams are used	Use tools safely for cutting and joining materials and components. Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.
3. Can you predict and test the movement of different shaped cams?	Children to learn that different shaped cams produce different patterns of movement in the follower. A pear cam makes the follower stationary for half a turn, then it gently rises and falls. It is used for carousel horses. An off-centre circular cam produces a smooth, continuous up and down movement. It is used for steam engine pistons. A heart cam makes a jerky, irregular up and down movement. A snail cam makes the follower stationary for half a turn, then gently rise and quickly fall.	Explore and use a range of mechanisms (levers, sliders, axles, wheels and cams) in models or products.
4. Can you design a volcano automated toy?	Children to learn that different materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. Automata are machines that seem to move on their own and are intended to intrigue and delight an audience.	Develop design criteria to inform a design. Plan which materials will be needed for a task and explain why.
5. Can you create a volcano automated toy?	Children to learn that specific tools can be used for cutting, such as saws. Wood can be joined using glue, nails, staples, or a combination of these. Safety rules must be followed to prevent injury from sharp blades. These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision.	Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. Use tools safely for cutting and joining materials and components. Make working models with simple mechanisms or electrical circuits.
6. Can you evaluate your automated toy?	Children to learn that asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of the model.	Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.

Themes

Food	
Broadening horizons	
Innovation	Children will now combine all the mechanism they have learnt about in Y1 & Y2 (leavers, sliders, axles, wheels, linkages) to make a more complex automated child's toy. Children will use more advanced tools such as craft knives.

Outcome	Character Traits	Stickability	WOW
<ul style="list-style-type: none"> To make a child's automated toy (volcano theme) 	Ambitious Articulate Resilient	Recap key vocabulary and skills learnt	Show children a video of automated toys to inspire them Display for whole school showcase once finished

Diversity in the Curriculum

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about the purpose, structure and design features of greenhouses, and compares the work of two significant greenhouse designers. They learn techniques to strengthen structures and use tools safely. They use their learning to design and construct a mini greenhouse. 	Appearance	The way something looks	greenhouse	A building with glass walls and a class roof	History—Learn about great artists, architects and designers in history. Science—materials and their properties Science—Plants, nutrition and reproduction
	frame	A basic shape that outlines a structure	investigate	To look carefully and closely as to learn facts	
	structure	Anything made up of parts held together in a particular way.	strengthened	To gain strength; grow stronger	

Lessons Sequence	Key Knowledge	Disciplinary Knowledge / Skills
1. Can you investigate how different products are designed for different purposes?	Children will learn that particular products have been designed for specific tasks, such as nail clippers, the spinning top and the cool box. Children will learn that a greenhouse is a building where plants can grow in a warm and protected environment. Greenhouses let light in through transparent or translucent walls and roofs. Windows, vents or fans provide ventilation.	Explain how an existing product benefits the user.
2. Can you compare the work of two significant greenhouse designers?	Children will learn about Sir Joseph Paxton (designer of the great conservatory—Chatsworth house) and Sir Nicholas Grimshaw (designer of biomes at the Eden project.)	To compare the work of two significant greenhouse designers
3. Can you create a strengthened frame structure?	Children will learn that Shell structures are hollow, 3-D structures with a thin outer covering, such as a box. Frame structures are made from thin, rigid components, such as a tent frame. The rigid frame gives the structure shape and support. Diagonal struts can strengthen the structure. Diagonal struts create triangular shapes within a frame structure. Adding diagonal struts adds strength and stability. Diagonal struts create triangular shapes within a frame structure. Adding diagonal struts adds strength and stability.	Create shell or frame structures using diagonal struts to strengthen them.
4. Can you use tools safely to cut and join materials?	Children will learn that Specific tools can be used for cutting, such as saws. Wood can be joined using glue, nails, staples, or a combination of these. Safety rules must be followed to prevent injury from sharp blades. These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision. A hot glue gun can join materials, including wood, some	Use tools safely for cutting and joining materials and components.
5. Can you explore different materials and select the best material for building your green-	Children will learn that Materials for a specific task must be selected on the basis of their properties. These include physical properties as well as availability and cost. Children will learn that Materials, such as glass and plastic are suitable for making greenhouse roofs and walls because they are transparent, waterproof and hardwearing.	Plan which materials will be needed for a task and explain why.
6. Can you design a mini greenhouse?	Children will learn that the design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user.	Develop design criteria to inform a design.
7. Can you evaluate your greenhouse?	Asking questions can help others to evaluate their products, such as asking them whether the selected materials achieved the purpose of	Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.

Themes				Diversity in the Curriculum
Food				Sir Joseph Paxton Sir Nicholas Grimshaw
Broadening horizons	Children will continue to build their problem solving, creativity and resilience skills by building a greenhouse. Children will learn about two significant greenhouse designers from British history.			
Innovation	Children will use more complex tools e.g. hacksaws and nails. Children will explore more materials and consider their purposes for their product e.g. glass—transparent to let the sun through but also strong. They will also use a hot glue gun.			
Outcome	Character Traits	Stickability	WOW	
To create a mini-greenhouse	Articulate Resilient Curious	Recap key vocabulary and skills learnt	Show a video of different greenhouses and their contents	

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about food decay and preservation. They discover key inventions in food preservation and packaging, then make examples. The children prepare, package and evaluate a healthy snack. 	preserving	To maintain something	bacteria	A type of microorganism . Some can be	Maths—nets for 3D shapes History—how significant designers throughout history have designed different way in which to store and preserve food Geography—different climates are suited to different food growth
	microorganisms	Living things too small not to be seen with	food poisoning	An illness caused by eating contaminated	
	pasteurising	Milk is heated to a high temperature to kill the microorganisms and then quickly cooled.	fungi	Group of living things; mushroom, mould	
	drying	Moisture is removed from foods, which stops microorganisms from growing.	pickling	Food is placed in a liquid, such as vinegar or brine, that prevents oxygen from reaching microorganisms in the food.	
	salting	Foods are covered with salt, which removes moisture so that microorganisms cannot grow.	canning	Foods are sealed in cans, which are heated to kill the microorganisms in the food.	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Why was the 'use by' date invented?	They will learn that food packaging plays an important role in keeping foods fresh. The 'use by' date shows when the food is no longer safe to eat. The 'best before' date shows the date after which the food will lose some flavour or texture.	Explain how and why a significant designer or inventor shaped the world.
2. How does food packaging help to preserve and protect food?	Children will learn that significant designers and inventors can shape the world. Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable. Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the United States of America.	Investigate and identify the design features of a familiar product. Explain how and why a significant designer or inventor shaped the world. Identify and name foods that are produced in different places in the UK and beyond.
3. What types of food could your packaging be used for?	Children will learn that most cardboard packaging is produced from a net. Packages can be strengthened by using thicker cardboard or multiple layers. A prototype is a mock-up of a design that will look like the finished product but may not be full size or made of the same materials. Shell and frame structures can be strengthened by gluing several layers of card together, using triangular shapes rather than squares, adding diagonal support struts and using 'Jinks' corners (small, thin pieces of card cut into a right-angled triangle and glued over each joint to straighten and strengthen them). Annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.	Use annotated sketches and exploded diagrams to test and communicate their ideas. Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.
4. What makes a snack healthy?	Children will learn that cooking techniques include baking, boiling, frying, grilling and roasting. Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk.	Identify and use a range of cooking techniques to prepare a simple meal or snack. Design a healthy snack or packed lunch and explain why it is healthy.
5. How can a healthy snack be packaged?	Children will learn that different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season. Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk. Foods need packaging to keep them fresh, safe to eat and free from damage. Food packaging also provides nutritional information about the food inside, 'use by' and 'best before' dates, and the materials and recyclability of the packaging.	Design a healthy snack or packed lunch and explain why it is healthy. Choose from a range of materials, showing an understanding of their different characteristics.
6. What information needs to be on the packaging?	Children will learn that chemicals are used in the home every day. They include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken. Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink.	Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray. Design a healthy snack or packed lunch and explain why it is healthy.
7. Did your packaging keep the	Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the	Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements

Themes		Diversity in the Curriculum
Food	Children will now start to think about food storage and how we keep food fresh. Children will create a healthy snack and also create packaging for this. They need to consider the buyer and how they can attract the buyer to their product but also need to make sure that key information for the food product is included on the packaging.	Ancient Egypt—food drying French inventor - Nicolas Appert Scottish scientist, William Cullen American inventor—Jacob Perkins French chemist - Louis Pasteur Nadiya Hussein
Broadening horizons		
Innovation		

Outcome	Character Traits	Stickability	WOW
To make and package a healthy snack.	Curious Articulate	Recap key vocabulary and skills learnt	Show a range of food packaging

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about home furnishings and the significant designer William Morris. They learn techniques for decorating fabric, including block printing, hemming and embroidery and use them to design and make a pencil case. 	Fabric	a cloth made by knitting or weaving together fibres.	Polyester	A synthetic material	Science—properties of different materials
	Natural	Not made by humans	Silk	Natural, soft material	
	Synthetic	Made by humans	Hem	A border of a cloth made by folding back an edge and sewing it down.	
	Running stitch	a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth	sewing	Using a needle and thread to attach pieces of fabric together	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you explore different fabrics and explain their properties?	Children will learn that a comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. Fabrics can be natural or synthetic. Natural fabrics include cotton, silk and wool. Synthetic fabrics include Lycra, polyester and nylon.	Choose from a range of materials, showing an understanding of their different characteristics. Create and complete a comparison table to compare two or more products.
2. Can you explore and discuss the design features of everyday products?	Children will learn that design features include purpose and function, appearance, quality, material, size, colour, pattern, embellishment, durability and usability.	Create and complete a comparison table to compare two or more products. Investigate and identify the design features of a familiar product.
3. Who is William Morris?	Children will learn that William Morris was a British textile designer, artist and socialist activist associated with the British Arts and Crafts Movement. He was a significant contributor to the revival of traditional British textile arts and methods of production.	Explain how and why a significant designer or inventor shaped the world.
4. Can you create a William Morris inspired block print?	Children will learn that block printing techniques and fabric paint are used to create decorative, repeated patterns on fabrics. Different printmaking techniques include monoprinting, engraving, etching, screen printing and lithography.	Combine a variety of printmaking techniques and materials to create a print on a theme. Create detailed decorative patterns on fabric using printing techniques.
5. Can you design a William Morris inspired fabric?	Children will learn that annotated sketches and exploded diagrams show specific parts of a design, highlight sections or show functions. They communicate ideas in a visual, detailed way.	Use annotated sketches and exploded diagrams to test and communicate their ideas.
6. Can you create a William Morris inspired fabric?	Children will learn that useful tools for cutting include scissors, craft knives, junior hacksaws with pistol grip and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed. Joining tools to use with fabric include needles, pins and clips, cutting tools include a variety of scissors such as pinking shears, finishing tools include an iron and ironing board. Joining tools to use with fabric include needles, pins and clips, cutting tools include a variety of scissors such as pinking shears, finishing tools include an iron and ironing board.	Use a range of stitches to add detail and texture to fabric or mixed-media collages.
7. Can you sew a hem?	Children will learn that a hem runs along the edge of a piece of cloth or clothing. It is made by turning under a raw edge and sewing to give a neat and quality finish.	Hand sew a hem or seam using a running stitch.
8. Can you create an embroidery embellishment?	Children will learn that stitches include running stitch, cross stitch and blanket stitch. Embroidery stitches, such as scatter stitches, satin stitch and back stitch, embellish fabric.	Select, name and use tools with adult supervision.
9. Can you evaluate your product?	Children will learn that evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made.	Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.

Themes		Diversity in the Curriculum
<i>Food</i>		- To learn about William Morris—a British designer
<i>Innovation</i>	Children will now continue to enhance their sewing skills by sewing a more complex product (pencil case). They will use a running stitch and also create a hem. They will sew on a Velcro fastening. Children will also embroider an embellishment to add to their pencil case. Resilience, creativity and problem solving.	
<i>Broadening horizons</i>	Children will now learn about the history of printing—block printing. They will learn about the famous British designer, William Morris.	

Outcome	Character Traits	Stickability	WOW
To create a pencil case using William Morris inspired motif patterns.	Articulate Resilient	Recap key vocabulary and skills learnt	Begin the unit by showing the children a variety of William Morris' work.

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about simple machines, including wheels, axles, inclined planes, pulleys and levers, exploring how they helped ancient builders to lift and move heavy loads. 	Inclined plane	A ramp that assists moving heavy objects up and down heights.	lever	Used in machines to increase force	History—ancient civilisations
	axle	A rod passing through the centre of a wheel	gears	Rotating wheels that have teeth that slot together. They rotate.	
	cam	A rotating piece in a mechanical linkage	pulley	A rope looped over a wheel which is used to lift heavy objects	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you identify the purposes of simple machines?	Children will learn mechanisms can be used to add functionality to a model. Pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures. Simple machines make physical jobs easier by changing the strength or direction of a force. There are six simple machines: pulley; lever; wheel and axle; wedge; inclined plane; and screw. Simple machines can be combined to make complex, compound machines.	Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products
2. Can you explore and use simple machines?	Children will learn that mechanisms can be used to add functionality to a model. Simple machines make physical jobs easier by changing the strength or direction of a force.	Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products.
3. Can you make a simple machine?	Children will learn about the characteristics of materials, such as rigidity, strength and smoothness will affect the success of a working model.	Choose from a range of materials, showing an understanding of their different characteristics.
4. Can you design and build a prototype machine to help the ancient Egyptian tomb builders move and lift heavy stones to make pyramids?	Children will learn that simple machines including pulleys, levers, wheels and axles and inclined planes can be combined to make a machine that can move heavy objects.	Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models.
5. Can you share and evaluate your model?	Children will learn that evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made.	Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.

Themes		Diversity in the Curriculum
Food		- To learn about the ancient civilisation (ancient Sumer, ancient Egypt and the Indus Valley civilization) and the original inventors of pyramids and tombs.
Broadening horizons	Children will now learn about how people of 3 ancient civilisations designed 'original machines' to help them lift stones for building pyramids and tombs.	
Innovation	Children will learn about gears. Children will now combine their knowledge of the different mechanisms to create a stone lifting machine.	

Outcome	Character Traits	Stickability	WOW
To create a stone lifting machine to help the Egyptian tomb builders	Ambitious Articulate Resilient Curious	Recap key vocabulary and skills learnt	Share a video of different machine that make jobs easier

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about pneumatic systems. They experiment with pneumatics before designing, making and evaluating a pneumatic machine that performs a useful function. 	culture	Beliefs and behaviours that are traditionally practiced by a group of people.	Jack	A device for lifting a heavy object	Geography—sow, grow and farm
	pneumatic	Using air to move	jackhammers	A pneumatic hammer or drill	
	mechanism	A tool used to control motion	Function	The purpose of the object	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you carry out a series of experiments using pneumatic systems?	Children will learn that culture is the language, inventions, ideas and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan. The design of products needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures. A pneumatic system uses air to exert a force. This force is used in pneumatic jacks to lift vehicles, in paint sprayers to force paint out at high speed, in jackhammers to break up pavements and in train and bus brakes.	Use mechanical systems in their products, such as pneumatics. Explain how the design of a product has been influenced by the culture or society in which it was designed or made.
2. Can you make a box talk using a pneumatic system?	Children will test a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. Pneumatic systems use energy that is stored in compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing.	Test and evaluate products against a detailed design specification and make adaptations as they develop the product. Use mechanical systems in their products, such as pneumatics.
3. Can you make a pneumatic machine?	Children will learn that various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes. Different mechanisms and systems can work together to perform a function. A strong and stable structure is necessary to support different mechanisms in a machine.	Name and select increasingly appropriate tools for a task and use them safely. Build a framework using a range of materials to support mechanisms.
4. Can you design a pneumatic farming machine?	Children will learn that Pneumatic systems use energy that is stored in compressed air to do work, such as inflating a balloon to open a model monster's mouth. These effects can be achieved using syringes and plastic tubing. Pneumatic systems can be used to lift heavy loads, raise and lower platforms or soften a force by acting as a shock absorber.	Explain the functionality and purpose of safety features on a range of products. Use mechanical systems in their products, such as pneumatics.
5. Can you make a pneumatic farming machine?	Testing a product against the design criteria will highlight anything that needs improvement or redesign. Changes are often made to a design during manufacture. Materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together using a variety of stitching techniques. Design is an iterative process, meaning that once an initial prototype has been designed it is continually tested and improved until the final product is deployed. https://www.youtube.com/watch?	Test and evaluate products against a detailed design specification and make adaptations as they develop the product. Select and combine materials with precision.
6. Can you evaluate your pneumatic farming machine?	Children will learn that a focus group is a small group of people whose reactions and opinions about a product are taken and studied. Evaluations can be made by asking product users a selection of questions to obtain data on how the product has met its design criteria.	Survey users in a range of focus groups and compare results.

Themes				Diversity in the Curriculum
Food				<ul style="list-style-type: none"> To look at farming machines from around the world To look closely at British farming and how British food is produced
Innovation	Children will now learn about how pneumatic powered machines work and design and create their own.			
Broadening horizons	Children will look at different machinery used in farming which is used to help produce our food. They will look in detail at pneumatic machines.			
Outcome	Character Traits	Stickability	WOW	
To make a pneumatic farming machine	Articulate Resilient Curious	Recap key vocabulary and skills learnt	Display a number of farming materials and ask the children to discuss what they do	

Curriculum Objectives

- To learn about how architectural style and technology has developed over time and then use this knowledge to design a building with specific features.

Vocabulary

Architecture	The process of designer and constructing a building	classical	Relates to ancient Greece
CAD	Computer-aided design	culture	Beliefs and behaviours that are traditionally practiced by a group
influence	To affect or change something	Marble	Type of natural stone found on earth

Links Across the Curriculum

History—Ground breaking Greeks

Lessons Sequence

- Can you study and analyse how architecture has changed throughout history?
- Can you investigate and analyse Greek architecture?
- Can you investigate and create different structures to find the strongest support framework?
- Can you create a CAD of a school building, taking inspiration from the building you have studied?
- Can you design a school building using junk modelling materials?
- Can you evaluate your building against your CAD design ideas?

Key Knowledge

Children will learn that culture is the language, inventions, ideas and art of a group of people. A society is all the people in a community or group. Culture affects the design of some products. For example, knives and forks are used in the western world, whereas chopsticks are used mainly in China and Japan. The design of products needs to take into account the culture of the target audience. For example, colours might mean very different things in different cultures. Many new designs and inventions influenced society. For example, labour-saving devices in the home reduced the amount of housework, which was traditionally done by women. This enabled them to have jobs.

Children will learn that the ancient Greeks developed the Classical form of architecture. They used columns to support roofs, which had three main orders: Doric, Ionic and Corinthian. Ancient Greek buildings were symmetrical and beautiful. Roofs had a triangular shaped part, called the pediment, and a wide horizontal part, usually decorated with a frieze, called the entablature. Greek buildings were usually made from limestone or marble.

Children will learn that various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes. Support, stiffness and stability can be created by using triangular shapes to create strong frameworks, columns to support roofs and overlapping brickwork patterns.

Children will learn that a pattern piece is a drawing or shape used to guide how to make something. There are many different computer-aided design packages for designing products. Computer-aided design (CAD) is the use of specialised computer software to design objects. CAD can help designers to create better quality, clearer designs and make changes easily. CAD designs can also be made into objects using 3-D printers.

Children will learn that various methods can be used to support a framework. These include cross braces, guy ropes and diagonal struts. Frameworks can be built using lolly sticks, skewers and bamboo canes. Materials should be cut and combined with precision. For example, pieces of fabric could be cut with sharp scissors and sewn together using a variety of stitching techniques.

Children will evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Disciplinary Knowledge / Skills

Explain how the design of a product has been influenced by the culture or society in which it was designed or made. Describe the social influence of a significant designer or inventor.

Explain how the design of a product has been influenced by the culture or society in which it was designed or made.

Build a framework using a range of materials to support mechanisms.

Use pattern pieces and computer-aided design packages to design a product.

Build a framework using a range of materials to support mechanisms. Select and combine materials with precision.

Test and evaluate products against a detailed design specification and make adaptations as they develop the product.

Themes

<i>Food</i>	
<i>Broadening horizons</i>	Children will explore the ancient Greek architecture more in-depth
<i>Innovation</i>	Children will now look at how buildings are designed and the considerations that take place in order to make strong, sturdy and longstanding buildings.

Diversity in the Curriculum

- To explore Greek architecture
- To explore buildings from different countries

Outcome

To design a strong building

Character Traits

Ambitious Articulate
Resilient Curious

Stickability

Recap key vocabulary and skills learnt

WOW

Display different buildings from different countries and ask children to discuss why they think buildings are built differently in different countries e.g. hot, cold countries

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about processed food and healthy food choices. They plan and make meals as part of a healthy daily menu, and evaluate their completed products. 	recipe	provides information to prepare a dish, including ingredients, quantities and a method. They may also contain nutritional information.	Yeast	is a leavening agent that makes bread rise.	Geography—children to look at different diets from around the world
	Proving	means to leave bread dough, which contains yeast, to rise.	Kneading	is a technique used to make bread dough.	
	Manure	a mixture of animal's feces and bedding straw	Pest-control	Getting rid of different species that are considered harmful to humans and food	
	Hand-weeding	<i>the act of removing wild plants from a place where they are not wanted</i>	Greengrocers	a shop which sells fresh vegetables and fruit to the public.	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. What is a healthy lifestyle and a healthy, balanced diet?	People's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. Products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money. There are different categories of processed foods. Ultra-processed foods have been through significant changes, have added ingredients and often a low nutritional value. A processed food is changed during preparation and includes processes, such as cooking, freezing, pasteurising, or the addition of ingredients. Pros of processed foods include convenience and availability. Cons include a lack of nutrients and unhealthy ingredients.	Create a detailed comparative report about two or more products or inventions. Analyse how an invention or product has significantly changed or improved people's lives
2. Can you compare a processed product with a homemade version	Children will learn that products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money. Ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses. Sliced bread is processed. It can contain many more ingredients than homemade bread, including preservatives and artificial ingredients.	Create a detailed comparative report about two or more products or inventions. Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
3. What are the benefits of whole foods and the differences between whole foods and pro-	Children will learn that organic produce is food that has been grown without the use of man-made fertilisers, pesticides, growth regulators or animal feed additives. Organic farmers use crop rotation, animal and plant manures, hand-weeding and biological pest control. Ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses. information.	Explain how organic produce is grown. Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
4. Can you plan a healthy day's menu for an 11-year-old child?	Children will learn that eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet.	Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet.
5. In what ways is your meal balanced and healthy?	Children will learn that ingredients can usually be bought at supermarkets, but specialist shops may stock different items. Greengrocers sell fruit and vegetables, butchers sell meat, fishmongers sell fresh fish and delicatessens usually sell some unusual prepared foods, as well as cold meats and cheeses. Techniques include preparation techniques, such as chopping, slicing, dicing, kneading and mashing, and cooking techniques, such as boiling, roasting, frying and baking.	Follow a recipe that requires a variety of techniques and source the necessary ingredients independently.
6. What modifications would you make to your recipe?	Children will learn that design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it.	Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others

Themes		Diversity in the Curriculum
Food	Children will now learn about the difference between healthy foods and processed foods	Children to explore different diets of 11-year olds and meals from around the world
Broadening horizons	Children will now learn about traditional African dishes	
Innovation		

Outcome	Character Traits	Stickability	WOW
To plan a healthy day's menu for an 11-year old	Ambitious Resilient Articulate Curious	Recap key vocabulary and skills learnt	Show flash cards of different meals. Children to discuss if they are healthy or not and why

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about remarkable engineers and significant bridges, learning to identify features, such as beams, arches and trusses. They complete a bridge-building engineering challenge to create a bridge prototype. 	engineer	a designer or builder of engines and structures	arches	a usually curved part of a structure that is over an opening and serves as a support	Geography—frozen kingdoms
	bridge	a structure built over something (as a river or a railroad) so people can cross	trusses	A framework of metal or wood bars connects the two ends of the bridge. These bars fit together in triangular shapes.	
	beams	a long heavy piece of timber or metal used especially as a main horizontal support of a building or ship	prototype	A simple model that lets you test out your idea	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. What is a bridge? Can you name any famous engineer—bridge builders?	<p>Children will learn about how people's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. The significance of a designer or inventor can be measured in various ways. Their work may benefit society in health, transport, communication, education, the built environment or technology. It may enhance culture in different areas, such as fashion, ceramics or computer games. Bridge structures have changed over time with innovations in design and materials. Significant bridges include the Menai Bridge, Clifton Suspension Bridge and Forth Bridge. Children should also explore bridge from other countries and look at how they have advanced the life of people in other societies.</p> <p>Children will learn that products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money. The four main bridge types are the beam bridge, arch bridge, truss bridge and suspension bridge. They each spread forces in different ways to remain strong and stable.</p> <p>Children will learn that strength can be added to a framework by using multiple layers. For example, corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead of square shapes because they are more rigid. Frameworks can be further strengthened by adding an outer cover. It is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.</p> <p>Children will learn that triangles are a strong shape used by engineers to add strength to a structure. When a force is applied to a triangle, it is distributed down each side, making triangles difficult to distort or collapse</p> <p>Children will learn that criteria should cover the intended use of the product, age range targeted and final appearance. Ideas can be communicated in a range of ways, including through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Children will learn that it is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability.</p> <p>Children will learn that design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process. Evaluating a product while it's being manufactured, and explaining these evaluations to others, can help to refine it.</p>	Analyse how an invention or product has significantly changed or improved people's lives. Present a detailed account of the significance of a favourite designer or inventor.
2. Can you describe the different features of bridges that make them strong?		Create a detailed comparative report about two or more products or inventions.
3. How can you make a strong paper bridge?		Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. Choose the best materials for a task, showing an understanding of their working characteristics.
4. Can you use a strong bridge using triangles and different materials?		Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. Choose the best materials for a task, showing an understanding of their working characteristics.
5. Can you design a bridge prototype?		Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways.
6. Can you make a bridge prototype?		Choose the best materials for a task, showing an understanding of their working characteristics.
7. Can you evaluate your bridge?		Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others.

Themes		Diversity in the Curriculum
Food		<ul style="list-style-type: none"> children to be shown many bridges from around the world—discuss how they have improved lives and societies
Innovation	Children will now advance their knowledge on how to strengthen, stiffen and reinforce more complex structures. They will learn about how structures can be strengthened by adding further layers.	
Broadening horizons	Children will explore how bridge structures have improved the lives of different people around the world. Children will learn about more significant designer e.g. John Baker (Morrison shelter)	

Outcome	Character Traits	Stickability	WOW
Children will create and evaluate a bridge prototype	Ambitious Articulate Resilient Curious	Recap key vocabulary and skills learnt	- children to be shown many bridges from around the world—discuss how they have improved lives and societies

Curriculum Objectives	Vocabulary				Links Across the Curriculum
<ul style="list-style-type: none"> To learn about a range of simple sewing stitches, including ways of recycling and repurposing old clothes and materials. 	Deconstruct	To take apart	Repurpose	Adapt for a different use	History—Britain at war PSHE —fast fashion—problem of today
	campaign	an organised course of action to achieve positive change.	Water proof	Something that keeps water out	
	Synthetic	Made by humans	Hem	A border of a cloth made by folding back an edge and sewing it down.	
	Running stitch	a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth	sewing	Using a needle and thread to attach pieces of fabric together	

Lessons Sequence	Substantive Knowledge / Key Knowledge	Disciplinary Knowledge / Skills
1. Can you explain how the make do and mend campaign influenced family life, fashion and the war effort in general?	Children will learn that people's lives have been improved in countless ways due to new inventions and designs. For example, the Morrison shelter, designed by John Baker in 1941, was an indoor air-raid shelter used in over half a million homes during the Second World War. It saved the lives of many people caught in bombing raids. In 1941, the British government introduced clothes rationing. This was to limit the amount of labour and materials used in clothes production, so that it could be used to support the greater war effort. Make Do and Mend was a campaign run by the Ministry of Information to encourage people to recycle and repurpose their old clothes rather than	Analyse how an invention or product has significantly changed or improved people's lives.
2. Can you deconstruct an item of clothing and investigate how they're made, what materials are used and	Children will learn that precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. Deconstructing garments identifies how they were made, the materials used and their properties.	Select appropriate tools for a task and use them safely and precisely.
3. Can you create a variety of different hand stitches?	Children will learn that precision is important in producing a polished, finished product. Correct selection of tools and careful measurement can ensure the parts fit together correctly. Hand stitches include running stitch, blanket stitch and whip stitch.	Select appropriate tools for a task and use them safely and precisely.
4. Can you repair a hole in an item of clothing?	Children will learn that it is important to understand the characteristics of different materials to select the most appropriate material for a purpose. This might include flexibility, waterproofing, texture, colour, cost and availability. Pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing.	Choose the best materials for a task, showing an understanding of their working characteristics. Pin and tack fabrics in preparation for sewing and more complex pattern work.
5. Can you use recycled materials to create a new product?	Children will learn that pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing. Fastenings hold a piece of clothing together. Types of fastenings include zips, press studs, Velcro and buttons.	Pin and tack fabrics in preparation for sewing and more complex pattern work. Use different methods of fastening for function and decoration, including press studs, Velcro and buttons.
6. Can you evaluate your final product?	Children will learn that products and inventions can be compared using a range of criteria, such as the impact on society, ease of use, appearance and value for money.	Create a detailed comparative report about two or more products or inventions.

Themes		Diversity in the Curriculum
Food		<ul style="list-style-type: none"> Learning about WW2
Broadening horizons	Children will learn about how British people repurposed clothing during WW2 and the benefits of this	
Innovation	Children will now be introduced to further stitches that they could use in their sewing work. Children to learn about recycling fabrics.	

Outcome	Character Traits	Stickability	WOW
To use recycled materials to make a new product.	Ambitious Articulate Resilient Curious	Recap key vocabulary and skills learnt	Present children with torn clothes and clothes with holes in and ask them to discuss how they would fix them