




Progression in Design and Technology




	Nursery		
	Autumn	Spring	Summer
Early Learning Goal	<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. CWM. ELG . Share their creations, explaining the process they have used. CWM. ELG 		
Unit	<p>Autumn 1: Me!</p> <p>Autumn 2: Journeys</p>	<p>Spring 1: Dinosaurs</p> <p>Spring 2: Growing and Changing</p>	<p>Summer 1: Animals and their Babies</p> <p>Summer 2: Heroes and Adventurers</p>
Substantive Knowledge	<ul style="list-style-type: none"> - A fire truck needs a hose and a ladder - Fire trucks have wheels - Fire trucks are red - Fire trucks are driven by fire fighters when people need help. - Boats float on water. - Boats can be made in different ways - Boats can be powered in different ways. - Boats have to be curved to cut through the water. - Boats cannot let water in. - Boats can be used in lots of different ways. 	<ul style="list-style-type: none"> - Some of our food grows as plants. - Fruit and vegetables have different flavours. - People like different flavours to each other. - Farmers grow food for us to eat. - Fruit and vegetables grow in different places and in different ways. 	<ul style="list-style-type: none"> - Animals need shelter to keep them safe and warm - Different animals seek shelter in different places - We must protect the woodland so that animals can remain sheltered - We can help woodland grow by planting more trees. - Animals use different natural resources to make shelters - Astronauts can travel into space - Astronauts travel into space using rockets - Rockets blast out of the Earth's atmosphere - Some things in space go around the earth
Disciplinary Knowledge	<p>Planning my ideas</p> <ul style="list-style-type: none"> -I can develop and share my ideas with support from my peers or an adult. -I work with my friend, and we copy, share, and develop ideas together. -I can work independently to develop my ideas. <p>Constructing my ideas</p> <ul style="list-style-type: none"> - I can make enclosed spaces and shapes such as walls, tunnels, and houses. -I build horizontally. -I can tessellate basic shapes. -I can cover and bridge in my constructions by adding towers, roofs, bridges, and more detailed features. -I can balance items. -I can explore and add moving parts to my constructions. <p>Making Skills</p> <ul style="list-style-type: none"> -Create my own design with some details, and I begin to self-correct any mistakes. -I return to my design on another occasion to edit and improve my model. -I add details and features to enhance my model. <p>Sculpting</p> <ul style="list-style-type: none"> - I can manipulate the clay/ dough by squashing, rolling, pinching, twisting and cutting. - I can make something and give meaning to it. <p>Joining Techniques</p> <ul style="list-style-type: none"> - Joins items using tapes - masking and Sellotape - cutting lengths needed. - Joins items in a variety of ways, Sellotape, hole punches, string, glue, masking tape and ribbon. <p>Using scissors</p> <ul style="list-style-type: none"> - I can snip the paper and move the scissors forward. - I am beginning to cut along the paper with support from a helping hand holding the paper. <p>Sewing</p> <ul style="list-style-type: none"> - I can begin to use the skill of sewing over and under to make a running stitch with 1:1 support. - I can begin to use the skill of sewing over and under to make a running stitch with some support. - I can complete some running stitches and work independently. <p>Cooking</p> <ul style="list-style-type: none"> - I can stir, spread, knead and shape a range of food and ingredients. - I can begin to work safely and show basic hygiene awareness, e.g., washing hands. 		
Vocabulary	<p>Emergency, urgent, fire, Fire Service, fire engine</p> <p>Boat, ship, hover craft, raft, canoe, cargo, float, sink, journey, transport, vehicle</p>	<p>Plant, vegetable, fruit, ground, crops, farmer, harvest, farm, tractor, field, seeds, chop, slice, cut, recipe, weigh</p>	<p>Harm, destroy, protect, tree, woodland, habitat, damage, design</p> <p>Astronaut, space, shuttle, explore, Earth, rocket, atmosphere</p>





Progression in Design and Technology





	Reception		
	Autumn	Spring	Summer
Early Learning Goal	. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. CWM. ELG . Share their creations, explaining the process they have used. CWM. ELG		
Unit	Autumn 1: All About Me Autumn 2: Transport	Spring 1: Space Spring 2: Growing and Changing	Summer 1: Kings and Queens Summer 2: Stories from the Past
Substantive Knowledge	<ul style="list-style-type: none"> - Transport is a word used to describe vehicles we can travel in. - We must stay safe when we travel around - There are different kinds of land transport. - There are different types of water transport. - There are different types of air transport 	<ul style="list-style-type: none"> - Scientists can send robots into space - In the past, astronauts went to the moon - Mars Rover is exploring Mars and is taking pictures of its surface. 	<ul style="list-style-type: none"> - Buckingham Palace is a special place. - When the King is visiting a palace, the Royal Standard flies. - The King's Guards wear a special uniform and protect the King. - Stories can teach us about the past. - The story of St George and the Dragon can teach us about bravery. - Ancient Greeks lived a long time ago
Disciplinary Knowledge	<p>Planning my ideas</p> <ul style="list-style-type: none"> - I can plan and create collaboratively, sharing my ideas with my peers and developing my ideas further. - I can carefully develop and share my ideas, experiences, and imagination independently or collaboratively. <p>Constructing my ideas</p> <ul style="list-style-type: none"> -I can adapt and improve my models with added features. I add improvements to ensure stability, scale and that it fits the purpose. -I can design, build, review and adapt my constructions to ensure they fit the purpose. -I combine materials, shapes, and textures to add details and complexity. -I can work on a large and small scale. <p>Making Skills</p> <ul style="list-style-type: none"> - I review my own work. I discuss strengths and areas for improvement. I make considered improvements. <p>Sculpting</p> <ul style="list-style-type: none"> - I can make something with clear intentions from start to finish. - I use a variety of techniques, shapes and shapes to sculpt. -I can carefully select additional materials to incorporate and enhance my model. <p>Joining Techniques</p> <ul style="list-style-type: none"> -Joins items which are cut, torn and glued. -Uses techniques such as flanges, slots, braces, tabs and ties, with some support. <p>Using scissors</p> <ul style="list-style-type: none"> - I can cut a curved line. - I can cut a circle shape, cutting around the shape with round edges. -I can cut out a square shape. -Joins items using hot glue guns. -Joins items using hammers and nails. <p>Sewing</p> <ul style="list-style-type: none"> - I can independently sew a series of running stitches independently, and I can attempt a cross stitch with support. - I can join two fabrics with various stitches. <p>Cooking</p> <ul style="list-style-type: none"> - I can measure and weigh food items, non-standard measures, e.g., spoons, cups. 		
Vocabulary	Transport, journey, vehicle, distance, bus, car, train, taxi, tram, ferry, plane, rules, safety, visible, sailor, captain, driver, pilot, axle, wheel, turn, move, design	Moon landing, astronaut, Neil Armstrong, Apollo 11, crater, surface, Rover, Perseverance, signs of life, research	Buckingham Palace, Palace, castle, Royal Standard, Architect, Design Legend, St George, dragon, brave, true, protect, heroes, Greeks, Gods, Greece





Progression in Design and Technology



Year One			
	Autumn	Spring	Summer
Unit	 Moving vehicles		 Fruit salad
Disciplinary Knowledge			
Designing	<ul style="list-style-type: none"> Begin to design functional and purposeful products based on a simple design brief. Generate, develop and communicate their ideas through talking and drawing. Begin to consider the audience and purpose for their product. 		<ul style="list-style-type: none"> Begin to design functional and purposeful products based on a simple design brief. Generate, develop and communicate their ideas through talking and drawing. Begin to consider the audience and purpose for their product.
Making	<ul style="list-style-type: none"> Attach wheels and axles using simple joining techniques. Select appropriate materials to use including construction materials and ingredients. Select appropriate simple tools to use to perform simple tasks. Use simple techniques for cutting, shaping and joining the materials for their product. Explore a variety of techniques to cut, join and shape materials. 		<ul style="list-style-type: none"> Select appropriate materials to use including construction materials and ingredients. Select appropriate simple tools to use to perform simple tasks.
Evaluating	<ul style="list-style-type: none"> Begin to explore a range of existing products, sharing their likes and dislikes. Say what they like and don't like about their products. Suggest ways that they could have made their product better 		<ul style="list-style-type: none"> Begin to explore a range of existing products, sharing their likes and dislikes. Say what they like and don't like about their products. Suggest ways that they could have made their product better
Technical knowledge	<ul style="list-style-type: none"> Understand how a wheel and axle work. Know and recall where wheels and axles are used in everyday life. Simple joining techniques using cellotape, masking tape, Prit Stick, PVA, sewing. Understand how a product can be made stronger. 		
Nutrition			<ul style="list-style-type: none"> Understand and discuss where common food comes from, including: milk, vegetables, milk, fish, fruit, yoghurt, butter, bread. Understand the term healthy. Identify and sort common foods into simple food groups. Begin to use simple food preparation techniques, such as chopping, mixing, combining, measuring. Understand the term seasonality.
Safety	<ul style="list-style-type: none"> Articulate how to keep themselves and others safe when working. Begin to identify potential dangers as they arise. 		<ul style="list-style-type: none"> Use simple strategies to prepare cold foods safely, including: washing fruit and vegetables, washing hands and cleaning surfaces. Use simple tools safely, including, scissors and ageappropriate knives. Articulate how to keep themselves and others safe when working. Begin to identify potential dangers as they arise.
Substantive Knowledge			
	<ul style="list-style-type: none"> -a vehicle is something that moves and has different purposes. -a design brief should have a clear purpose -wheels and axle move freely and the axle is attached to the chassis (the vehicle body). -understand how to keep wheels on the axle. -recognise different designs and different materials, including everyday objects that axles and wheels can be made from. -recognise several different ways to fix the axle to the main body of the vehicle. -know what a successful vehicle should include. 		<ul style="list-style-type: none"> - discuss what a fruit is. - what a fruit salad is. - Know some of the ingredients that go into everyday items - introduced to the term ingredient and what this means. - fruit comes from a plant. - can name a knife, chopping board, peeler, apron, wooden spoon and mixing bowl. - what the term evaluation means
Vocabulary	Axle; wheel; chassis; axle holder; dowel; vehicle; design; design brief; design criteria		Fruit; knife; chop; slice; peel; prepare; select; mix; juice; fruit salad; seasonality; healthy





Progression in Design and Technology






Year Two			
	Autumn	Spring	Summer
Unit	Firework pictures	Puppets	Lighthouses
Disciplinary Knowledge			
Designing	<ul style="list-style-type: none"> Design functional, purposeful and appealing products based on a simple design brief. Generate, develop, model and communicate their ideas through talking, drawing and making templates and mock ups. Consider the audience and purpose of their product in their design. 	<ul style="list-style-type: none"> Design functional, purposeful and appealing products based on a simple design brief. Generate, develop, model and communicate their ideas through talking, drawing and making templates and mock ups. Consider the audience and purpose of their product in their design. 	<ul style="list-style-type: none"> Design functional, purposeful and appealing products based on a simple design brief. Generate, develop, model and communicate their ideas through talking, drawing and making templates and mock ups. Use IT to plan products that they are designing. Consider the audience and purpose of their product in their design.
Making	<ul style="list-style-type: none"> Select appropriate materials to use including construction materials (cardboard, paper) and textiles. Select appropriate simple tools to use perform simple tasks. Use simple techniques for cutting, shaping, finishing and joining the materials for their product. Explore a variety of techniques to cut, join, finish and shape materials. Use cutting and joining techniques with a wider variety of materials. 	<ul style="list-style-type: none"> Use sewing needles to create a running stitch. Join two pieces of material together. Select appropriate materials to use including construction materials (cardboard, paper) and textiles. Select appropriate simple tools to use perform simple tasks. Use simple techniques for cutting, shaping, finishing and joining the materials for their product. Explore a variety of techniques to cut, join, finish and shape materials. Use cutting and joining techniques with a wider variety of materials. 	<ul style="list-style-type: none"> Select appropriate materials to use including construction materials (cardboard, paper) and textiles. Select appropriate simple tools to use perform simple tasks. Use simple techniques for cutting, shaping, finishing and joining the materials for their product. Explore a variety of techniques to cut, join, finish and shape materials. Use cutting and joining techniques with a wider variety of materials.
Evaluating	<ul style="list-style-type: none"> Explore a range of existing products and evaluate these against their intended use and audience. Evaluate their products success against a simple design brief. Begin to evaluate their work taking into consideration the intended audience. Suggest ways that they could improve their product, relating this to the design brief and key technical knowledge. 	<ul style="list-style-type: none"> Explore a range of existing products and evaluate these against their intended use and audience. Evaluate their products success against a simple design brief. Begin to evaluate their work taking into consideration the intended audience. Suggest ways that they could improve their product, relating this to the design brief and key technical knowledge. 	<ul style="list-style-type: none"> Explore a range of existing products and evaluate these against their intended use and audience. Evaluate their products success against a simple design brief. Begin to evaluate their work taking into consideration the intended audience. Suggest ways that they could improve their product, relating this to the design brief and key technical knowledge.
Technical knowledge	<ul style="list-style-type: none"> Simple joining techniques using cellotape, masking tape, Prit Stick, PVA, sewing. Understand how a product can be made stronger, stiffer and more stable. Explore and use levers, sliders and dials. 	<ul style="list-style-type: none"> Simple joining techniques using cellotape, masking tape, Prit Stick, PVA, sewing. Understand how a product can be made stronger, stiffer and more stable. Use running stitch to attach two pieces of material together 	<ul style="list-style-type: none"> Simple joining techniques using cellotape, masking tape, Prit Stick, PVA, sewing. Understand how a product can be made stronger, stiffer and more stable.
Nutrition			
Safety	<ul style="list-style-type: none"> Articulate how to keep themselves and others safe when working. Begin to identify potential dangers as they arise. 	<ul style="list-style-type: none"> Articulate how to keep themselves and others safe when working. Begin to identify potential dangers as they arise. 	<ul style="list-style-type: none"> Articulate how to keep themselves and others safe when working. Begin to identify potential dangers as they arise.
Substantive Knowledge			
	<ul style="list-style-type: none"> Know the difference between the design brief and the design criteria. The criteria provide the steps required to meet the brief. Know what is meant by the term 'mechanism'. Know what a slider is and how they work, including the parts needed. Know of a variety of existing products where moving parts using levers, dials and sliders are incorporated e.g., books, cards and so on. Know what tools are needed to create sliders in a product. Know the cutting and joining techniques needed to incorporate sliders into a product. Know what a dial is and how they work. Know what tools are needed to create dials in a product. Know what cutting and joining techniques are needed to incorporate dials into products. 	<ul style="list-style-type: none"> Know how to join two pieces of fabric, using running stitch. Know how to thread a needle and that the hole in the needle is known as the eye. Know how to tie a knot in thread. Know the difference between string puppets and sewn puppets. Know the difference between cotton and wool. Know the names of relevant materials, including binca and felt. Know when to use thicker or thinner thread to attach different materials and items. 	<ul style="list-style-type: none"> Know that lighthouses are structures that project beams of light to prevent ships from crashing into coastlines. Know that the beams of light rotate. Know that lighthouses are stable and stand on their own. Know that the beams must be able to turn. Know the design features of a range of lighthouses. Know the materials; cutting and joining techniques; and finishing techniques of a model lighthouse. Know that the holes for an axel needed to be inline to prevent sticking.
Vocabulary	Design, criteria, dial, mechanism, lever, slider, attach, build quality, material, component, link, sturdy, moveable, construct.	Puppet, puppeteer, felt, running stitch, threading, needle, knot, joining, audience, evaluate.	Structure, windmill, sturdy, vanes, sails, base, axle, attach, prototype, template.





Progression in Design and Technology



			
Year Three			
Unit	Autumn	Spring	Summer
			
Disciplinary Knowledge			
Designing	<ul style="list-style-type: none"> Identify the purpose and audience for their product. Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate their product using increasingly more formal sketches and annotations. Consider the order of construction and make simple plans for this. Begin to make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Begin to research and rehearse design techniques outlined in the technical progression 		<ul style="list-style-type: none"> Identify the purpose and audience for their product. Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate their product using increasingly more formal sketches and annotations. Consider the order of construction and make simple plans for this. Begin to make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Begin to research and rehearse design techniques outlined in the technical progression
Making	<ul style="list-style-type: none"> Begin to use planned specifications, using standard measurements. Begin to discuss a variety of joining techniques beyond simple glues e.g. fasteners. Begin to follow intended plans in sequence. Follow intended plans in sequence and begin to discuss guidance from adults on how challenges may be overcome. Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. Begin to consider how much of each material will be needed. 		<ul style="list-style-type: none"> Begin to use planned specifications, using standard measurements. Begin to follow intended plans in sequence. Follow intended plans in sequence and begin to discuss guidance from adults on how challenges may be overcome. Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. Use a growing range of techniques to shape materials e.g. slicing, chopping, cutting. Use a growing range of tools and utensils for shaping materials, including, pizza slices, simple knives, scissors. Begin to consider how much of each ingredient will be needed.
Evaluating	<ul style="list-style-type: none"> Investigate and analyse existing products and begin to evaluate them against the intended audience and purpose Begin to suggest improvements, that relate specifically to the design brief, to their products. Listen to the feedback of others. Begin to discuss how products they are studying have impacted on everyday lives. Begin to identify similarities and differences between their products and those of others. Make suggestions on how other's work could be improved. Identify the strengths in others work. 		<ul style="list-style-type: none"> Investigate and analyse existing products and begin to evaluate them against the intended audience and purpose Begin to suggest improvements, that relate specifically to the design brief, to their products. Listen to the feedback of others. Begin to discuss how products they are studying have impacted on everyday lives. Begin to identify similarities and differences between their products and those of others. Make suggestions on how other's work could be improved. Identify the strengths in others work.
Technical knowledge	<ul style="list-style-type: none"> Understand how more complex levers and pulleys can make objects move. Explore how to include levers and pulleys in their designs. Identify ways to strengthen and reinforce more complex structures that include levers and pulleys. Understand how to use a wider range of linkage devices to construct more complex structures. 		<ul style="list-style-type: none"> Understand how to knead a dough.
Nutrition			<ul style="list-style-type: none"> Begin to apply to the principles of a healthy and balanced diet to planned savoury dishes. Prepare and cook a savoury dish. Chop, grate, slice, shape, mix, combine, knead ingredients. Prepare bread dough and understand the role of kneading and resting in the process. Understand seasonality and how some ingredients are grown and reared in the UK. Begin to explore a widening range of ingredients, including (allergy appropriate): vegetables (peppers, onions, sweetcorn), meats and cheeses. Begin to understand the process for some foods and where they come from e.g. cheese originating from milk, or bread from wheat – to flour- to bread.
Safety	<ul style="list-style-type: none"> Identify potential dangers before beginning a process and recognise dangers as they arise. Begin to use a wider range of age-appropriate tools including knives. Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT. 		<ul style="list-style-type: none"> Understand the importance of preparing a food preparation area. Identify ways to maintain personal hygiene before preparing and cooking food. Begin to identify, with adult support, how to operate an oven and handle hot equipment. Identify potential dangers before beginning a process and recognise dangers as they arise. Begin to use a wider range of cooking utensils, including: sharper knives, grates, spoons, mixing bowls, Begin to use a wider range of age-appropriate tools including knives. Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT.
Substantive Knowledge			
	<ul style="list-style-type: none"> Know the role of levers in real life circumstances, such as in industry. Know what is meant by 'fulcrum'. Know how pulleys are used in real life applications – such as flagpoles. Know the direction of movement and force created in pulleys. Know how to use levers and pulleys in a prototype. Know how to strengthen and stabilise a product. 		<ul style="list-style-type: none"> Know existing soup products that are available and common ingredients they contained. What soup commonly consists of. Why and when people tend to eat soup. Some basic nutritional information about soups. Know common flavours, textures and appearances of soup. Know where vegetables come from and importance of seasonality. Know what is meant by a 'carbon footprint' and why it is important to try to reduce it. Know what out local produce are. Know how to vary ingredients for different dietary requirements (e.g. vegetarians/ vegans etc). How to use cooking tools correctly and safely. How to work with heat safely.
Vocabulary	Design, criteria, prototype, mechanism, lever, fulcrum, force, direction of movement, link, pulley, construct.		Seasonality, sustainability, market research, texture, carbon footprint, survey, questionnaire, packaging, nutrition, balanced diet, cross contamination, hygiene.





Progression in Design and Technology



Year Four			
	Autumn	Spring	Summer
Unit			
Disciplinary Knowledge			
Designing	<ul style="list-style-type: none"> Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate their product using increasingly more formal sketches and annotations. Consider the order of construction and make simple plans for this. Begin to make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Begin to research and rehearse design techniques outlined in the technical progression Identify the purpose and audience for their product. Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams and prototypes. Identify from a range of planned ideas, which one will be taken forward. Plan the order of construction record simple step by step plans for this. Make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Research and rehearse design techniques outlined in the technical progression Begin to seek the views and opinions of the intended audience. Begin to identify where problems might arise and how we could overcome them. 	<ul style="list-style-type: none"> Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate their product using increasingly more formal sketches and annotations. Consider the order of construction and make simple plans for this. Begin to make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Begin to research and rehearse design techniques outlined in the technical progression Identify the purpose and audience for their product. Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams and prototypes. Identify from a range of planned ideas, which one will be taken forward. Plan the order of construction record simple step by step plans for this. Make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Research and rehearse design techniques outlined in the technical progression Begin to seek the views and opinions of the intended audience. Begin to identify where problems might arise and how we could overcome them. 	<ul style="list-style-type: none"> Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate their product using increasingly more formal sketches and annotations. Consider the order of construction and make simple plans for this. Begin to make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Begin to research and rehearse design techniques outlined in the technical progression Identify the purpose and audience for their product. Begin to develop an understanding of design briefs and their purpose. Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams and prototypes. Identify from a range of planned ideas, which one will be taken forward. Plan the order of construction record simple step by step plans for this. Make suggestions on how we might begin the design process. Begin to use existing products to help inform the intended design. Research and rehearse design techniques outlined in the technical progression Begin to seek the views and opinions of the intended audience. Begin to identify where problems might arise and how we could overcome them.
Making	<ul style="list-style-type: none"> Use sewing needles to create a cross stitch. Create patterns and designs using coloured thread. Use planned specifications, using standard measurements. Follow intended plans in sequence. Discuss with adults how challenges and problems could be overcome. Begin to make minor changes to plans to enhance the final product. Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. Begin to consider how much of each material/ ingredient will be needed. 	<ul style="list-style-type: none"> Use planned specifications, using standard measurements. Follow intended plans in sequence. Discuss with adults how challenges and problems could be overcome. Begin to make minor changes to plans to enhance the final product. Begin to make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joints and measurements. Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. Begin to consider how much of each material/ ingredient will be needed. 	<ul style="list-style-type: none"> Use planned specifications, using standard measurements. Follow intended plans in sequence. Discuss with adults how challenges and problems could be overcome. Begin to make minor changes to plans to enhance the final product. Begin to make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joints and measurements. Use known electrical items (based on the science curriculum) to enhance their product and achieve the design brief. Begin to consider finishing techniques that might improve the overall aesthetic of their product, e.g. selecting paints, decorative items, layout on a plate or the ingredients on top a pizza. Begin to consider how much of each material/ ingredient will be needed.
Evaluating	<ul style="list-style-type: none"> Investigate and analyse existing products and evaluate them against the intended audience and purpose Suggest improvements, that relate specifically to the design brief, to their products. Listen to the feedback of others. Begin to discuss how products they are studying have impacted on everyday lives. Begin to identify similarities and differences between their products and those of others. Make suggestions on how other's work could be improved, beginning to link this to the design criteria. Identify the strengths in others work, beginning to link this to the design criteria. 	<ul style="list-style-type: none"> Investigate and analyse existing products and evaluate them against the intended audience and purpose Suggest improvements, that relate specifically to the design brief, to their products. Listen to the feedback of others. Begin to discuss how products they are studying have impacted on everyday lives. Begin to identify similarities and differences between their products and those of others. Make suggestions on how other's work could be improved, beginning to link this to the design criteria. Identify the strengths in others work, beginning to link this to the design criteria. 	<ul style="list-style-type: none"> Investigate and analyse existing products and evaluate them against the intended audience and purpose Suggest improvements, that relate specifically to the design brief, to their products. Listen to the feedback of others. Begin to discuss how products they are studying have impacted on everyday lives. Begin to identify similarities and differences between their products and those of others. Make suggestions on how other's work could be improved, beginning to link this to the design criteria. Identify the strengths in others work, beginning to link this to the design criteria.
Technical knowledge	<ul style="list-style-type: none"> Use cross stitch to create a product for a clear audience and purpose. Explore a widening variety of joining techniques, including: hinge, slot, flange and gusset. 	<ul style="list-style-type: none"> Use cross stitch to create a product for a clear audience and purpose. Identify how to strengthen, stiffen and stabilise a product that has multiple tiers. Explore a widening variety of joining techniques, including: hinge, slot, flange and gusset. 	<ul style="list-style-type: none"> Use cross stitch to create a product for a clear audience and purpose. Explore a widening variety of joining techniques, including: hinge, slot, flange and gusset. Use electrical items, including, buzzers, wires, cells and bulbs to create their product.
Safety	<ul style="list-style-type: none"> how to operate an oven and handle hot equipment. Identify potential dangers before beginning a process and recognise dangers as they arise. Begin to use a wider range of cooking utensils, including: sharper knives, grates, spoons, mixing bowls, Begin to use a wider range of age-appropriate tools including knives. Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT. Begin to prepare and use needles and sewing tools safely, with adult support. 	<ul style="list-style-type: none"> Identify potential dangers before beginning a process and recognise dangers as they arise. Begin to use a wider range of cooking utensils, including: sharper knives, grates, spoons, mixing bowls, Begin to use a wider range of age-appropriate tools including knives. Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT. 	<ul style="list-style-type: none"> Identify potential dangers before beginning a process and recognise dangers as they arise. Begin to use a wider range of cooking utensils, including: sharper knives, grates, spoons, mixing bowls, Begin to use a wider range of age-appropriate tools including knives. Identify ways that they can improve their own safety and that of others for a broadening range of situations in DT.
Substantive Knowledge			
	<ul style="list-style-type: none"> Know the purpose of products created using cross stitch. Know different types of thread. Know how to thread a needle. Know what a cross stitch is. Know how to create a cross stitch. Know how to tie off a piece of thread. 	<ul style="list-style-type: none"> Know what a multi-storey board game is. Know what a range of board games have in common. Know different ways to stiffen, strengthen and reinforce a structure. Know a number of ways to join a range of materials, including: braces, slots, flange points etc. Know what is meant by 'computer aided design (CAD)' 	<ul style="list-style-type: none"> Know about a range of children's toys that make use of electrical components. Know how to make a working circuit. Know how electrical systems can enhance a product. Know the names of the key components in a circuit. Know the inhibitors that may stop a circuit from working. Know how to draw a 3D perspective of a product. Know how to conceal an electrical circuit to maintain the aesthetics of the design.
Vocabulary	Cross stitch, threading, needle, technique, binca, evaluate, finishing techniques, precision, strengthen. Diagonal, knot.	Structure, stability, reinforce, strengthen, tiers, join, composite, graphic, computer, dimension, measure.	Assemble, backboard, components, conductor, electric, insulator, function, pliers, side view.





Progression in Design and Technology





Year Five			
	Autumn	Spring	Summer
Unit			
Disciplinary Knowledge			
Designing	<ul style="list-style-type: none"> • Work collaboratively to plan and enhance their plans through discussion. • Use design briefs to ensure that their plans meet a specified criteria. • Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams, computer aided design and prototypes. • Begin to draw up specifications for their design using increasingly more accurate specifications (e.g. millimetres, millilitres) • Identify from a range of planned ideas, which one will be taken forward. • Make further improvements, following discussion, to their final product – produce final designs. • Plan the order of construction record simple step by step plans for this. • Make suggestions on how we might begin the design process. • Use existing products to help inform the intended design. • Research and rehearse design techniques outlined in the technical progression • Seek the views and opinions of the intended audience and reflect this in their product designs. • Identify where problems in production will arise and plan for ways to overcome these. • Consider how to ensure that their product is appealing and finished. 		
Making	<ul style="list-style-type: none"> • Begin to use planned specifications, using more detailed standard measurements. • Follow detailed plans in sequence and begin to overcome hurdles as they arise independently by suggesting other solutions. • Make appropriate changes to plans to enhance the final product. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring. • Use a wide range of tools and utensils to shape materials, including, saws, Stanley knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product. 	<ul style="list-style-type: none"> • Begin to use planned specifications, using more detailed standard measurements. • Follow detailed plans in sequence and begin to overcome hurdles as they arise independently by suggesting other solutions. • Use more advanced tools for constructing with stronger materials, including drills, saws, clamps. • Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles) • Make appropriate changes to plans to enhance the final product. • Make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joints and measurements. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Use a wide range of tools and utensils to shape materials, including, saws, Stanley knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product. 	<ul style="list-style-type: none"> • Begin to use planned specifications, using more detailed standard measurements. • Follow detailed plans in sequence and begin to overcome hurdles as they arise independently by suggesting other solutions. • Use more advanced tools for constructing with stronger materials, including drills, saws, clamps. • Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles) • Make appropriate changes to plans to enhance the final product. • Make things stronger, more stable and varying the stiffness by using, thickness, reinforcement, joints and measurements. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring. • Use a wide range of tools and utensils to shape materials, including, saws, Stanley knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product.
Evaluating	<ul style="list-style-type: none"> • Investigate and analyse existing products, paying particular attention to design elements such as joining techniques, materials and technical knowledge. • Draw on existing products to make decisions about their own products. • Identify strengths and area for development in their product, suggesting ways it could be improved, taking into account the intended audience's feedback. • Identify precise next steps that relate directly to the design criteria. • Discuss in detail how some products and designers have impacted on people's lives, including industry. • Compare and contrast their product with others, in relation to the design brief. • Provide detailed and accurate feedback, that relates to the design criteria to others. 		
Technical knowledge	<ul style="list-style-type: none"> • Prepare and cook hot products that require cooking via, roasting, boiling and baking. 	<ul style="list-style-type: none"> • Understand how to gears can be used to create every day products that we use in our homes and lives. • Identify how to strengthen, stiffen and stabilise more complex products, produced from a broadening range of materials (wood. Plastics) 	<ul style="list-style-type: none"> • Understand how to gears can be used to create every day products that we use in our homes and lives. • Identify how to strengthen, stiffen and stabilise more complex products, produced from a broadening range of materials (wood. Plastics)
Nutrition	<ul style="list-style-type: none"> • Chop, grate, slice, blend, mix, combine, knead, measure accurately ingredients. • Understand the terms: blend, boil, mix, dissolve, grate, steam, bake, combine. • Trial tasting and using a wider range of ingredients e.g. lentils. • Understand the principles of a balanced diet. Develop quantities of ingredients to ensure balance of a meal. • Understand the role of kneading in preparation of bread and how bread provides carbohydrates . • Prepare and cook a savoury dish requiring a wider range of skills (pizza) • Use a widening range of standardised measure for capacity and mass. • Understand seasonality of a wider range of ingredients and begin to understand the origin of some foods that are not in season in the UK. • Understand that some ingredients are reared and grown both in the UK and abroad and this is how we have a year round supply of most foods. • Begin to understand the term cross contamination and the need for separate food preparation techniques for different food groups. 		
Safety	<ul style="list-style-type: none"> • Articulate, plan and use effective strategies to prepare an area for food preparation. • Understand the importance of different chopping boards for different types of food to avoid cross contamination. • Understand in depth the importance of personal hygiene when preparing food (hands, hair etc) • Use a widening range of food preparation tools safely and independently (knives, graters, blenders, oven gloves). • Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety. • Use heating appliances, with growing independence, safely. • Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools – put these into place independently. 	<ul style="list-style-type: none"> • Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety. • Use increasingly range of wood work tools safely, including saws, clamps, hand drills and sand paper. • Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools – put these into place independently. 	<ul style="list-style-type: none"> • Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety. • Use increasingly range of wood work tools safely, including saws, clamps, hand drills and sand paper. • Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools – put these into place independently.
Substantive Knowledge			
	<ul style="list-style-type: none"> -Know about a range of pizzas and what ingredients are commonly used. -Know how the making of pizzas, and ingredients, can be adapted to meet a range of dietary requirements. -Know how to make a pizza base using dough. -Know why hygiene is so important when preparing food. -Know a range of cooking techniques, necessary for the preparation of pizzas: chopping, kneading, grating, peeling, mixing, dicing, measuring. -Know what is meant by 'market research' and how it is used in the design process. 	<ul style="list-style-type: none"> -Know what a gear is. -Know why gears are used. -Know a range of real-life objects where gears are used. -Know that small gears turn quicker but with a smaller force. -Know that large gears turn slowly with a greater force. -Know that to increase speed, connect the larger gear to the smaller gear. -Know that to change direction, join to a second gear. -Know what a spur gear is and how it works. -Know how crown gear systems are used in everyday objects (egg beaters). 	<ul style="list-style-type: none"> -Know what bird houses are, where and why they are used. -Know the key elements of a bird house (entrance/ exit/ big enough space to fit a bird, space for food/ water etc). -Know the purpose of different tools (e.g. hack saw, G clamp, glue gun, bench block etc). -Know how to saw and drill pieces of wood safely. -Know how to join different components. -Know how to reinforce components. -Know how to stiffen and strengthen a product. -Know a range of appropriate finishing techniques to embellish a design.
Vocabulary	Healthy, balanced diet, savoury, dietary requirements, nutritious, toppings, hygiene, cross-contamination, ingredients, kneading, dough.	Rotation, meshing, gear, prototype, motion, crown gear, teeth, linear movement.	Structure, joint, stable, aesthetic, materials, function, component, diagram, reinforce, specification, conservation.





Progression in Design and Technology



Year Six		
Unit	Autumn	Spring
		 Robotics
		 Football shirts
Disciplinary Knowledge		
Designing	<ul style="list-style-type: none"> • Work collaboratively to plan and enhance their plans through discussion. • Use design briefs to ensure that their plans meet a specified criteria. • Generate, develop, model and communicate multiple design ideas using increasingly more formal sketches and annotations, diagrams, exploded diagrams, computer aided design and prototypes. • Produce specifications for their design using increasingly more accurate specifications/ measurements (e.g. millimetres, millilitres) • Identify from a range of planned ideas, which one will be taken forward. • Make further improvements, following discussion, to their final product – produce final designs. • Plan the order of construction in detail, including identifying where challenges may arise. • Make suggestions on how to begin the design process. • Use existing products to inform the intended design. • Research and rehearse design techniques outlined in the technical progression. • Use technical skills proficiently. • Seek the views and opinions of the intended audience and reflect this in their product designs. • Identify where problems in production will arise and plan for ways to overcome these. • Plan how to ensure that their product is appealing and finished well. 	
Making	<ul style="list-style-type: none"> • Use planned specifications accurately, using more detailed standard measurements. • Follow detailed plans in sequence and overcome hurdles as they arise independently, by finding other solutions. • Create algorithms to program, monitor and control physical devices that children have created. • Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles) • Make appropriate changes to plans to enhance the final product. • Use a wider variety of electrical items to enhance their product and achieve the design brief – robotics. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring • Use a wide range of tools and utensils to shape materials, including, saws, Stanley knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product. 	<ul style="list-style-type: none"> • Use sewing needles to create a zig zag stitch and ladder stitch. • Join two pieces of fabric together using an 'invisible stitch'. • Enhance textile products using 'filling' e.g. foam, cotton wool. • Apply finishes techniques, such as sanding, painting, glazing, garnishing to improve the overall aesthetic of a product. • Discuss how to strength, reinforce more complex structures, using a wider variety of materials (including , wood, plastic, textiles) • Use a wide range of techniques to shape materials e.g. slicing, chopping, cutting, sawing, grating, sprinkling, scoring • Use a wide range of tools and utensils to shape materials, including, saws, Stanley knives, bread knives, hand held drills. • Organise and collect adequate amounts of appropriate materials for their product.
Evaluating	<ul style="list-style-type: none"> • Investigate and analyse existing products, paying particular attention to design elements such as joining techniques, materials and technical knowledge. • Draw on existing products to make decisions about their own products. • Identify strengths and area for development in their product, suggesting ways it could be improved, taking into account the intended audience's feedback. • Identify precise next steps that relate directly to the design criteria. • Discuss in detail how some products and designers have impacted on people's lives, including industry. • Compare and contrast their product with others, in relation to the design brief. • Provide detailed and accurate feedback, that relates to the design criteria to others. 	
Technical knowledge	<ul style="list-style-type: none"> • Use more complex electrical items, including motors, wires, control panels and cells to produce a physical product. • Use algorithms and computer programs to program, control and monitor an electrical, physical device. 	<ul style="list-style-type: none"> • Use zig zag and ladder stitch to create a product where the stitching is 'invisible'. • Use materials to enhance products for a purpose, for example: warmth, comfort.
Safety	<ul style="list-style-type: none"> • Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety. • Use heating appliances, with growing independence, safely. • Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools – put these into place independently. 	<ul style="list-style-type: none"> • Identify potential dangers before beginning a process and recognise dangers as they arise, taking appropriate steps to maintain safety. • Use heating appliances, with growing independence, safely. • Formally plan safety procedures to ensure the safety of themselves and that of others when working with DT tools – put these into place independently.
Substantive Knowledge		
	<ul style="list-style-type: none"> -Know what a robot is. -Know how robotics are used in everyday life. -Know how robotics are used for industry. -Know how to use algorithms to control a physical device. -Know what exploded diagrams are. -Know how to construct a stable, strong and physical device. -Know what an algorithm is. -Know how algorithms are used to move a physical device on a specified route. -Know what a sensor is and the different types that there are. -Know how sensors support robotics. -Know what a pseudocode is and how they respond to sensor's input. -Know how to program a robot to copy given actions. 	<ul style="list-style-type: none"> -Know why football kits are used, who uses them and why they are used. -Know what running stitch is and when it is used. -Know how and when ladder stitch is used. -Know how to make a stitch 'invisible'. -Know what is meant by 'applique' and how to use this technique.
Vocabulary	Robot, algorithm, product, decompose, program, debug, component, motor, sensor, attach, device, parameter, pseudocode.	Stitching, stuffing, running stitch, ladder stitch, kit, troubleshoot, specification, adapt, element, applique.

