

Design and Technology Long Term Overview				
Year A				
	EYFS	Year 1/2	Year 3/4	Year 5/6
Term 1	Structures:	Mechanisms:	Mechanical Systems:	Textiles:
Year A	Junk Modelling	Matching slider game	Pneumatic Toys	Stuffed Toys
Term 2	Cooking and Nutrition:		Digital World:	Structures:
Year A	Soup		Wearable Technology	Bridges
Term 3	Textiles:	Structures:	Electrical Systems:	Electrical Systems:
Year A	Bookmarks	A chair for bear	Exploring electrical products	Wobble bots
Term 4	Structures:	Textiles:	Structures:	Digital world:
Year A	Boats	Pouches	Product packaging	Monitoring Devices
Term 5		Mechanisms:	Textiles:	Cooking and Nutrition:
Year A		Fairground wheel	Fastenings	Developing A Recipe

Term 6		Cooking and Nutrition:	Nutrition and Cooking:	Mechanical Systems: Gears
Year A		Balanced diet	Eating Seasonally	and pulleys

Substantive Knowledge

Year A

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6
<u>Structures: Junk Modelling</u> Design: Making verbal plans and material choices. Developing a junk model. Make: Selecting and joining a range of materials. Using tools safely to develop a junk model. Evaluate: Giving a verbal evaluation of their own and others' junk models with adult support. Checking whether their model matches their plan.	<u>Mechanisms: Matching slider game</u> Design: Making verbal and drawn plans and material choices. Developing ideas for a moving picture or game. Make: Selecting and joining materials. Making and using a slider mechanism. Evaluate: Testing whether the slider works effectively. Checking whether the product matches their plan.	<u>Mechanical Systems: Pneumatic toys</u> Design: Making plans and material choices. Developing a design for a pneumatic toy. Make: Selecting and joining suitable materials. Constructing a pneumatic mechanism. Evaluate: Testing whether the mechanism works effectively. Checking whether the toy meets the design criteria. Making suggestions for improvement.	<u>Textiles: Stuffed Toys</u> Design: Researching existing stuffed toys. Developing a design for a particular user. Make: Creating and using accurate pattern pieces. Joining fabric using appropriate stitching techniques. Evaluate: Checking whether the toy meets the design criteria. Evaluating the quality and appearance of the finished product. Considering what could be improved. Technical Knowledge: To know that templates can be used to create

Considering what they would do differently next time. Technical Knowledge: To know that different materials have different properties and can be used for different purposes. To know that materials can be joined in different ways. Making simple suggestions to fix or improve their junk model.	Making simple suggestions for improvement. Technical Knowledge: To know that a slider is a mechanism that creates movement. To know that guides and bridges can help control movement. To know that mechanisms are used in everyday products.	Technical Knowledge: To know that pneumatic systems operate by drawing in, releasing and compressing air. To know that air can be pushed through tubes to move a component. To know that pneumatic mechanisms can create different types of movement.	accurate pattern pieces. To know that different stitches have different purposes. To know that blanket stitch can be used to join fabric.
Term 2			
<u>Cooking and Nutrition: Soup</u> Design: Making verbal plans and ingredient choices. Choosing ingredients for their soup. Make: Preparing and combining ingredients with adult support. Using simple tools safely and hygienically. Evaluate: Tasting and describing their soup. Talking about their favourite and least favourite ingredients.		<u>Digital world: Wearable technology</u> Design: Researching existing wearable technology. Developing a design for a particular user. Make: Selecting and combining suitable materials and components. Creating and testing a simple programmed product. Evaluate: Testing whether the product works as intended. Checking whether it meets the needs of	<u>Structures: Bridges</u> Design: Researching different types of bridges. Developing plans and material choices for a bridge. Make: Selecting and joining suitable materials. Constructing and reinforcing a bridge structure. Evaluate: Testing the strength and stability of the bridge.

Considering what they would change if they made it again. Technical Knowledge: To know that vegetables come from plants. To know that ingredients have different tastes, colours, smells and textures. To know that food can be changed by cutting, chopping and cooking.		the user. Making suggestions for improvement. Technical Knowledge: To know that programmable products can respond to inputs. To know that sensors can detect changes in the environment. To know that digital technology can be incorporated into everyday products.	Checking whether it meets the design criteria. Making suggestions for improvement. Technical Knowledge: To know that bridges are designed to span gaps and carry loads. To know that triangulation can strengthen structures. To know that the shape and arrangement of materials affects strength.
Term 3			
<u>Textiles: Bookmarks</u> Design: Making verbal plans and material choices. Developing ideas for a bookmark. Make: Selecting and manipulating textile materials. Exploring simple joining and decorative techniques. Evaluate: Giving a verbal evaluation of their own and others' bookmarks. Checking whether their bookmark	<u>Structures: A chair for bear</u> Design: Making plans and material choices. Developing a design for a stable chair. Make: Selecting and joining suitable materials. Constructing a stable structure. Evaluate: Testing whether the chair is strong and stable. Checking whether it meets the design	<u>Electrical systems: Exploring electrical products</u> Design: Researching existing electrical products. Developing ideas for a product containing an electrical system. Make: Selecting and connecting electrical components. Constructing and testing a simple circuit. Evaluate: Testing whether the circuit works effectively. Evaluating the function and appearance of	<u>Electrical Systems: Wobble Bots</u> Design: Researching existing motorised products. Developing a design for a wobble bot. Make: Constructing a simple electrical circuit containing a motor. Combining electrical and mechanical components. Evaluate: Testing whether the wobble bot moves effectively.

meets its purpose. Considering what they would change or improve. Technical Knowledge: To know that textiles are materials that can be used to make products. To know that textiles can be joined and decorated in different ways. To know that different materials have different properties.	criteria. Making suggestions for improvement. Technical Knowledge: To know that structures need to be strong and stable. To know that different shapes and materials affect the strength of a structure. To know that materials have different properties.	the product. Making suggestions for improvement. Technical Knowledge: To know that a circuit must be complete for electricity to flow. To know that switches can open and close a circuit. To know the purpose of common electrical components.	Evaluating its design and performance. Considering how it could be improved. Technical Knowledge: To know that motors convert electrical energy into movement. To know that a complete circuit is needed for a motor to work. To know that electrical and mechanical systems can be combined.
Term 4			
<u>Seasonal : Hanging Egg Decoration and Creating a Dinosaur</u> <u>Design:</u> Designing an Easter Egg and a dinosaur thinking about the patterns, colours and shapes on the Easter eggs. Choose from materials available. Discuss reasons for choices. <u>Make:</u> Developing fine motor/cutting skills with scissors. Developing precision with use of colouring/painting equipment. Using the	<u>Textiles: Pouches</u> Design: Making plans and material choices. Developing a design for a pouch. Make: Using a template to cut fabric. Joining and decorating fabric using simple stitching techniques. Evaluate: Checking whether the pouch works as intended. Evaluating the appearance and quality of their product.	<u>Structures: Product packaging</u> Design: Researching existing packaging. Developing plans and material choices for packaging. Make: Creating and using a net. Constructing and decorating three-dimensional packaging. Evaluate: Checking whether the packaging protects and contains the product.	<u>Digital world: Monitoring Devices</u> Design: Researching existing monitoring devices. Developing a design for a particular user. Make: Creating a programmed monitoring device. Using and testing sensors and digital components. Evaluate: Testing whether the device responds as intended. Checking whether it meets the needs of the

opportunity to demonstrate different ways to use the materials e.g. tearing or scrunching tissue paper, creating a collage or using felt tips to draw a pattern. <u>Evaluate:</u> Reflecting on a finished product and comparing to their verbal design. Talk about changes they could make. <u>Technical Knowledge:</u> To know there are a range to different materials that can be used to make the Easter Egg and Dinosaur and that they are all slightly different	Considering what they would change or improve. Technical Knowledge: To know that a template can be used to create a product accurately. To know that fabrics can be joined using different techniques. To know that a running stitch can be used to join fabric.	Evaluating its appearance and suitability. Considering how it could be improved. Technical Knowledge: To know that packaging is designed to contain and protect products. To know that nets can be folded to make three-dimensional structures. To know that different materials are suitable for different purp	user. Considering how it could be improved. Technical Knowledge: To know that sensors can detect changes in the environment. To know that programmable devices can respond to inputs. To know that computer-aided design can be used to develop products.
Term 5			
<u>Structures: Boats</u>	<u>Mechanisms: Fairground wheel</u>	<u>Textiles: Fastenings</u>	<u>Cooking and Nutrition: Developing A Recipe</u>
	Design: Making plans and material choices. Developing a design for a rotating fairground wheel.	Design: Investigating different types of fastening. Making plans and material choices for a textile product.	Design: Researching and adapting existing recipes. Making ingredient choices for a particular user or purpose.

	Make: Selecting and joining suitable materials. Constructing a rotating wheel and axle mechanism. Evaluate: Testing whether the wheel rotates effectively. Checking whether the structure is stable. Making suggestions for improvement. Technical Knowledge: To know that wheels rotate around an axle. To know that mechanisms create movement. To know that the size and position of components can affect movement.	Make: Selecting and attaching a suitable fastening. Using appropriate sewing techniques. Evaluate: Testing whether the fastening works effectively. Evaluating the appearance and function of the product. Considering what could be improved. Technical Knowledge: To know that fastenings are used to join materials and allow products to open and close. To know that different fastenings are suitable for different purposes. To know that fastenings can be both functional and decorative.	Make: Preparing and combining ingredients safely. Following and adapting a recipe. Evaluate: Tasting and evaluating the finished product. Considering taste, nutrition and appearance. Making suggestions for improvement. Technical Knowledge: To know that ingredients have different nutritional and sensory properties. To know that recipes can be adapted by changing ingredients. To know that food products can be designed for particular users and purposes. .
Term 6			
<u>Cooking and Nutrition: Making a Rainbow Salad</u> <u>Design:</u> Design a salad recipe using the seasonal fruit and vegetables available. <u>Make:</u>	<u>Food and Nutrition: Balanced Diet</u> <u>Design:</u> Making plans and ingredient choices. Developing ideas for a balanced meal. <u>Make:</u> Selecting and preparing suitable ingredients.	<u>Nutrition and Cooking: Eating Seasonally</u> <u>Design:</u> Researching seasonal ingredients. Making ingredient choices for a seasonal dish. <u>Make:</u> Preparing and combining seasonal	<u>Mechanical Systems: Gears and pulleys</u> <u>Design:</u> Investigating existing products that use gears and pulleys. Developing plans and material choices for a mechanical system.

Following their design plan to make their salad. • Tasting seasonal ingredients. • Selecting seasonal ingredients. • Peeling ingredients safely. • Cutting safely with a vegetable knife, remind Knives are a tool, not a toy. Carefully look around you before you begin cutting to make sure nothing is in the way, including your fingers. Always cut with the sharp end of the knife facing away from you. Never walk around with a knife in your hand. Hold whatever you are cutting with your knife-free hand, making sure you keep your fingers out of the way of the blade. Cut slowly and carefully. <u>Evaluate:</u> Encourage children to talk about their opinions and the way that it tastes. <u>Technical knowledge:</u> To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in	Using simple food preparation techniques safely. Evaluate: Tasting and evaluating the finished product. Considering whether the meal is balanced. Suggesting changes for improvement. Technical Knowledge: To know that a balanced diet contains a variety of foods. To know that different foods provide different nutrients. To know that ingredients can be combined to make a balanced meal.	ingredients. Using appropriate food preparation techniques safely. Evaluate: Tasting and evaluating the finished product. Considering the suitability of the ingredients. Suggesting changes for improvement. Technical Knowledge: To know that different fruit and vegetables grow in different seasons. To know that seasonality affects the availability of food. To know that food has different tastes, textures and nutritional properties.	Make: Selecting and assembling mechanical components. Constructing and testing a gear or pulley mechanism. Evaluate: Testing how effectively the mechanism works. Evaluating the movement and performance of the product. Considering what could be changed or improved. Technical Knowledge: To know that gears and pulleys transfer movement and force. To know that changing the size and arrangement of gears affects movement. To know that mechanical systems can change the speed, direction or force of movement.
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certain seasons. • To know that cooking instructions are known as a 'recipe'			
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Design and Technology Long Term Overview				
Year B				
	EYFS	Year 1/2	Year 3/4	Year 5/6
Term 1 Year B	Structures: Junk Modelling	Mechanisms: Levers	Textiles: Cross stitch and applique	Textiles: Bags
Term 2 Year B	Cooking and Nutrition: Soup		Mechanical Systems: Making a moving monster	Structures: Playground pioneers
Term 3 Year B	Textiles: Bookmarks	Structures: Stable structures	Mechanical Systems: Mechanical cars	Electrical Systems: Steady Hand Game
Term 4 Year B		Textiles: Simple stitches	Structures: Helmets	Digital world: Navigating the World
Term 5 Year B	Structures: Boats	Mechanisms: Wheels and axels	Digital World: Mindful Moments Timer	Food and Nutrition: Come Dine With Me
Term 6 Year B	Seasonal: Making a Rainbow Salad	Food and Nutrition: Smoothies	Cooking and Nutrition: Adapting A Recipe	Mechanical systems: Automata toys

Substantive Knowledge

Year B

EYFS	Year 1 / 2	Year 3 / 4	Year 5 / 6
<u>Structures</u> As Year A	<u>Mechanisms: Levers</u> Design: Making plans and material choices. Developing ideas for a product using a lever. Make: Selecting and joining suitable materials. Constructing a simple lever mechanism. Evaluate: Testing whether the lever creates the intended movement. Checking whether the product matches their plan. Making simple suggestions for improvement. Technical Knowledge: To know that a lever is a mechanism that creates movement. To know that a lever moves around a pivot.	<u>Textiles: Cross stitch and applique</u> Design: Researching decorative textile techniques. Developing a design using colour, pattern and shape. Make: Selecting and cutting suitable fabrics. Using cross stitch and appliqué to join and decorate textiles. Evaluate: Evaluating the appearance and quality of the finished product. Checking whether it matches the original design. Considering what could be improved. Technical Knowledge: To know that cross stitch can be used to join and decorate fabric. To know that appliqué involves attaching fabric shapes onto another fabric.	<u>Textiles: Bags</u> Design: Researching existing bags and their features. Developing a design for a particular user and purpose. Make: Creating and using accurate pattern pieces. Joining fabric and adding functional features. Evaluate: Checking whether the bag meets its intended purpose. Evaluating the quality and appearance of the finished product. Considering what could be improved. Technical Knowledge: To know that textile products can be constructed from pattern pieces. To know that different joining techniques have different purposes.

	To know that the position of the pivot can affect movement.	To know that textiles can be combined and decorated in different ways.	To know that material choice affects the function and appearance of a product.
Term 2			
<u>Cooking and Nutrition: Soup</u> As Year A		<u>Mechanical Systems: Making a moving monster</u> Design: Developing plans for a moving product. Considering how the mechanism will create movement. Make: Selecting and joining suitable materials. Constructing a working linkage mechanism. Evaluate: Testing whether the mechanism creates the intended movement. Evaluating how effectively the product works. Making suggestions for improvement. Technical Knowledge: To know that linkages use levers and pivots to create movement. To know that several components can work together in a mechanical system.	<u>Structures: Playground pioneers</u> Design: Researching existing playground structures. Developing designs for a particular user and purpose. Make: Selecting and joining suitable materials. Constructing and reinforcing playground structures. Evaluate: Testing the strength and stability of the structures. Checking whether they meet the design criteria. Making suggestions for improvement. Technical Knowledge: To know that structures can be strengthened and reinforced. To know that triangulation can increase

		To know that changing the position of components can change movement.	structural strength. To know that structures must be designed with their users and purpose in mind.
Term 3			
<u>Textiles: Bookmarks</u> As Year A	<u>Structures: Stable structures</u> Design: Making plans and material choices. Developing a design for a stable structure. Make: Selecting and joining suitable materials. Constructing a strong and stable structure. Evaluate: Testing the strength and stability of the structure. Checking whether it meets the design criteria. Making suggestions for improvement. Technical Knowledge: To know that structures need to be strong and stable. To know that the shape and arrangement	<u>Mechanical systems: Mechanical cars</u> Design: Researching and developing ideas for a mechanical car. Selecting suitable materials and components. Make: Constructing and combining mechanical components. Building and testing a working car. Evaluate: Testing the movement and performance of the car. Checking whether it meets the design criteria. Considering how it could be improved.	<u>Electrical Systems: Steady hand game</u> Design: Researching existing electronic games. Developing a design for a particular user. Make: Constructing a complete electrical circuit. Combining electrical components with a game structure. Evaluate: Testing whether the game and circuit work effectively. Evaluating the difficulty and suitability of the game. Considering how it could be improved. Technical Knowledge: To know that a complete circuit allows electricity to flow. To know that buzzers can be used as outputs

	of materials can affect stability. To know that different materials have different properties.	Technical Knowledge: To know that mechanical systems use components to create movement. To know that wheels and axles allow vehicles to move. To know that the arrangement of components affects how a mechanism works.	in electrical products. To know that switches can control electrical circuits.
Term 4			
	<u>Textiles: Simple stitches</u> Design: Making plans and material choices. Developing a design for a simple textile product. Make: Selecting and cutting suitable fabrics. Joining and decorating fabric using simple stitches. Evaluate: Checking whether the product meets its purpose. Evaluating its appearance and quality. Considering what could be improved. Technical Knowledge: To know that stitching can be used to join fabrics. To know that different stitches can be	<u>Structures: Helmets</u> Design: Researching existing helmets. Developing a design for a particular user and purpose. Make: Selecting and joining suitable materials. Constructing and strengthening a helmet structure. Evaluate: Testing the strength and suitability of the helmet. Checking whether it meets the design criteria. Making suggestions for improvement. Technical Knowledge: To know that structures can be	<u>Digital world: Navigating the world</u> Design: Researching existing navigation products. Developing a digital product for a particular user. Make: Creating and testing a programmed product. Using computer-aided design to develop ideas. Evaluate: Testing whether the product works as intended. Checking whether it meets the needs of the user. Considering how it could be improved. Technical Knowledge: To know that digital products can solve real-

	used for different purposes. To know that fabrics have different properties.	strengthened and reinforced. To know that materials have different properties. To know that helmets are designed to protect the user.	world problems. To know that programmable products use inputs and outputs. To know that computer-aided design can be used to develop products.
Term 5			
	<u>Mechanisms: Wheels and Axels</u> Design: Making plans and material choices. Developing ideas for a product using wheels and axles. Make: Selecting and joining suitable materials. Constructing a working wheel and axle mechanism. Evaluate: Testing whether the wheels move effectively. Checking whether the product works as intended. Making simple suggestions for improvement. Technical Knowledge: To know that wheels and axles are mechanisms that help objects move.	<u>Digital World: Mindful Moments Timer</u> Design: Researching existing digital products. Developing a design for a particular user. Make: Creating and testing a simple programmed product. Combining digital components with a physical product. Evaluate: Testing whether the timer works as intended. Checking whether it meets the needs of the user. Considering how it could be improved. Technical Knowledge: To know that digital products can be programmed to perform a function. To know that programs use inputs and	<u>Food and Nutrition: Come Dine With Me</u> Design: Planning dishes and selecting suitable ingredients. Considering taste, nutrition and presentation. Make: Preparing and cooking ingredients safely. Using a range of food preparation techniques. Evaluate: Tasting and evaluating the finished dishes. Considering taste, appearance and nutrition. Suggesting changes for improvement. Technical Knowledge: To know that ingredients have different nutritional and sensory properties. To know that complementary ingredients can be combined to create dishes.

	To know that wheels rotate around an axle. To know that the size and position of wheels and axles can affect movement.	outputs. To know that digital products are designed to meet users' needs.	To know that presentation can affect the appeal of food.
Term 6			
	<u>Food and Nutrition: Smoothies</u> Design: Making plans and ingredient choices. Developing ideas for a smoothie. Make: Preparing and combining fruit and vegetables safely. Using simple food preparation techniques. Evaluate: Tasting and evaluating the finished smoothie. Considering its taste, texture and appearance. Suggesting changes for improvement. Technical Knowledge: To know that fruit and vegetables form part of a healthy diet. To know that ingredients have different tastes and textures.	<u>Cooking and Nutrition: Adapting A Recipe</u> Design: Researching and adapting an existing recipe. Making ingredient choices for a particular purpose. Make: Preparing and combining ingredients safely. Following and adapting a recipe. Evaluate: Tasting and evaluating the finished product. Considering taste, appearance and suitability. Suggesting changes for improvement. Technical Knowledge: To know that recipes can be adapted by changing ingredients.	<u>Mechanical systems: Automata toys</u> Design: Researching existing automata toys. Developing a design incorporating a moving mechanism. Make: Constructing and combining cams, followers and other components. Building and testing a working automata toy. Evaluate: Testing whether the mechanism creates the intended movement. Evaluating the performance of the finished product. Considering how it could be improved. Technical Knowledge: To know that cams can convert rotary movement into different types of movement. To know that followers transfer movement

	To know that fruit and vegetables come from plants.	To know that ingredients have different properties and nutritional values. To know that food should be prepared safely and hygienically.	from a cam. To know that the shape of a cam affects the movement produced.
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Big Ideas in Design Technology

The six key areas are revisited each year, with Electrical systems and Digital world beginning in KS2. The areas enable all subject leads, specialists or non-specialists, to understand and make it easy for teachers to see prior and future learning for your pupils. You can see, at a glance, how the unit taught fits into their wider learning journey.





