DESIGN AND TECHNOLOGY
SKILLS AND KNOWLEDGE PROGRESSION

*"Design is not just what it looks like and feels like. Design is how it works." –**Steve Jobs***

National Curriculum

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

The national curriculum for design and technology aims to ensure that all pupils:

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

EYFS

During the EYFS, 'Design and Technology' is explored mainly through 'Expressive Arts and Design.' Pupils explore and use a variety of media and materials through a combination of child initiated and adult led activities. Adults plan 3 specific DT projects over the year but children's interest are also explored when they arise and are supported through next step planning.

Children have the opportunity to support their child initiated play through continuous provision which gives children access to a variety of DT resources.

Indoors:

Construction kits: small and large, junk modelling, mobile, duplo, Lego, wooden blocks, nuts and bolts, wooden blocks, plastic bricks

Cutting and joining resources: scissors, hole punches, PVA glue, gluesticks, sellotape, treasury tags, ribbon, split pins, wool, string, nuts and bolts
Media: paper, card, bags, cardboard boxes
Embellishments: sequins, glitter, buttons, thread, pompoms, wool, ribbon, stickers
Outdoors:
Planks of wood and wooden bricks, tyres, fabric, pegs

Project and Term

Textiles: Sock puppet: 1B

Skills:

PVA glue and spreading
Sew small running stitch
Designing
Stuffing
Evaluating
To design a cuddly toy
To design for a specific purpose
To stuff a sock with the right amount of stuffing
To use a plastic needle to stitch a running stitch
To choose specific tools for spreading glue
To choose the best way to glue eyes and other features of their toy
To evaluate what they like about their toy

Knowledge:

To know what a cuddly toy is
To know different types of cuddly toys
To know who might make use of a cuddly toy
To know what sewing is
To know different features of a toy/ puppet e.g. eyes, hair, mouth etc.
To know that scissors are for cutting and glue is for sticking.

Construction: Animal Masks: 2A

Skills:

Researching
Designing
Painting
Cutting
Fine motor skills

Food: Sponge cake: 3A

Skills:

Design
Market research – tasting / textures
Nutrition – healthy / unhealthy
Mixing - gross motor skills
Hygiene
Kitchen safety
Measuring / decanting
Evaluating

Year 1

Context

Children will utilise their skills obtained from the EYFS and build on these in KS1. They have already began designing, making and evaluating their products in the EYFS and these skills will be built on year upon year.

For textiles, they will create a Christmas decoration to fit a specific brief. The children have learned how to do a small running stitch in their sock puppets in EYFS and will develop this skill further with their Christmas decorations by running the stitch around the entire product. During the construction unit in year 1, children will create their own London Taxi with functional wheels on an axel, building on the skills used to create animal masks in EYFS. They will develop their knowledge of appropriate materials and equipment by investigating their properties and usefulness, choosing which is best for their product. During the food unit in year 1, children will develop their understanding of healthy eating by

delving into nutrition and what is important for their bodies. They will then create a “superfood smoothie” to fit a specific design brief, building on their skills used to bake a cake in EYFS. They will continue to hone their understanding of measuring and decanting as well as kitchen safety.

Textiles: Christmas Tree Decoration: 1B

Knowledge:

To know that design criteria are the specific goals a project must achieve.
To know that everyday products are objects that are used routinely at home, school and work.
To know that all products are designed with a specific purpose.
To know that two products can be compared by looking at a set of criteria and scoring both products against each one.
To know that pieces of felt can be joined using a needle and thread to create a project.
To know that a needle and thread can be used to create a simple running stitch.
To know that buttons and sequins can be glued to decorate felt.
To know that cotton, wool, bamboo and synthetic fiber fill can be used to stuff a felt project.
To know that a product may be important because it fulfils its goals and performs a useful purpose.
To know that safety rules include listening carefully and following instructions.
To know that safety rules include only using equipment as and when directed and wearing protective clothing if appropriate.
To know that specific tools are used for particular purposes.
To know that scissors are for cutting and glue is for sticking.

Skills:

Name and explore a range of everyday products and describe how they are used.
Follow the rules to keep safe during a practical task.
Create a design to meet simple design criteria.
Select the appropriate tool for a simple practical task.
Use gluing, stapling or tying to decorate fabric, including buttons and sequins.
Describe why a product is important.
Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

Food: Superfood Smoothies: 2A

Knowledge:

To know that design criteria are the specific goals a project must achieve.
To know that everyday products are objects that are used routinely at home, school and work.
To know that all products are designed with a specific purpose.
To know that two products can be compared by looking at a set of criteria and scoring both products against each one.
To know that a smoothie is a thick, smooth drink of fresh fruit or vegetables pureed with milk, yoghurt or icecream.
To know that a knife can be used to chop food.
To know that a chopping board can be used to chop food on to keep it clean and not damage surfaces.
To know that a bowl can be used to contain ingredients.
To know that a jug with a spout can be used to pour liquids.
To know that a spoon can be used to add ingredients and mix foods.
To know that safety rules include listening carefully and following instructions.
To know that safety rules include only using equipment as and when directed and wearing protective clothing if appropriate.
To know that protective clothing can be worn

Skills:

Select and use a range of materials, beginning to explain their choices.
Select the appropriate tool for a simple practical task.
Measure and weigh food items using non-standard measures, such as spoons and cups.
Select healthy ingredients for a fruit or vegetable salad.
Describe the similarities and differences between two products.
Talk about their own and each other's work, identifying strengths or weaknesses and offering support.

Construction: London Taxi: 3A

Knowledge:

To know that design criteria are the specific goals a project must achieve.
To know that everyday products are objects that are used routinely at home, school and work.
To know that all products are designed with a specific purpose.
To know that two products can be compared by looking at a set of criteria and scoring both products against each one.

To know that a wheel is a circular object attached to an axle which makes vehicles and machines move.
To know that an axle is a rod that is connected to the centre of a wheel which allows the wheel to turn.
To know that a chassis is the frame of the vehicle.
To know that most vehicles that move on land have wheels and axles that are fixed to a chassis.
To know that axles and wheels can be attached to the chassis in different ways.
To know that an axle fixed to a chassis has free-moving wheels.
To know that free-moving axles have fixed wheels.
To know that a strength is a good quality of a product.
To know that a weakness is an area of a product which could be improved.
To know that different materials can be used for different purposes, depending on their properties.
To know that cardboard is stronger than paper.
To know that plastic is light and can float.
To know that clay is malleable and heavy.
To know that a product may be important because it fulfils its goals and performs a useful purpose.
To know that safety rules include listening carefully and following instructions.
To know that safety rules include only using equipment as and when directed and wearing protective clothing if appropriate.
To know that protective clothing can be worn when making products
To know that specific tools are used for particular purposes.

Skills:

Create a design to meet a simple criteria.
Describe the similarities and differences between two products.
Name and explore a range of everyday products and describe their purpose.
Use wheels and axles to make a simple moving model.
Talk about their own and other's work, identifying strengths and weaknesses and offering support.
Describe why a product is important.
Follow the rules to keep safe during a practical task.
Select and use a range of materials, beginning to explain their choices.
Select the appropriate tool for a simple practical task.

Year 2

Context

Children will utilise their skills obtained from year 1 and build on these in year 2. They will continue to develop their designing, making and evaluating skills, and these will be built on year upon year.
For textiles, they will create an embellished purse and continue to hone their skills on running stitches from when they created a Christmas decoration in year 1. They will begin to use cross stitch in this unit to add patterns and embellishments to their purse. During the construction unit in year 2, children will create their own pulley system and functional moving bucket. They will develop their knowledge of appropriate materials and equipment by investigating their properties and usefulness, choosing which is best for their product. During the food unit in year 2, children will develop their understanding of healthy eating by delving into nutrition and what is important for their bodies. They will then create a "healthy meal" to fit a specific design brief, building on their skills used to make a superfood smoothie in year 1. They will continue to hone their understanding of measuring and decanting as well as kitchen safety.

Construction: Pulley system: 2A

Knowledge:

To know that ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology.
To know that structures can be made stronger, stiffer and more stable by using cardboard rather than paper.
To know that triangular shapes will create a more stable structure than square shapes.
To know that a broader base will also make a structure more stable.
To know that the 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.
To know 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.
To know that saws are used to cut wood.
To know that finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.

Skills:

To generate and communicate their ideas through a range of different methods.

To explore how a structure can be made stronger, stiffer and more stable.
To choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect
To explain how closely their finished products meet their design criteria and say what they could do better in the future.

Food: Healthy Lunch: 3A

Knowledge:

To know 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.
To know that some ingredients need to be prepared before they can be cooked or eaten.
To know that 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.
To know that some foods, such as ice and chocolate, melt when heated, but then harden (solidify or freeze) when cooled.
To know that ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology.
To know that hygiene rules include washing hands before handling food, cleaning surfaces, tying long hair back, storing food appropriately and wiping up spills.
To know that a healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables.
To know that finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.

Skills:

To select the appropriate tool for a task and explain their choice.
To prepare ingredients by peeling, grating, chopping and slicing
To observe what happens when a range of everyday materials, including foods, are heated and cooled, sorting and grouping them based on their observations.
To generate and communicate their ideas through a range of different methods.
To work safely and hygienically in construction and cooking activities.
To generate and communicate their ideas through a range of different methods.
To describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal.
To explain how closely their finished products meet their design criteria and say what they could do better in the future.

Textiles: Purse: 1B

Knowledge

To know that products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive.
To know that there are many fabric home products. These include bedding, tea towels, cushions, tea cosies, toiletry bags and other containers.
To know that products can be compared by looking at particular characteristics of each and deciding which is better suited to the purpose.
To know that Cath Kidson is a well-known designer and fashion/textile brand
To know that a brand is a name, term, design, or symbol identifying a seller's products or services
To know 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.
To know that a sewing pattern is a template of the parts needed to make a garment or product.
To know that pattern pieces are usually made from paper.
To know that sewing is a method of joining pieces of fabric together
To know that a running stitch is a basic stitch that is used to join fabric.
To know that embellishment is a decorative detail or feature added to something to make it more attractive.
To know that ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology
To know that finished products can be compared with design criteria to see how closely they match. Improvements can then be planned

Skills:

To explain how an everyday product could be improved
To explain why a designer or inventor is important
To compare different or the same products from the same or different brands.
To select the appropriate tool for a task and explain their choice
To use different methods of joining fabrics, including glue and running stitch.
To sew/stick simple decorative embellishments, such as buttons, prints, sequins and appliqué
To generate and communicate their ideas through a range of different methods
To choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
To explain how closely their finished products meet their design criteria and say what they could do better in the future.

Year 3

Context

Children will utilise their skills obtained from KS1 and build on these in throughout KS2. They will continue to develop their designing, making and evaluating skills, and these will be built on year upon year.
For textiles, they will create a toy and continue to broaden their knowledge and understanding of using a variety of stitch types. During the construction unit in year 3, children will create their own "Earthquake proof house". They will develop their knowledge of appropriate materials and equipment by investigating their properties and usefulness, choosing which is best for their product. During the food unit in year 3, children will develop their understanding of healthy eating by delving into nutrition and what is important for their bodies, making cross curricular links with their science unit. They will continue to hone their understanding of measuring and decanting as well as kitchen safety.

Construction: Earthquake-proof houses: 2A

Skills:

Explain how an existing product benefits the user.
Use appliances safely with adult supervision.
Develop design criteria to inform a design.
Create shell or frame structures using diagonal struts to strengthen them - shell structures are hollow, 3-D structures with a thin outer covering, such as a box.
Use tools safely for cutting and joining materials and components.
Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.

Plan which materials will be needed for a task and explain why.

Knowledge:

To know diagonal struts create triangular shapes within a frame structure.
To know that adding diagonal struts adds strength and stability.
To know work from different designers can be compared by assessing specific criteria, such as their visual impact, fitness for purpose and target market.
To know 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).
To know that earthquake proof buildings are made tall and movable to withstand vibrations
To know that earthquake proof buildings are made from lightweight metals
To know famous earthquake proof buildings eg. The Transamerica Pyramid in San Francisco

Food: Chocolate bars: 1A

Skills:

Explain how an existing product benefits the user.
Use appliances safely with adult supervision.
Develop design criteria to inform a design.
Use tools safely for cutting and joining materials and components.
Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account.
Prepare and cook a simple savoury dish.
Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars).
Identify and name foods that are produced in different places.

Knowledge:

To know that many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles: John Cadbury
To know that asking questions can help others to evaluate their products
To know that Food can be cooked by boiling, steaming or frying on a hob; baking or roasting in an oven; grilling under a grill or on a barbecue; microwaving or cooked slowly in a slow cooker.
To know the safety rules must be followed when using electricity for food purposes: 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.

	To know 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. To know that chocolate is made from cocao, milk and sugar. To know that -when heated -chocolate becomes mouldable. **Textiles: Predator Toys: 3B** **Skills:** Explain how an existing product benefits the user. Use appliances safely with adult supervision. Develop design criteria to inform a design. Use tools safely for cutting and joining materials and components. Suggest improvements to their products and describe how to implement them, beginning to take the views of others into account. Cut and join wools, threads and other materials to a loom. To use a running, cross and blanket stitch to joins materials together Plan which materials will be needed for a task and explain why. Decorate a loom weaving using embellishments, such as natural or silk flowers, tassels and bows. Explain the similarities and difference between the work of two designers. Describe how key events in design and technology have shaped the world. **Knowledge:** To know that different colour materials can be sewn together to make familiar shapes
	Year 4 **Context** Children will utilise their skills obtained from KS1 and build on these in throughout KS2. They will continue to develop their designing, making and evaluating skills, and these will be built on year upon year. For textiles, they will create a tapestry during their “warp and weft” unit, making cross curricular links to the Viking invasion. During the construction unit in year 4, children will create their own bridge with a functional electrical circuit attached. They will develop their knowledge of appropriate materials and equipment by investigating their properties

	and usefulness, choosing which is best for their product. During the food unit in year 4, children will design and bake their own bread. They will continue to hone their understanding of measuring and decanting as well as kitchen safety.
4	**Construction: Suspension bridge: 1B** **Skills:** Explore a range of mechanisms (levers, axles, cams, gears and pulleys). 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. Select, name and use tools with adult supervision. 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. 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 Explain how and why a significant designer or inventor shaped the world. **Knowledge:** To know Irving Morrow was the architect for the Golden Gate Bridge and Joseph Strauss, Charles Ellis, Leon Solomon Moisseiff were the engineering designers To know the differences between a suspension bridge and an arch bridge To know how to use pulleys in their bridge models To know how best to use annotated sketches to test and communicate their suspension bridge ideas. To know how to frame an appropriate structure for a suspension bridge To know tough, strong materials are needed to strengthen, stiffen and reinforce it To know the difference and characteristics between wood, dowel, art straws, tape, blue tac and glue To know how to safely use a saw and glue gun with adult supervision To know how to improve their bridge model, in either appearance or technique, based on self and peer assessment
	Food: Baking bread: 3B **Skills:**

	Investigate and identify the design features of a familiar product. Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray. Select, name and use tools with adult supervision. 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. Choose from a range of materials, showing an understanding of their different characteristics. 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. Identify and name foods that are produced in different places in the UK and beyond. Create and complete a comparison table to compare two or more products Explain how and why a significant designer or inventor shaped the world. **Knowledge:** To know Warburtons was founded by Thomas Warburton in 1876 and based in Greater Manchester To know the differences between types of bread, such as croissants, bagels, loaves To know the different design features from bread around the world To know the difference between savoury and sweet and which ingredients are needed to make these breads To know bread is made by mixing flour, water and yeast To know self-rising flour doesn't need yeast and can rise by itself, whereas plain flour does need yeast To know kneading bread is done using the hands To know to knead bread for 10-12 minutes To know kneading is required to stretch and develop the gluten strands in the dough. To know proofing is an essential part of bread baking that rely on yeast to create air pockets, such as making croissants To know proofing takes one to three hours or until it has doubled in size To know wheat is made in the south-east of England and the lowlands of Scotland To know wheat is used to make flour To know how to safely use a knife and an oven with adult supervision To know how to work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray. To know how best to improve their bread in either taste, texture, smell or appearance, based on peer and self-assessment

Textiles: Tapestry: 2B

Skills:

Investigate and identify the design features of a familiar product.
Use annotated sketches and exploded diagrams to test and communicate their ideas.
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.
Hand sew a hem or seam using a running stitch.
Choose from a range of materials, showing an understanding of their different characteristics.
Create detailed decorative patterns on fabric using printing techniques.
Create and complete a comparison table to compare two or more products
Explain how and why a significant designer or inventor shaped the world.

Knowledge:

To know how William Morris is one of the most famous British textile designers of all time
To know Anglo-Saxons and Vikings wove colourful, patterned braid on small tablet looms
To know lengthwise yarns (vertical) are called warp
To know crosswise (horizontal) yarns are called weft
To know all weaving uses the same process where weft threads are woven in and out of tight warp threads.
To know a range of natural and man-made materials can be used to make a woven wall hanging, which combines different colours, shapes, patterns, yarns and decorative techniques.
To know the design features of woven pictures or tapestries
To know how to use exploded diagrams to test and communicate their ideas.
To know how to hand sew a hem or seam using a running stitch.
To know the difference and characteristics between scissors, thread, needles and a “loom”
To know and compare different woven products
To know how to improve their woven product, in either appearance or technique, based on self and peer assessment

	Year 5 **Context** Children will utilise their skills obtained from KS1 and build on these in throughout KS2. They will continue to develop their designing, making and evaluating skills, and these will be built on year upon year. For textiles, they will create a logo for an astronaut, making cross curricular links to their Space science unit. During the construction unit in year 5, children will design and create a building inspired from Ancient Greek architecture, utilising exploding diagrams during the design stage. They will develop their knowledge of appropriate materials and equipment by investigating their properties and usefulness, choosing which is best for their product. During the food unit in year 5, children will design and make their own salad, harvesting fruits and vegetables from a local allotment. They will continue to hone their understanding of measuring and decanting as well as kitchen safety.
5	**Textiles: Space Agency badge: 1B** **Skills:** Explain how the design of a product has been influenced by the culture or society in which it was designed or made. Explain the functionality and purpose of safety features on a range of products. Use pattern pieces and computer-aided design packages to design a product. Name and select increasingly appropriate tools for a task and use them safely. Test and evaluate products against a detailed design specification and make adaptations as they develop the product. Combine stitches and fabrics with imagination to create a mixed media collage. Select and combine materials with precision. Use applique to add decoration to a product or artwork. Survey users in a range of focus groups and compare results. Describe the social influence of a significant designer or inventor. **Knowledge:** Know that a garment should fit well and have a function to be worn To know that many key individuals have helped to shape the world. These include engineers, scientists, designers, inventors and many other people in important roles. – Axiom Space – designers of NASA's space suit Know that product quality is important for longevity, wear and general appearance

	Know that an item/part of clothing should comply with safety regulations and not present a danger when worn Know that adding detail and embellishment will add to its appearance and authenticity Know that fabrics are a compliant material and are relatively easy to cut and shape Know that fabric is cut using textile sheers Know a seam is the join where two or more layers of fabric, leather, or other materials are held together with stitches Know that two pieces of fabric can be attached using a cotton thread and a needle Know that a needle is used to pierce material Know cotton can be used to sew Know how to thread cotton through the eye of a needle Know how to loop the thread to knot the cotton Know how to sew in a neat line using running, basting, whip stitches Know how to use scissors safely to cut thread and material Know that testing the system will enable edits/ improvements to the product
	Food: Greek Gyros: 3A **Skills:** Explain how the design of a product has been influenced by the culture or society in which it was designed or made. Name and select increasingly appropriate tools for a task and use them safely. Test and evaluate products against a detailed design specification and make adaptations as they develop the product. Use an increasing range of preparation and cooking techniques to cook a sweet or savoury dish. Evaluate meals and consider if they contribute towards a balanced diet. Describe what seasonality means and explain some of the reasons why it is beneficial. Survey users in a range of focus groups and compare results. **Knowledge:** Know that Greek food is Mediterranean Know and research about Greek chef Akis Petretzikis Know examples of Greek cuisine through research – gyros, feta salad, kleftiko, souvlaki etc. Know that a gyros is a food item of Greek origin Know that gyros are served in pita bread along with ingredients such as: tomato, onion, fried potatoes, and tzatziki

	Know that tzatziki is made of diluted yogurt mixed with cucumbers, garlic, salt, olive oil, sometimes with vinegar or lemon juice, and herbs such as dill, mint, parsley and thyme Know that mixing ingredients will create a new flavour Know that to marinate is to soak foods in a seasoned liquid before cooking Know that herbs come from plants and are used to flavour and garnish foods Know that a chopping board is used to protect a surface when chopping food Know that a knife is used to cut through food as it has a sharp and serrated edge Know how to use a knife sensibly with care and supervision Know that there is a specific order to apply the foods to the pita bread to avoid it crumbling Know that hand washing is an important factor in ensuring hygienic food preparation Know that a balanced diet improves overall health Know that a balanced diet contains a variety of food-types Know that a survey aims to extract specific data from a particular group of people Know that testing the system will enable edits and to be made to improve the product
	<u>Construction: Rollercoaster: 3B</u> **Skills:** Explain how the design of a product has been influenced by the culture or society in which it was designed or made. Explain the functionality and purpose of safety features on a range of products. Use mechanical systems in their products, such as pneumatics. Use electrical circuits of increasing complexity in their models or products, showing an understanding of control. Use pattern pieces and computer-aided design packages to design a product. Build a framework using a range of materials to support mechanisms. Name and select increasingly appropriate tools for a task and use them safely. Test and evaluate products against a detailed design specification and make adaptations as they develop the product. Select and combine materials with precision. Survey users in a range of focus groups and compare results. Describe the social influence of a significant designer or inventor. **Knowledge:**

	Know that mechanical systems contains a track and a car Know that the system has to go and stop Know that gravity is used to keep the car on the track Know that the system has to ensure the safety of the car by making sure it doesn't come off the track Know that a force will push the car forward Know G-forces are used for explaining the relative effects of centripetal acceleration that a rider feels while on a roller coaster Know that the greater the centripetal acceleration, the greater the G-forces Know that a pneumatic system is operated by gas/air under pressure Know that pneumatics are responsible for the powering systems of roller coasters Know that a rollercoaster track contains a pulley system Know that a pulley is a wheel on an axle or shaft that is designed to support movement and change of direction Know that a CAD package can be used to represent a 3D image of a rollercoaster Know that an exploded diagram shows the relationship or order of assembly of various parts Know that devising a 3D exploded diagram shows the components of an object slightly separated by distance, or suspended in a surrounding space Know that building a framework can support the system Know that wood and card can be used to strengthen a structure Know that selecting appropriate tools will help construct a system Know that an electrical circuit provides a path that carries an electrical current Know that for a circuit to work, an electrical source (a battery), two wires, and a light bulb/buzzer is required Know that adding an electrical circuit to the system can enhance the design feature of the product Know that a survey aims to extract specific data from a particular group of people Know that testing the system will enable edits and to be made to improve the product
	Year 6 **Context** Children will utilise their skills obtained from KS1 and build on these in throughout KS2. They will continue to develop their designing, making and evaluating skills, and these will be built on year upon year.

	For textiles, they will design and make a bag for a child war evacuee, making cross curricular links to the Victorian era and World War 1. During the construction unit in year 6, children will create their own electric cars, utilising exploding diagrams during the design stage. Their rollercoasters will include an electrical circuit and a pulley system. They will develop their knowledge of appropriate materials and equipment by investigating their properties and usefulness, choosing which is best for their product. During the food unit in year 6, children will design and make their own traditional Mexican burritos. They will continue to hone their understanding of measuring and decanting as well as kitchen safety.
6	**Construction: Electric cars: 3B** **Skills:** Analyse how an invention or product has significantly changed or improved people's lives. Demonstrate how their products take into account the safety of the user. Explain and use mechanical systems in their products to meet a design brief. Understand and use electrical circuits that incorporate a variety of components (switches, lamps, buzzers and motors) and use programming to control their products. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways. Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. Select appropriate tools for a task and use them safely and precisely. Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others. Choose the best materials for a task, showing an understanding of their working characteristics. Create a detailed comparative report about two or more products or inventions. Present a detailed account of the significance of a favourite designer or inventor. **Knowledge:** Know that there are different ways of toy cars working: as push along/pull along, rip cord flywheel, windup clockwork motors, battery-powered electrical motors. Know that an axis is a central line that helps to organise a design. Know that a chassis is the framework or structural support of a manufactured object. Know that a motor is a machine that converts electrical energy into mechanical energy.

	<u>Food: Chilli con carne: 1A</u> **Skills:** Follow a recipe that requires a variety of techniques and source the necessary ingredients independently. Plan a healthy daily diet, justifying why each meal contributes towards a balanced diet. Explain how organic produce is grown. Develop design criteria for a functional and appealing product that is fit for purpose, communicating ideas clearly in a range of ways. Select appropriate tools for a task and use them safely and precisely Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others. **Knowledge:** Know that the basics of Mexican cuisine can be traced back to 7000 BCE Know one of the most common plants in the area was the wild chili pepper, which was eaten frequently Know a range of traditional Mexican cuisines (such as fajitas and enchiladas) Know that through the Spanish colonization, new food were introduced: olive oil, garlic, rice Know that today, Mexican Cuisine is a blend of the indigenous and Spanish cuisine Know that the Mexican climate determines what is grown locally Know nachos are made from corn Know chili is traditionally made from any kind of meat, or a combination of meats, cooked with red chili peppers, various spices and other ingredients Know mincemeat needs to be cooked thoroughly and browned before being consumed Know how to use a slow-cooker safely to cook food Know how and which spices affect the taste and flavour of a chili dish
	<u>Textiles: Bags: 3A</u> **Skills:** Pin and tack fabrics in preparation for sewing and more complex pattern work. Choose the best materials for a task, showing an understanding of their working characteristics. Use different methods of fastening for function and decoration, including press studs, Velcro and buttons. Fastenings hold a piece of clothing together. Create a detailed comparative report about two or more products or inventions.

	Present a detailed account of the significance of a favourite designer or inventor. Analyse how an invention or product has significantly changed or improved people's lives. Demonstrate how their products take into account the safety of the user. Select the most appropriate materials and frameworks for different structures, explaining what makes them strong. Select appropriate tools for a task and use them safely and precisely. Demonstrate modifications made to a product as a result of ongoing evaluation by themselves and to others. **Knowledge:** Know In 1941, the British government introduced clothes rationing to limit the amount of labour and materials used in clothes production, so that it could be used to support the greater war effort. To know in 1943, the government introduced the 'Make Do and Mend' campaign. To know in 1942, the first 'utility' clothing went on sale. To know that adaptions were also made to normal clothing to save on materials. For example, the number of pockets on garments was restricted. To know that deconstructing garments identifies how they were made, the materials used and their properties. To know hand stitches include running stitch, blanket stitch and whip stitch. To know pinning with dressmaker pins and tacking with quick, temporary stitches holds fabric together in preparation for and during sewing.