Chantlers
Primary School

A World of Possibilities

Design Technology Curriculum

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Design Technology Curriculum Overview

For all children to have:

- understanding of the design process and how to refine quality of outcomes at each stage
- a balance of skills in all the strands of DT: textiles, structures, mechanisms, electrical systems, computing
- Cooking and nutrition build on knowledge and understanding in science, geography, and history and develop cooking skills progressively

- Start with a relevant and appropriate problem to solve
- Use a clear design process for all units is followed with clear progression in skills of: planning, exploring, communicating, making. modelling, reviewing, evaluating
- Links to wider curriculum are made where appropriate
- Three planned DT units per year

Children who are identified as having SEND may have specific needs and therefore adaptive and targeted support will be outlined in short-term planning. This may also be reviewed through the child's EHCP and/ or Pupil Progress Meetings where elements of adaptation may be recommended by external agencies.

It is also important to recognise that children identified as having SEND may not always be the least able in History and could excel in the subject. Pupils' attainment will be assessed in a subject-specific manner and based on their strengths rather than barriers.

Adapting the curriculum for pupils with SEND in DT:

• Adaptive teaching takes place. • For sensory or physically impaired pupils, history learning may necessitate enlarging texts, using clear fonts, using visual overlays, or audio description of images. • Dyslexic pupils may benefit from well-spaced print. • Teachers identify and break down the components of the subject curriculum into manageable chunks for pupils who find learning more difficult, particularly those with cognition and learning needs. These may be smaller 'steps' than those taken by other pupils to avoid overloading the working memory. • A variety of additional scaffolds may be used in lessons, such vocabulary banks, additional visual stimuli or adult support.

Resilience	Relationships	Pride	Respect	Integrity	Excellence

Our curriculum documents for EYFS are planned and sequenced in line with Development Matters and the National Curriculum subjects. Please see Early Years planning.

Year Group Reception	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Cooking and Nutrition** **Soup** On completion of the unit, pupils will know… • that there are differences between fruits and vegetables. • that ingredients can be mixed together into a smooth liquid. • that fruits and vegetables grow in different places.	**Textiles** **Bookmarks** On completion of the unit, pupils will know… • that a design is a way of planning our idea before we start. • that threading is putting one material through an object.	**Structures** **Junk Modelling** On completion of the unit, pupils will know… • there are a range to different materials that can be used to make a model and that they are all slightly different. • how to make simple suggestions to fix their junk model.
Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Fantastic Fruits and Vegetables** LC: Can I explore fruits and vegetables and the differences between them? **Lesson 2 – Pumpkin Soup** LC: Can I explore a pumpkin and describe it using the five senses? **Lesson 3 – Designing Soup** LC: Can I design a fruit and vegetable soup recipe?	**Lesson 1 – Exploring Threading and Weaving** LC: Can I develop threading and weaving skills? **Lesson 2 – Paper Weaving** LC: Can I practise and apply weaving skills to a specific material (e.g. paper)? **Lesson 3 – Sewing with Hessian** LC: Can I practise and apply threading skills with specific materials (e.g. hessian and wool)?	**Lesson 1 – Exploring Junk Modelling** LC: Can I explore and investigate the tools and materials in the junk modelling area? **Lesson 2 – Cutting and Scissor Skills** LC: Can I investigate cutting different materials? **Lesson 3 – Choosing Resources** LC: Can I learn how to plan and select the correct resources needed to make a model? **Lesson 4 – Making Models**

	Lesson 4 – Fine Motor Skills LC: Can I learn how to use a knife safely? **Lesson 5 – Making Soup** LC: Can I observe and safely use tools to prepare ingredients? **Lesson 6 – Designing Soup Packaging** LC: Can I design food packaging?	**Lesson 4 – Designing Bookmarks** LC: Can I use threading or sewing to design a product (bookmark)? **Lesson 5 – Creating Bookmarks** LC: Can I create a textiles product (bookmark) following a design? **Lesson 6 – Evaluating Bookmarks** LC: Can I reflect with children on how they have achieved their aims?	LC: Can I verbally plan and create a junk model? **Lesson 5 – Evaluation and Presentation** LC: Can I share a finished model and talk about the processes in its creation? **Lesson 6 – Temporary Joins** LC: Can I explore different ways to temporarily join materials together?
Knowledge Capture Task	During discussion, the pupils can talk about whether the recipe was successful or not and if they would change anything.	The pupils can reflect upon their design and their finished bookmark.	The pupils able to share their creation with the class and talk about the processes they have used. They can identify problems with their model and make simple suggestions about how they might solve them. The pupils can compare their finished model to the plan they had in mind, saying whether it is the same or not.
National Curriculum End Points	**From EYFS Outcomes** • Learn new vocabulary. • Use new vocabulary throughout the day.	**From EYFS Outcomes** • Develop small motor skills so that they can use a range of tools competently, safely and confidently.	**From EYFS Outcomes** • Develop small motor skills so that they can use a range of tools competently, safely and confidently.

	• Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. • Know and talk about the different factors that support their overall health and wellbeing: healthy eating. • Manage their own basic hygiene and personal needs, including understanding the importance of healthy food choices. • Explore the natural world around them. • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Develop small motor skills so that they can use a range of tools competently, safely and confidently. • Use a range of small tools, including scissors, paint brushes and cutlery. • Explore, use and refine a variety of artistic effects to express ideas and feelings. • Safely use and explore a variety of materials, tools and techniques,	• Use a range of small tools, including scissors, paint brushes and cutlery. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Explore, use and refine a variety of artistic effects to express ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them.	• Use a range of small tools, including scissors, paint brushes and cutlery. • Explore, use and refine a variety of artistic effects to express ideas and feelings. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Create collaboratively, sharing ideas, resources and skills. • Return to and build on their previous learning, refining ideas and developing their ability to represent them.

	experimenting with colour, design, texture, form and function.		
Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	**ELGs** C&L: Speaking PSED: Managing Self UtW: The Natural World PD: Fine Motor Skills EA&D: Creating with Materials	**ELGs** PD: Fine Motor Skills EA&D: Creating with Materials	**ELGs** PD: Fine Motor Skills EA&D: Creating with Materials
Trips and Visitors			
Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.		

Year Group Year 1	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Structures** **Can you construct a windmill?** On completion of the unit, pupils will know… • that the shape of materials can be changed to improve the strength and stiffness of structures. • that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • that axles are used in structures and mechanisms to make parts turn in a circle. • that different structures are used for different purposes. • that a structure is something that has been made and put together. • that a client is the person being designing for.	**Mechanisms** **Can you make a moving story book?** On completion of the unit, pupils will know… • that a mechanism is the parts of an object that move together. • that a slider mechanism moves an object from side to side. • that a slider mechanism has a slider, slots, guides and an object. • that bridges and guides are bits of card that purposefully restrict the movement of the slider. • that in Design and Technology we call a plan a ‘design’.	**Cooking and Nutrition** **Can you make a smoothie?** On completion of the unit, pupils will know… • and understand the difference between fruits and vegetables. • and understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • that a blender is a machine which mixes ingredients together into a smooth liquid. • that a fruit has seeds, and a vegetable does not. • that fruits grow on trees or vines. • that vegetables can grow either above or below ground. • that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).

	• that design criteria is a list of points to ensure the product meets the client's needs and wants. • that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • that windmill turbines use wind to turn and make the machines inside work. • that a windmill is a structure with sails that are moved by the wind. • the three main parts of a windmill are the turbine, axle and structure.		

Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Designing the Structure** LC: Can I include individual preferences and requirements in my design? **Lesson 2 – Assembling the Structure** LC: Can I make a stable structure? **Lesson 3 – Assembling the Windmill** LC: Can I assemble the components of my structure? **Lesson 4 – Testing and Evaluating** LC: Can I evaluate my project and adapt my design? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Exploring Sliders and Movement** LC: Can I explore making mechanisms? **Lesson 2 – Design** LC: Can I design a moving story book? **Lesson 3 – Construction** LC: Can I construct a moving picture? **Lesson 4 – Testing and Evaluating** LC: Can I evaluate my finished product? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Fruit or Vegetable?** LC: Can I identify if a food is a fruit or a vegetable? **Lesson 2 – Where Fruit and Vegetables Grow** LC: Can I identify where plants grow and which parts we eat? **Lesson 3 – Smoothie Ingredients Tasting** LC: Can I taste and compare fruit and vegetables? **Lesson 4 – Making Smoothies** LC: Can I make a fruit and vegetable smoothie? **Lesson 5 – Knowledge Capture Task**
Knowledge Capture Task	Assessment D&T Y1: Constructing a windmill quiz.	Assessment D&T Y1: Making a moving story book quiz.	Assessment D&T Y1: Fruit and vegetables quiz.
National Curriculum End Points	**Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology.	**Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology.	**Design** • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology.

	Make • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Build structures, exploring how they can be made stronger, stiffer and more stable. **Evaluate** • Explore and evaluate a range of existing products. • Evaluate their ideas and products against design criteria. **Technical Knowledge** • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	**Make** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Explore and evaluate a range of existing products. • Evaluate their ideas and products against design criteria. **Technical Knowledge** • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	**Make** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Explore and evaluate a range of existing products. • Evaluate their ideas and products against design criteria. **Technical Knowledge** • Understand where food comes from.

Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	Mathematics • Pupils should be taught to recognise and name common two-dimensional and three-dimensional shapes.	English: Reading – Comprehension • Pupils should be taught to develop pleasure in reading, motivation to read, vocabulary and understanding by learning to appreciate rhymes and poems, and to recite some by heart.	Science • Working scientifically: Identifying and classifying. • Using their observations and ideas to suggest answers to questions. RSE • What constitutes a healthy diet (including understanding calories and other nutritional content). • The principles of planning and preparing a range of healthy meals.
Trips and Visitors			
Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.		

Year Group Year 2	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Mechanisms** **Can you construct a fairground wheel?** On completion of the unit, pupils will know… • that different materials have different properties and are therefore suitable for different uses. • the features of a Ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • that it is important to test a design as they go along so that they can solve any problems that may occur.	**Cooking and Nutrition** **Can you create a healthy wrap?** On completion of the unit, pupils will know… • that 'diet' means the food and drink that a person or animal usually eats. • and understand what makes a balanced diet. • where to find the nutritional information on packaging. • that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • and understand that they should eat a range of different foods from each food group, and roughly how much of each food group.	**Textiles** **Can you design and make a pouch?** On completion of the unit, pupils will know… • that sewing is a method of joining fabric. • that different stitches can be used when sewing. • and understand the importance of tying a knot after sewing the final stitch. • that a thimble can be used to protect my fingers when sewing.

		• that nutrients are substances in food that all living things need to make energy, grow and develop. • that 'ingredients' means the items in a mixture or recipe. • that I should only have a maximum of five teaspoons of sugar a day to stay healthy. • that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.	
Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Design a Ferris Wheel** LC: Can I explore wheel mechanisms and design a Ferris Wheel? **Lesson 2 – Planning the Build** LC: Can I select appropriate materials? **Lesson 3 – Building the Frame and Wheels** LC: Can I build and test a moving wheel? **Lesson 4 – Adding Pods and Decoration** LC: Can I make and evaluate a structure with a rotating wheel? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Hidden Sugars in Drinks** LC: Can I explain what makes a balanced diet? **Lesson 2 – Taste Testing Combinations** LC: Can I taste test food combinations? **Lesson 3 – Designing and Making a Wrap** LC: Can I design a healthy wrap? **Lesson 4 – Making and Evaluating** LC: Can I make a healthy wrap? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Running Stitch** LC: Can I sew a running stitch? **Lesson 2 – Using a Template** LC: Can I sew a running stitch? **Lesson 3 – Making a Pouch** LC: Can I join fabrics using a running stitch? **Lesson 4 – Decorating a Pouch** LC: Can I decorate a pouch using fabric glue or stitching? **Lesson 5 – Knowledge Capture Task**

Knowledge Capture Task	Assessment D&T Y2: Fairground wheel quiz.	Assessment D&T Y2: A balanced diet quiz.	Assessment D&T Y2: Pouches quiz.
National Curriculum End Points	**Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. **Make** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Build structures, exploring how they can be made stronger, stiffer and more stable. **Evaluate** • Explore and evaluate a range of existing products.	**Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria. **Make** • Use basic principles of a healthy and varied diet to prepare dishes. **Evaluate** • Explore and evaluate a range of existing products.	**Design** • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock- ups and, where appropriate, information and communication technology. **Make** • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Explore and evaluate a range of existing products.

	• Evaluate their ideas and products against design criteria. **Technical Knowledge** • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	• Evaluate their ideas and products against design criteria. **Technical Knowledge** • Understand where food comes from.	• Evaluate their ideas and products against design criteria. **Technical Knowledge** • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	<u>Mathematics</u> • Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line'. <u>Science</u> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses'.	<u>Mathematics</u> Compare and order lengths, mass, volume / capacity and record the results using >, < and =.	N/A
Trips and Visitors			

Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.

Year Group Year 3	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Mechanisms** **Can you design and make a pneumatic toy?** On completion of the unit, pupils will know… • and understand how pneumatic systems work. • and understand that pneumatic systems can be used as part of a mechanism. • that pneumatic systems operate by drawing in, releasing and compressing air. • and understand how sketches, drawings and diagrams can be used to communicate design ideas. • that exploded-diagrams are used to show how different parts of a product fit together. • that thumbnail sketches are small drawings to get ideas down on paper quickly.	**Structures** **Can you construct a castle?** On completion of the unit, pupils will know… • and understand that wide and flat based objects are more stable. • and understand the importance of strength and stiffness in structures. • the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • that a façade is the front of a structure. • and understand that a castle needed to be strong and stable to withstand enemy attack. • that a paper net is a flat 2D shape that can become a 3D shape once assembled.	**Cooking and Nutrition** **Do you understand the concept of eating seasonally?** On completion of the unit, pupils will know… • that not all fruits and vegetables can be grown in the UK. • that climate affects food growth. • that vegetables and fruit grow in certain seasons. • that cooking instructions are known as a 'recipe'. • that imported food is food which has been brought into the country. • that exported food is food which has been sent to another country. • and understand that imported foods travel from far away and this can negatively impact the environment.

		• that a design specification is a list of success criteria for a product.	• that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • and understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • safety rules for using, storing and cleaning a knife safely. • that similar coloured fruits and vegetables often have similar nutritional benefits.
Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Exploring Pneumatics** LC: Can I explain how pneumatic systems work? **Lesson 2 – Designing a Pneumatic Toy** LC: Can I design a toy that uses a pneumatic system? **Lesson 3 – Making Pneumatic Toys** LC: Can I create a pneumatic system? **Lesson 4 – Decorating and Assembling my Toy** LC: Can I test and finalise ideas against design criteria? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Features of a Castle** LC: Can I recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure? **Lesson 2 – Designing a Castle** LC: Can I design a castle? **Lesson 3 – Nets and Structures** LC: Can I construct 3D nets? **Lesson 4 – Building a Castle** LC: Can I construct and evaluate my final product? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Where in the World?** LC: Do I know that climate affects food growth? **Lesson 2 – British Seasonal Foods** LC: Can I explain the advantages of eating seasonal foods grown in the UK? **Lesson 3 – Rainbow Food** LC: Can I create a recipe that is healthy and nutritious using seasonal vegetables? **Lesson 4 – Making Tarts** LC: Can I safely follow a recipe when cooking? **Lesson 5 – Knowledge Capture Task**

Knowledge Capture Task	Assessment – D&T Y3 : Mechanical systems: Pneumatic toys quiz.	Assessment – D&T Y3: Structures: Constructing a castle quiz.	Assessment – D&T Y3: Food: Eating seasonally quiz.
National Curriculum End Points	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against	**Design** • Understand and apply principles of a healthy and varied diet. **Make** • Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. **Evaluate** • Evaluate their ideas and products against design criteria.

	their own design criteria and consider the views of others to improve their work. **Technical Knowledge** • Understand how key events and individuals in design and technology have helped shape the world. • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	their own design criteria and consider the views of others to improve their work **Technical Knowledge** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	**Technical Knowledge** • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	N/A	<u>History</u> • A study of an aspect or theme in British history that extends pupils' chronological knowledge beyond 1066. <u>Mathematics</u> • Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.	<u>Geography</u> • Describe and understand key aspects of: physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle. • Human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water.

Trips and Visitors			
Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.		

Year Group Year 4	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Textiles** **Do you understand that a fastening is something that holds two pieces of material together?** On completion of the unit, pupils will know… • that a fastening is something which holds two pieces of material together; for example, a zipper, toggle, button, press stud and velcro. • that different fastening types are useful for different purposes. • that creating a mock up (prototype) of their design is useful for checking ideas and proportions.	**Computing** **Can you create a mindful moments timer?** On completion of the unit, pupils will know… • and understand what variables are in programming. • some of the features of a micro:bit. • that an algorithm is a set of instructions to be followed by the computer. • that it is important to check code for errors (bugs). • that a simulator can be used as a way of checking code works before installing it onto an electronic device. • and understand the terms 'ergonomic' and 'aesthetic'.	**Electrical** **Can you create a torch?** On completion of the unit, pupils will know… • that an electrical circuit must be complete for electricity to flow. • that a switch can be used to complete and break an electrical circuit. • the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.

		• that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials. • that an exhibition is a way for companies to showcase products, meet potential new customers and gather feedback from users.	
Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Evaluating Fastenings** LC: Can I identify and evaluate different types of fastenings? **Lesson 2 – Designing a Book Sleeve** LC: Can I design a product to meet design criteria? **Lesson 3 – Paper Mock-up and Preparing Fabric** LC: Can I make and test a paper template? **Lesson 4 – Assembling a Book Sleeve** LC: Can I assemble a book jacket? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Analysing Timers** LC: Can I evaluate existing products? **Lesson 2 – Designing for the User** LC: Can I develop design criteria? **Lesson 3 – Programming the Timer** LC: Can I program and control a product? **Lesson 4 – Prototypes** LC: Can I develop and communicate ideas **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Electrical Products** LC: Can I learn about electrical items and how they work? **Lesson 2 – Evaluating Torches** LC: Can I analyse and evaluate electrical products? **Lesson 3 – Torch Design** LC: Can I make and evaluate a torch? **Lesson 4 – Torch Assembly** LC: Can I make and evaluate a torch? **Lesson 5 – Knowledge Capture Task**
Knowledge Capture Task	Assessment – D&T Y4: Textiles: Fastenings quiz.	Assessment Y4: Digital world: Mindful moment timer quiz.	Assessment D&T Y4: Electrical systems: Torches quiz.

National Curriculum End Points	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

	Technical Knowledge	**Technical Knowledge** • Apply their understanding of computing to program, monitor and control their products.	**Technical Knowledge** • Understand how key events and individuals in design and technology have helped shape the world. • Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].
Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	British values: • Mutual respect.	PSHE • Choices about healthy lifestyle and the importance of mental health. Computing: • Design, write and debug programs that accomplish specific goals. Maths: • Geometry – properties of shapes.	Science • Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Identify if a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • Recognise that a switch opens and closes a circuit and associate this with if a lamp lights in a simple series circuit.

			• Recognise some common conductors and insulators, and associate metals with being good conductors.
Trips and Visitors			
Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.		

Year Group Year 5	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Mechanical Systems** **Can you make a pop-up book?** On completion of the unit, pupils will know… • that mechanisms control movement. • and understand that mechanisms can be used to change one kind of motion into another. • and understand how to use sliders, pivots and folds to create paper-based mechanisms. • that a design brief is a description of what I am going to design and make. • that designers often want to hide mechanisms to make a product more aesthetically pleasing.	**Structures** **Can I design and build a bridge?** On completion of the unit, pupils will know… • and understand some different ways to reinforce structures. • and understand how triangles can be used to reinforce bridges. • that properties are words that describe the form and function of materials. • and understand why material selection is important based on properties. • and understand the material (functional and aesthetic) properties of wood. • and understand the difference between arch, beam, truss and suspension bridges.	**Cooking and Nutrition** **What could be healthy?** On completion of the unit, pupils will know… • and understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • that I can adapt a recipe to make it healthier by substituting ingredients. • that I can use a nutritional calculator to see how healthy a food option is. • and understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.

		• and understand how to carry and use a saw safely.	
Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Pop-up Book Page Design** LC: Can I design a pop-up book? **Lesson 2 – Making a Pop-up Book** LC: Can I follow a design brief to make a pop-up book? **Lesson 3 – Using Layers and Spacers** LC: Can I use layers and spacers to cover the working of mechanisms? **Lesson 4 – Writing and Illustrating** LC: Can I create a high-quality product suitable for a target user? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Arch and Beam Bridges** LC: Can I explore how to reinforce a beam (structure) to improve its strength? **Lesson 2 – Spaghetti Truss Bridges** LC: Can I build a spaghetti truss bridge? **Lesson 3 – Building Bridges** LC: Can I build a wooden truss bridge? **Lesson 4 – Finalising Bridges** LC: Can I complete, reinforce and evaluate my truss bridge? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – From Farm to Fork** LC: Can I explain where food comes from? **Lesson 2 – What Does Healthy Look Like?** LC: Can I explain the term 'healthy'? **Lesson 3 – Adapting and Improving a Recipe** LC: Can I adapt a traditional recipe? **Lesson 4 – Mamma Mia! What a Tasty, Healthy Bolognese!** LC: Can I complete a food product? **Lesson 5 – Knowledge Capture Task**
Knowledge Capture Task	Assessment D&T Y5: Mechanical systems: Pop-up book quiz.	Assessment D&T Y5: Structures: Bridges quiz.	Assessment D&T Y5: Food: What could be healthier? quiz.
National Curriculum End Points	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion,	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion,	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion,

	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical Knowledge** • Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical Knowledge** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical Knowledge** • Understand and apply principles of a healthy and varied diet. • Prepare and cook a variety of predominantly savory dishes using a range of cooking techniques.

			• Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	N/A	N/A	N/A
Trips and Visitors			
Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.		

Year Group Year 6	Autumn	Spring	Summer
Topic Title and Knowledge Outcomes	**Textiles** **Can you design and make a waistcoat?** On completion of the unit, pupils will know… • and understand that it is important to design clothing with the client / target customer in mind. • that using a template (or clothing pattern) helps to accurately mark out a design on fabric. • and understand the importance of consistently sized stitches.	**Cooking and Nutrition** **Come Dine with Me** On completion of the unit, pupils will know… • that 'flavour' is how a food or drink tastes. • that many countries have 'national dishes' which are recipes associated with that country. • that 'processed food' means food that has been put through multiple changes in a factory. • and understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • and understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).	**Structures** **Can you create a model of a new playground featuring five apparatus, made from three different structures?** On completion of the unit, pupils will know… • that structures can be strengthened by manipulating materials and shapes. • and understand what a 'footprint plan' is. • and understand that in the real world, design, can impact users in positive and negative ways. • that a prototype is a cheap model to test a design idea.

Lesson Sequence **(Learning Challenges in a Sequenced Order)**	**Lesson 1 – Waistcoat Design** LC: Can I design a waistcoat? **Lesson 2 – Preparing Fabric** LC: Can I mark and cut fabric according to a design? **Lesson 3 – Assembling a Waistcoat** LC: Can I assemble a waistcoat? **Lesson 4 – Decorating a Waistcoat** LC: Can I decorate a waistcoat? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Three Ingredients; Three Courses** LC: Can I research and design a three-course meal? **Lesson 2 – To Start…** LC: Can I prepare a meal using a recipe? LC: Can I explain where food comes from? LC: Can I write up a recipe? **Lesson 3 – The Main Course** LC: Can I prepare a meal using a recipe? LC: Can I explain where food comes from? LC: Can I write up a recipe? **Lesson 4 – Dessert** LC: Can I prepare a meal using a recipe? LC: Can I explain where food comes from? LC: Can I write up a recipe? **Lesson 5 – Knowledge Capture Task**	**Lesson 1 – Design a New Playground** LC: Can I design a playground with a variety of structures? **Lesson 2 – Building Structures** LC: Can I build a range of structures? **Lesson 3 – Perfecting Structures** LC: Can I improve and add detail to structures? **Lesson 4 – Playground Landscapes** LC: Can I create the surrounding landscape? **Lesson 5 – Knowledge Capture Task**
Knowledge Capture Task	Assessment D&T Y6: Textiles: Waistcoats quiz.	Assessment D&T Y6: Food: Come dine with me quiz.	Assessment D&T Y6: Structures: Playgrounds quiz.
National Curriculum End Points	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion,	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion,	**Design** • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate their ideas through discussion,

	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical Knowledge**	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical Knowledge** • Understand and apply principles of a healthy and varied diet. • Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques.	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** • Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. **Evaluate** • Investigate and analyse a range of existing products. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. **Technical Knowledge** • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

		• Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	
Possible Endpoints and Support for the Least Able	**The key to success in the classroom lies in having appropriate adaptations, accommodations, and modifications made to the curriculum.** As some pupils with SEND may need longer to master particular areas of the curriculum, all staff are committed to adapting their teaching and providing tailored or specialised resources to enable pupils with SEND to access the curriculum. Subject-specific interventions are also planned and delivered if necessary.		
Cross-Curricular Links	N/A	<u>Science</u> • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function' <u>RSE & PSHE</u> • The principles of planning and preparing a range of healthy meals.	N/A
Trips and Visitors			
Prior Learning Links	Please recap on the previous year groups learning before embarking on the current topic. Each unit of work will start with a gathering of knowledge and finish with a knowledge capture task.		