St Anne's and St Joseph's RC Primary School

# Design Technology Curriculum Overview

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| **Intent** | Our bespoke Design Technology Curriculum is designed to develop knowledge and skills that are progressive throughout primary school enabling children to strengthen both critical thinking and problem-solving strategies.<br>For all children to have:<br>- understanding of the design process and how to refine the quality of outcomes at each stage<br>- a balance of skills in all the strands of DT: textiles, structures, mechanisms, electrical systems, computing<br>- Cooking and nutrition build on knowledge and understanding of science, geography and history and deve3 lop cooking skills progressively# |
| **Implementation** | Throughout Design Technology children will:<br>- Start with a relevant and appropriate problem to solve<br>- Using a clear design process for all units is followed with a clear progression in skills of planning, exploring, communicating, making. modelling, reviewing, evaluating<br>- Links to wider curriculum are made where appropriate<br>- Three planned DT units per year |
| **SEND** | Children who are identified as working below ARE may have specific needs which contribute to their difficulty in this area or children may had a specific disability that may mean they may find this subject tricky such as fine motor control. Where needs are specifically related to a Special Educational Need or Disability, specific and targeted support will be outlined and reviewed through the child's EHCP and/ or Pupil Progress Meetings; elements of which may berecommended by external agencies.<br>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. |

| **Values** | Trust | Love | Forgiveness | Peace | Hope | Faith |
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| **Golden Threads** | **Structures** | **Mechanisms** | **Cooking and Nutrition** | **Textiles** | **Computing and Electrical** |
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| EYFS | Our EYFS curriculum is planned and sequenced in line with EYFS Framework expectations and Development Matters. The Prime Areas of Learning (Communication and Language, Physical Development and Personal, Social and Emotional Development) feed directly into all later learning. The Specific Areas of Learning that explicitly link to English are Literacy, Understanding the World and Expressive Arts and Design. Below is exemplification of what Literacy covers, please see our Early Years to KS1 bridging documents for further exemplification on how our Early Years lays the foundations for learning in all other subject areas . |
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<table>
<tr><th>Organisation of knowledge</th><th>Design</th><th>Make</th><th>Evaluate</th><th>Structures</th><th>Food</th></tr>
<tr><td rowspan="2">Relevant ELG</td><td rowspan="2">ELG: Listening, Attention and Understanding<br>- Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.<br>ELG: Speaking<br>- Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.<br>ELG: Self-Regulation<br>- Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate.</td><td colspan="4">ELG: Creating with Materials<br>- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</td></tr>
<tr><td>ELG: Managing self<br>- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.<br>ELG: Fine motor skills<br>- Use a range of small tools, including scissors, paintbrushes and cutlery.<br>ELG: Creating with Materials<br>- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.<br>- Share their creations, explaining the process they have used.</td><td>ELG: Listening, Attention and Understanding<br>- Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.<br>ELG: Speaking<br>- Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate;<br>ELG: Speaking<br>- Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.<br>ELG: Managing self<br>- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.<br>ELG: Creating with Materials<br>- Share their creations, explaining the process they have used.</td><td></td><td>ELG: Managing self<br>- Manage their own basic hygien and personal needs, including dressing, going to the toilet a understanding the importanc healthy food choices.<br>- Set and work towards simple goals, being able to wait for wl they want and control their immediate impulses when appropriate.<br>ELG: Fine motor skills<br>- Use a range of small tools, inclu scissors, paint brushes and cut</td></tr>
<tr><td>KS1 readiness objectives</td><td>• To describe something they want to make / build / construct<br>• To say who they are making / building / constructing for<br>• To talk about what materials they are going to use when making / building / constructing</td><td>• To make / build / construct objects using a variety of materials<br>• To join materials together when making / building / constructing</td><td>• To talk about their constructions / products, and what they are pleased with<br>• To talk about their constructions and say how it could be even better<br>• To talk about everyday objects that they like and say why they are good</td><td>• To build / construct structures from a range of materials to a design brief that they have created or been given.<br>• To build / construct structures that are tall or strong.<br>• To know that tape and glue can join materials together and can make structures stronger.</td><td>• To recognise different foods as eith healthy or unhealthy<br>• To know how to use basic cutlery a utensils to make and eat food<br>• To follow simple instructions to mak different foods<br>• To know when we make food for o people that it needs to be appealin</td></tr>
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| Y1 | Structures | Mechanisms | Cooking and Nutrition |
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| Unit Outcomes | **Can you construct a windmill?**<br>• Design, decorate and build a windmill for a mouse (client) to live in<br>• Develop an understanding of different types of windmill, how they work and their key features. Look at real existing examples and the functions that they carry out. | **Can you make a moving story book?**<br>• Experiment with sliders before planning and making three pages of a moving story book, based on a familiar story<br>• Draw the page backgrounds<br>• Create moving parts and assemble it. | **Can you make a smoothie?**<br>• Handle and explore fruits and vegetables and learn how to identify fruit<br>• Undertake taste testing to establish chosen ingredients for a smoothie<br>• Design and create packaging for the smoothie |
| Key Skills | - Finding the middle of an object.<br>- Puncturing holes.<br>- Adding weight to a structure.<br>- Creating supporting structures.<br>- Cutting evenly and carefully.<br>- Evaluating and improving a product. | - Explaining how to adapt mechanisms, using bridges or guides to control the movement.<br>- Designing a moving story book for a given audience.<br>- Following a design to create moving models that use levers and sliders.<br>- Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.<br>- Reviewing the success of a product by testing it with its intended audience. | - Designing smoothie carton packaging by hand.<br>- Chopping fruit and vegetables safely to make a smoothie.<br>- Juicing fruits to make a smoothie.<br>- Identifying if a food is a fruit.<br>- Learning where and how fruits and vegetables grow.<br>- Tasting and evaluating different foods.<br>- Describing appearance, smell and taste.<br>- Suggesting information to be included on packaging. |
| Lesson sequence | 1. To know how to include individual preferences andrequirements in my design<br>2. To know how to make a stable structure<br>3. To know how to assemble the components of my structure<br>4. To know how to evaluate my project and adapt my design<br>5. Assessment D&T Y1: Constructing a windmillquiz. | 1. To know how to explore making mechanisms<br>2. To know how to design a moving story book<br>3. To know how to construct a moving picture<br>4. To know how to evaluate my finished product<br>5. Assessment D&T Y1: Making a moving story bookquiz. | 1. To know how to identify if a food is a fruit or a vegetable<br>2. To know how to identify where plants grow and which partswe eat<br>3. To know how to taste and compare fruit and vegetables<br>4. To know how to make a fruit and vegetable smoothie<br>5. Assessment D&T Y1: Fruit and vegetables quiz |
| Vocabulary | • axle<br>• base<br>• centre<br>• equal<br>• evaluate<br>• middle<br>• rotate<br>• rotor<br>• rotor blades<br>• sails<br>• same<br>• stable<br>• strong<br>• structure<br>• test<br>• weak<br>• wind<br>• windmill | • sliders<br>• mechanism<br>• adapt<br>• design criteria<br>• design<br>• input<br>• model<br>• template<br>• assemble<br>• test | • blend<br>• chopping board<br>• compare<br>• cut<br>• design<br>• evaluate<br>• flavour<br>• fruit<br>• healthy<br>• ingredients<br>• juicer<br>• plant<br>• recipe<br>• root<br>• seed<br>• select<br>• smoothie<br>• stem<br>• table knife<br>• taste<br>• vegetable<br>• vine |
| Knowledge Capture | Task Throughout each unit will be completed by:<br>1. Creating their final piece using the skills taught<br>2. Evaluate their work (Does it work?)<br>3. Staff will assess how they have accomplished the creative, hands on skills and their understanding of the vocabulary | | |

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| NC End Points | Design purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideasthrough talking, drawing, templates, mock- ups and, where appropriate, information and communication technology<br><br>Select from and use a range of tools and equipment toperform practical tasks [for example, cutting, shaping, joining and finishing]<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Explore and evaluate a range of existing products Evaluate their<br><br>ideas and products against design criteria<br><br>Build structures, exploring how they can be madestronger, stiffer and more stable<br><br>Explore and use mechanisms [for example, levers,sliders, wheels and axles], in their products | 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, whereappropriate, information and communication technology<br><br>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joiningand finishing]<br><br>Select from and use a wide range of materials and components, including construction materials, textiles andingredients, according to their characteristics<br><br>Explore and evaluate a range of existing products Evaluate their<br><br>ideas and products against design criteria<br><br>Explore and use mechanisms [for example, levers, sliders,wheels and axles], in their products | Generate, develop, model and communicate their ideasthrough talking, drawing, templates, mock- ups and, where appropriate, information and communication technology<br><br>Select from and use a range of tools and equipment toperform practical tasks [for example, cutting, shaping, joining and finishing]<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Evaluate their ideas and products against design criteriaUnderstand where food comes from |
| Cross curricular Links | | English – Story writing into a book | PD – Keeping healthy |
| Enhancements | | | |
| Prior Learninglinks | Making a moving book | Construction | Fruit |

| Y2 | Mechanisms | Cooking and Nutrition | Textiles |
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| Unit Outcomes | **Can you construct a fairground wheel?**<br>• Design and create a functional Ferris wheels<br>• Consider how the different components fit together so that the wheels rotate and the structure stands freely.<br>• Select appropriate materials and develop their cutting and joining skills. | **Can you create a healthy wrap?**<br>• Explore and learn what forms a balanced diet<br>• Taste test ingredient combinations from different food groups that will inform a wrap design of their choice which will include a healthy mix of protein, vegetables and dairy<br>• Create a wrapper design | **Can you design and make a pouch?**<br>• Know about different sewing techniques<br>• Design and make their own template<br>• Accurately cut their fabric and sew a basic running stitch |
| Key Skills | - Selecting a suitable linkage system to produce the desired motions.<br>- Designing a wheel.<br>- Selecting appropriate materials based on their properties.<br>- Selecting materials according to their characteristics.<br>- Following a design brief.<br>- Evaluating different designs.<br>- Testing and adapting a design. | - Chopping foods safely to make a wrap.<br>- Grating foods to make a wrap.<br>- Snipping smaller foods instead of cutting.<br>- Spreading soft foods to make a wrap.<br>- Identifying the five food groups.<br>- Learning about a balanced diet. | - Designing a pouch.<br>- Selecting and cutting fabrics for sewing.<br>- Decorating a pouch using fabric glue or running stitch.<br>- Threading a needle.<br>- Sewing running stitch, with evenly spaced, neat, even stitches to join fabric.<br>- Neatly pinning and cutting fabric using a template.<br>- Troubleshooting scenarios posed by teacher.<br>- Evaluating the quality of the stitching on others' work.<br>- Discussing as a class, the success of their stitching against the success criteria.<br>- Identifying aspects of their peers' work that they particularly like and why. |
| Lesson Sequence | 1. To know how to explore wheel mechanisms and design awheel.<br>2. To know how to select appropriate materials.<br>3. To know how to build and test a movingwheel.<br>4. To know how to make and evaluate astructure with a rotating wheel.<br>Assessment D&T Y2: Fairgroundwheel quiz. | 1. To know what makes a balanced diet.<br>2. To know how to taste test food combinations<br>3. To know how to design a healthy wrap<br>4. To know how to make a healthy wrap<br>Assessment D&T Y2: A balanced diet quiz. | 1. To know how to sew a running stitch<br>2. To know how to use a template: To sew a runningstitch<br>3. To know how to join fabrics using a runningstitch<br>4. To know how to decorate a pouch using fabricglue or stitching<br>Assessment D&T Y2: Pouches quiz |
| Vocabulary | • design criteria<br>• wheel<br>• Ferris wheel<br>• pods<br>• axle<br>• axle holder<br>• frame<br>• mechanism | • balanced<br>• carbohydrates<br>• chopping board<br>• cut<br>• dairy<br>• design brief<br>• diet<br>• evaluate<br>• fruit<br>• grate<br>• ingredients<br>• menu<br>• oils<br>• proteins<br>• review<br>• scissors<br>• smell<br>• snip<br>• spreads<br>• table knife | • decorate<br>• fabric<br>• fabric glue<br>• knot<br>• needle<br>• needle threader<br>• running stitch<br>• sew<br>• template<br>• thread |

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| Knowledge Capture | Task Throughout each unit will be completed by:<br><br>1. Creating their final piece using the skills taught<br>2. Evaluate their work (Does it work?)<br>3. Staff will assess how they have accomplished the creative, hands on skills and their understanding of the vocabulary | | |
| NC End Points | Design purposeful, functional, appealing products for themselves and other users based on design criteria<br><br>Generate, develop, model and communicate their ideasthrough talking, drawing, templates, mock- ups and, where appropriate, information and communication technology<br><br>Select from and use a range of tools and equipment toperform practical tasks [for example, cutting, shaping, joining and finishing]<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria<br><br>Build structures, exploring how they can be madestronger, stiffer and more stable<br><br>Explore and use mechanisms [for example, levers,sliders, wheels and axles], in their products. | Design purposeful, functional, appealing products forthemselves and other users based on design criteria.<br><br>Explore and evaluate a range of existing products Evaluate<br><br>their ideas and products against design criteria<br><br>Use basic principles of a healthy and varied diet to prepare dishes<br><br>Understand where food comes from | Design purposeful, functional, appealing products for themselves and other users based on design criteria<br><br>Generate, develop, model and communicate their ideasthrough talking, drawing, templates, mock- ups and, where appropriate, information and communication technology<br><br>Select from and use a range of tools and equipment toperform practical tasks [for example, cutting, shaping, joining and finishing]<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria |
| Cross Curricular | | PD – Healthy lifestyles | History – Types of houses |
| Enhancements | | | |
| Prior Learninglinks | Mechanisms – Wheels and Axis | Cooking and nutrition - Smoothies | Textiles - Puppets |

| Y3 | Mechanisms | Structures | Cooking and Nutrition |
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| Unit Outcomes | **Can you design and make a pneumatic toy?**<br>• Design and create a toy with a pneumatic system<br>• Learn how trapped air can be used to create a product with moving parts.<br>• Know what thumbnail sketches are and exploded diagrams. | **Can you construct a castle?**<br>• Learn about the features of a castle<br>• Design and make one of their own<br>• Use configurations of handmade nets and recycled materials to make towers and turrets<br>• Construct a stable base | **Do I understand the concept of eating seasonally?**<br>• Pupils discover when and where fruits and vegetables are grown and learn about seasonality in the UK.<br>• Respond to a design brief to design a seasonal food tart using ingredients harvested in the UK in May and June. |
| Key Skills | - Designing a toy that uses a pneumatic system.<br>- Developing design criteria from a design brief<br>- Generating ideas using thumbnail sketches and exploded diagrams.<br>- Learning that different types of drawings are used in design to explain ideas clearly<br>- Creating a pneumatic system to create a desired motion<br>- Building secure housing for a pneumatic system<br>- Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy<br>- Selecting materials due to their functional and aesthetic characteristics.<br>- Manipulating materials to create different effects by cutting, creasing, folding and weaving.<br>- Using the views of others to improve designs<br>- Testing and modifying the outcome, suggesting improvements.<br>- Understanding the purpose of exploded-diagrams through the eyes of a designer and their client | - Designing a castle with key features to appeal to a specific person/purpose.<br>- Drawing and labelling a castle design using 2D shapes.<br>- Designing and/or decorating a castle tower on CAD software.<br>- Constructing a range of 3D geometric shapes using nets.<br>- Creating special features for individual designs.<br>- Making facades from a range of recycled materials.<br>- Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison, to the original design.<br>- Suggesting points for modification of the individual designs. | - Describing how climate affects where foods grow.<br>- Identifying seasonal ingredients from the UK<br>- Tasting seasonal ingredients.<br>- Describing the texture and flavour of ingredients.<br>- Peeling foods by hand or with a peeler.<br>- Cutting ingredients safely.<br>- Choosing ingredients based on a design brief.<br>- Following the instructions within a recipe.<br>- Describing the benefits of seasonal fruits and vegetables and their impact on the environment. |
| Lesson sequence | 1. To know how to understand how pneumatic systems work.<br>2. To know how to design a toy that uses a pneumatic system.<br>3. To know how to create a pneumatic system.<br>4. To know how to test and finalise ideas against design criteria<br>5. Assessment – D&T Y3 : Mechanical systems: Pneumatic toys | 1. To know how to recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure.<br>2. To know how to design a castle<br>3. To know how to construct 3D nets<br>4. To know how to construct and evaluate my final product<br>5. Assessment – D&T Y3: Structures: Constructing a castle | 1. To know that climate affects food growth<br>2. To know how to understand the advantages of eating seasonal foods grown in the UK<br>3. To know how to create a recipe that is healthy and nutritious using seasonal vegetables<br>4. To know how to safely follow a recipe when cooking<br>5. Assessment – D&T Y3: Food: Eating seasonally |
| Vocabulary | • mechanism<br>• lever<br>• pivot<br>• linkage system<br>• pneumatic system<br>• input<br>• output<br>• component<br>• thumbnail sketch<br>• research<br>• adapt<br>• properties<br>• reinforce<br>• motion | • 2D<br>• 3D<br>• castle<br>• design<br>• key features<br>• net<br>• scoring<br>• shape<br>• stable<br>• stiff<br>• strong<br>• structure<br>• tab | • appearance<br>• arid<br>• climate<br>• complementary<br>• country<br>• cut<br>• design<br>• evaluate<br>• export<br>• grate<br>• import<br>• ingredients<br>• Mediterranean<br>• mountain<br>• peel<br>• polar<br>• seasonal<br>• taste<br>• texture<br>• vegetable |

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| Knowledge Capture | Task Throughout each unit will be completed by:<br><br>1. End of unit quiz<br>2. Creating their final piece using their own design and skills taught<br>3. Evaluate their work (Is it purposeful? Is it effective? How could it be improved further?)<br>4. Staff will assess how they have accomplished the creative, hands on skills and their understanding of the vocabulary | | |
| NC End Points | Use research and develop design criteria to inform the design of innovative, functional, appealing products thatare fit for purpose, aimed at particular individuals or groups<br><br>Generate, develop, model and communicate their ideasthrough discussion, annotated sketches, cross-sectionaland exploded diagrams, prototypes, pattern pieces and computer- aided design<br>Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work<br><br>Understand how key events and individuals in designand technology have helped shape the world<br><br>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers andlinkages] | Use research and develop design criteria to inform the design of innovative, functional, appealing products that arefit for purpose, aimed at particular individuals or groups<br><br>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional andexploded diagrams, prototypes, pattern pieces and computer- aided design<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joiningand finishing], accurately<br><br>Select from and use a wide range of materials and components, including construction materials, textiles andingredients, according to their characteristics<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work<br><br>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures | Understand and apply principles of a healthy and varieddiet<br><br>Prepare and cook variety of predominantly savory dishes using a range of cooking techniques<br><br>Understand seasonality, and know where and how avariety of ingredients are grown, reared, caught and processed |
| Cross curricular Links | History - Toys – Old and new | History – Monarch and Castles | PD – Healthy Lifestyles |
| Enhancements | | | |
| Prior Learninglinks | Mechanisms – Making a moving monster | Structures and Junk Modelling | Cooking and Nutrition – A Balanced Diet |

| Y4 | Textiles | Adapting a Recipe – Biscuits | Electrical |
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| Unit Outcomes | **What is fastening and what is its job?**<br><br>• Build upon their sewing skills from previous years<br>• Design and create a book sleeve<br>• Explore a variety of fastenings and selecting the most appropriate for their design based on strength and appropriate-use. | **Why are budgets important when baking?**<br><br>• Work in groups to adapt a simple biscuit recipe, to create a biscuit suited to a chosen target audience.<br>• Ensure that their creation comes within a given budget of overheads and ingredients. | **Can I design and create an effective torch?**<br><br>• Pupils apply their scientific understanding of electrical circuits to create a torch made from recycled and reclaimed materials and objects.<br>• Design and evaluate their product against set design criteria. |
| Key Skills | - Writing design criteria for a product, articulating decisions made.<br>- Designing a personalised book sleeve.<br>- Making and testing a paper template with accuracy and in keeping with the design criteria.<br>- Measuring, marking and cutting fabric using a paper template.<br>- Selecting a stitch style to join fabric.<br>- Sewing neatly using small regular stitches.<br>- Incorporating a fastening to a design.<br>- Testing and evaluating an end product against the original design criteria. | - To know that the amount of an ingredient in a recipe is known as the 'quantity'.<br>- To know that it is important to use oven gloves when removing hot food from an oven.<br>- To know the following cooking techniques: sieving, creaming, rubbing method, cooling.<br>- To understand the importance of budgeting while planning ingredients for biscuits. | - Designing a torch, considering the target audience and creating both design and success criteria focusing on features of individual design ideas.<br>- Making a torch with a working electrical circuit and switch.<br>- Using appropriate equipment to cut and attach materials.<br>- Assembling a torch according to the design and success criteria.<br>- Evaluating electrical products.<br>- Testing and evaluating the success of a final product. |
| Lesson sequence | 1. To know how to identify and evaluate different typesof fastenings<br>2. To know how to design a product to meet design criteria<br>3. To know how to make and test a paper template<br>4. To know how to assemble a book jacket<br>- Assessment – D&T Y4: Textiles:Fastenings quiz | 1. To know how to follow a baking recipe<br>2. To know how to make and test a prototype<br>3. To know how to design a biscuit to a given budget<br>4. To know hot to make a biscuit to a given design brief.<br>5. To know how to evaluate and make improvements | 1. To know how to learn about electrical items andhow they work.<br>2. To know how to analyse and evaluate electrical products<br>3. To know how to design a product to fit a set of specific user needs<br>4. To know how to make and evaluate a torch<br>Assessment D&T Y4: Electricalsystems: Torches |
| Vocabulary | • Criteria<br>• Fabric<br>• Fastening<br>• Fix<br>• Mock-up<br>• Stitch<br>• Template | • Adapt<br>• Appearance<br>• Budget<br>• Combine<br>• Compare<br>• Construct<br>• Design<br>• Evaluate<br>• Hygiene<br>• Ingredients<br>• Layout<br>• Market research<br>• Modify<br>• Target audience<br>• texture | • battery<br>• bulb<br>• buzzer<br>• conductor<br>• electricity<br>• insulator<br>• series circuit<br>• switch<br>• component<br>• design criteria<br>• diagram<br>• evaluation<br>• model<br>• shape<br>• input<br>• recyclable<br>• aesthetics<br>• assemble<br>• properties<br>• test |

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| Knowledge Capture | Task Throughout each unit will be completed by:<br><br>5. End of unit quiz<br>6. Creating their final piece using their own design and skills taught<br>7. Evaluate their work (Is it purposeful? Is it effective? How could it be improved further?)<br>8. Staff will assess how they have accomplished the creative, hands on skills and their understanding of the vocabulary | | |
| NC End Points | Use research and develop design criteria to inform the design of innovative, functional, appealing products thatare fit for purpose, aimed at particular individuals or groups<br><br>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectionaland exploded diagrams, prototypes, pattern pieces and computer aided design<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work | Use research and develop design criteria to inform the design of innovative, functional, appealing products that arefit for purpose, aimed at particular individuals or groups<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joiningand finishing], accurately<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work<br><br>Apply their understanding of computing to program, monitorand control their products | Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately<br><br>Select from and use a wide range of materials and components, including construction materials, textilesand ingredients, according to their characteristics<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work<br><br>Understand how key events and individuals in designand technology have helped shape the world<br><br>Understand and use electrical systems in their products[for example, series circuits incorporating switches, bulbs, buzzers and motors] |
| Cross curricular Links | History – Outfits then and now<br>Science - Waterproof | Computing | Science - Light |
| Enhancements | | | |
| Prior Learning links | | Cooking and Nutrition – Eating Seasonally | |

| Y5 | Mechanical systems | Structures | Cooking and Nutrition |
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| Unit Outcomes | **How do books become 3D?**<br>• Create a four-page pop-up story book design,<br>• Incorporate a range of functional mechanisms that use levers, sliders, layers and spacers to give the illusion of movement through interaction | **Can I design and build a bridge?**<br>• Learn about various types of bridges and exploring how the strength of structures can be affected by the shapes used<br>• Create their own bridge and test its durability - using woodworking tools and techniques. | **Where does our food come from?**<br>• Research and modify a traditional bolognese sauce recipe to improve the nutritional value.<br>• Cook improved version and evaluate it<br>• Create packaging that fits design criteria.<br>• Learn about where beef comes from. |
| Key Skills | - Designing a pop-up book which uses a mixture of structures and mechanisms.<br>- Naming each mechanism, input and output accurately.<br>- Storyboarding ideas for a book.<br>- Following a design brief to make a pop up book, neatly and with focus on accuracy.<br>- Making mechanisms and/or structures using sliders, pivots and folds to produce movement.<br>- Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.<br>- Evaluating the work of others and receiving feedback on own work.<br>- Suggesting points for improvement. | - Designing a stable structure that is able to support weight.<br>- Creating a frame structure with focus on triangulation.<br>- Making a range of different shaped beam bridges.<br>- Using triangles to create truss bridges that span a given distance and support a load.<br>- Building a wooden bridge structure.<br>- Independently measuring and marking wood accurately.<br>- Selecting appropriate tools and equipment for particular tasks.<br>- Using the correct techniques to saw safely.<br>- Identifying where a structure needs reinforcement and using card corners for support.<br>- Explaining why selecting appropriate materials is an important part of the design process.<br>- Understanding basic wood functional properties.<br>- Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.<br>- Suggesting points for improvements for own bridges and those designed by others. | - Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients.<br>- Writing an amended method for a recipe to incorporate the relevant changes to ingredients.<br>- Designing appealing packaging to reflect a recipe.<br>- Cutting and preparing recipes safely.<br>- Using equipment safely, including knives, hot pans and hobs.<br>- Knowing how to avoid cross-contamination.<br>- Following a step-by-step method carefully to make a recipe.<br>- Identifying the nutritional differences between different products and recipes.<br>- Identifying and describing healthy benefits of food groups. |
| Lesson Sequence | 1. To know how to design a pop-up book<br>2. To know how to follow my design brief to makemy pop-up book<br>3. To know how to use layers and spacers to cover the working of mechanisms<br>4. To know how to create a high-quality productsuitable for a target user<br>5. Assessment D&T Y5: Mechanicalsystems: Pop-up book | 1. To know how to explore how to reinforce a beam (structure) to improve its strength<br>2. To know how to build a spaghetti truss bridge<br>3. To know how to build a wooden truss bridge<br>4. To know how to complete, reinforce and evaluatemy truss bridge<br>5. Assessment D&T Y5: Structures:Bridges quiz | 1. To know how to understand where food comesfrom<br>2. To know how to understand the term 'healthy'<br>3. To know how to adapt a traditional recipe<br>4. To know how to complete a food product<br>5. Assessment D&T Y5: Food: Whatcould be healthier? |
| Vocabulary | • design<br>• input<br>• motion<br>• mechanism<br>• criteria<br>• research<br>• reinforce<br>• model | • beam bridge/arch bridge/truss bridge<br>• strength<br>• corrugation<br>• rigid<br>• factors<br>• stability<br>• visual appeal<br>• aesthetics<br>• joints<br>• mark out<br>• hardwood/softwood<br>• wood file/rasp<br>• sandpaper/glasspaper<br>• bench hook/vice<br>• tenon saw/coping saw<br>• assemble<br>• material properties<br>• reinforce<br>• wood sourcing<br>• evaluate<br>• quality of finish | • beef<br>• reared<br>• processed<br>• ethical<br>• diet<br>• ingredients<br>• supermarket<br>• farm<br>• balanced |
| Knowledge Capture | Task Throughout each unit will be completed by:<br>1. End of unit quiz<br>2. Creating their final piece using their own design and skills taught<br>3. Evaluate their work (Is it purposeful? Is it effective? How could it be improved further?)<br>4. Staff will assess how they have accomplished the creative, hands on skills and their understanding of the vocabulary | | |

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| NC End Points | Use research and develop design criteria to inform the design of innovative, functional, appealing products thatare fit for purpose, aimed at particular individuals or groups<br><br>Generate, develop, model and communicate their ideasthrough discussion, annotated sketches, cross-sectionaland exploded diagrams, prototypes, pattern pieces and computer- aided design<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately<br><br>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional propertiesand aesthetic qualities<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work<br><br>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers andlinkages] | Use research and develop design criteria to inform the design of innovative, functional, appealing products that arefit for purpose, aimed at particular individuals or groups<br><br>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional andexploded diagrams, prototypes, pattern pieces and computer- aided design<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joiningand finishing], accurately<br><br>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<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work<br><br>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures | Use research and develop design criteria to inform the design of innovative, functional, appealing products thatare fit for purpose, aimed at particular individuals or groups<br><br>Generate, develop, model and communicate their ideasthrough discussion, annotated sketches, cross-sectionaland exploded diagrams, prototypes, pattern pieces and computer- aided design<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately<br><br>Investigate and analyse a range of existing products<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work<br><br>Understand how key events and individuals in designand technology have helped shape the world<br>Apply their understanding of computing to program,monitor and control their products<br><br>Understand and apply principles of a healthy and varieddiet<br><br>Prepare and cook variety of predominantly savory dishesusing a range of cooking techniques<br><br>Understand seasonality, and know where and how avariety of ingredients are grown, reared, caught and processed. |
| Cross curricular Links | English - Stories | Geography – key human features - bridges | PD – Healthy Lifestyles |
| Enhancements | | | |
| Prior Learninglinks | Mechanical Systems – Slingshot Car | Textiles - Fastenings | Cooking and Nutrition – Adapting a recipe |

| Y6 | Textiles | Cooking and Nutrition | Structure |
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| Unit Outcomes | **Can I design and make a waistcoat for a teddy?**<br>• Select fabrics, use templates, pin, decorate and stitch materials together to create a waistcoat for a person or purpose of their choosing.<br>• Create or use a pattern template to fit a desired person or item (e.g. teddy bear).<br>• Sew the materials together using a stitch they have been taught | **Can I design, make and evaluate a three course meal?**<br>• Research and prepare a three-course meal<br>• Taste-test and score their food.<br>• Research the journey of their main ingredient from 'farm to fork' and write a favourite recipe. | **What is a prototype and can I create one?**<br>• Design and create a model for a new playground featuring five apparatus, made from three different structures.<br>• Use a footprint as the base, practise visualising objects in plan view and get creative including natural features |
| Key Skills | - Designing a waistcoat in accordance with a specification and design criteria to fit a specific theme.<br>- Annotating designs.<br>- Using a template when pinning panels onto fabric.<br>- Marking and cutting fabric accurately, in accordance with a design.<br>- Sewing a strong running stitch, making small, neat stitches and following the edge.<br>- Tying strong knots.<br>- Decorating a waistcoat – attaching objects using thread and adding a secure fastening.<br>- Learning different decorative stitches.<br>- Sewing accurately with even regularity of stitches.<br>- Evaluating work continually as it is created. | - Writing a recipe, explaining the key steps, method and ingredients.<br>- Including facts and drawings from research undertaken.<br>- Following a recipe, including using the correct quantities of each ingredient.<br>- Adapting a recipe based on research.<br>- Working to a given timescale.<br>- Working safely and hygienically with independence.<br>- Evaluating a recipe, considering: taste, smell, texture and origin of the food group.<br>- Taste testing and scoring final products.<br>- Suggesting and writing up points of improvements in productions.<br>- Evaluating health and safety in production to minimise cross contamination. | - Designing a playground featuring a variety of different structures, giving consideration to how the structures will be used.<br>- Considering effective and ineffective designs.<br>- Building a range of play apparatus structures drawing upon new and prior knowledge of structures.<br>- Measuring, marking and cutting wood to create a range of structures.<br>- Using a range of materials to reinforce and add decoration to structures.<br>- Improving a design plan based on peer evaluation.<br>- Testing and adapting a design to improve it as it is developed.<br>- Identifying what makes a successful structure. |
| Lesson Sequence | 1. To know how to design a waistcoat.<br>2. To know how to mark and cut fabric according to a design<br>3. To know how to assemble a waistcoat<br>4. To know how to decorate your waistcoat<br>- Assessment D&T Y6: Textiles: Waistcoats quiz | 1. To know how to research and design a three-course meal<br>2. To know how to prepare a meal using a recipe; To understand where their food comes from; To write up a recipe* (starter)<br>3. To know how to prepare a meal using a recipe; To understand where their food comes from; To write up a recipe* (Main)<br>4. To know how to prepare a meal using a recipe; To understand where their food comes from; To write up a recipe* (Desert)<br>5. Assessment D&T Y6: Food: Come dinewith me | 1. To know how to design a playground with a variety of structures<br>2. To know how to build a range of structures<br>3. To know how to improve and add detail to structures<br>4. To know how to create the surrounding landscape<br>5. Assessment D&T Y6: Structures: Playgrounds |
| Vocabulary | • annotate<br>• decorate<br>• design criteria<br>• fabric<br>• target customer<br>• waistcoat<br>• waterproof | • equipment<br>• flavours<br>• ingredients<br>• method<br>• research<br>• recipe<br>• bridge method<br>• cookbook<br>• cross-contamination<br>• farm to fork<br>• preparation<br>• storyboard | • apparatus<br>• design criteria<br>• equipment<br>• playground<br>• landscape features<br>• cladding |

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| Knowledge Capture | Task Throughout each unit will be completed by:<br><br>5. End of unit quiz<br>6. Creating their final piece using their own design and skills taught<br>7. Evaluate their work (Is it purposeful? Is it effective? How could it be improved further?)<br>8. Staff will assess how they have accomplished the creative, hands on skills and their understanding of the vocabulary | | |
| NC EndPoints | Use research and develop design criteria to inform the design of innovative, functional, appealing products thatare fit for purpose, aimed at particular individuals or groups.<br><br>Generate, develop, model and communicate their ideasthrough discussion, annotated sketches, cross-sectionaland exploded diagrams, prototypes, pattern pieces and computer- aided design.<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately.<br><br>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional propertiesand aesthetic qualities.<br><br>Investigate and analyse a range of existing products.<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work. | **Come Dine With Me**<br><br>Use research and develop design criteria to inform the design of innovative, functional, appealing products that arefit for purpose, aimed at particular individuals or groups.<br>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional andexploded diagrams, prototypes, pattern pieces and computer- aided design.<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joiningand finishing], accurately.<br><br>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.<br><br>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.<br><br>Understand and apply principles of a healthy and varied diet. Prepare and cook variety of predominantly savoury dishesusing a range of cooking techniques.<br><br>Understand seasonality, and know where and how a varietyof ingredients are grown, reared, caught and processed. | Use research and develop design criteria to inform the design of innovative, functional, appealing products thatare fit for purpose, aimed at particular individuals or groups.<br><br>Generate, develop, model and communicate their ideasthrough discussion, annotated sketches, cross-sectionaland exploded diagrams, prototypes, pattern pieces and computer- aided design.<br><br>Select from and use a wider range of tools and equipment to perform practical tasks [for example,cutting, shaping, joining and finishing], accurately.<br><br>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional propertiesand aesthetic qualities.<br><br>Investigate and analyse a range of existing products.<br><br>Evaluate their ideas and products against their owndesign criteria and consider the views of others to improve their work.<br><br>Apply their understanding of how to strengthen, stiffenand reinforce more complex structures. |
| Cross curricular Links | Science - Materials | PD – Healthy Lifestyles | PD |
| Enhancements | | | |
| Prior Learning Links | Textiles – Stuffed Toys | Cooking and Nutrition – Developing a Recipe | Structures - Bridges |