

When teaching Design and Technology, projects follow the following steps:

- Explore
- Plan
- Make
- Evaluate

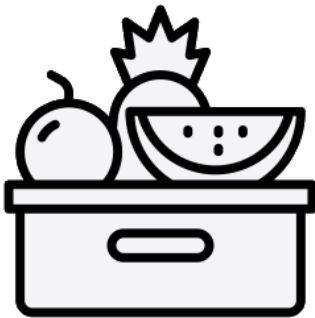
Throughout the year children will also cover key skills focused on the following:

- Lever Mechanisms (Y1)
- Pop Up Mechanisms (Y2)
- Blending and Puréeing (Y3)
- Computer Aided Design (Y3, Y4, Y6)
- Electronics (Y4, Y5, Y6)
- Gears (Y5)

Objectives were created by initially breaking down the areas of the national curriculum and focus on the following key areas:

- Design
- Structures
- Mechanisms
- Textiles
- Food and Nutrition
- Electronics

Skills have been altered and adjusted over two years as projects were developed to consolidate key skills and be more progressive.



# Y1

## Autumn Term

Unit Content	<p>Rolling Toy - Structure To create a simple structure or toy that used a cardboard tube securely joined to another component (i.e. wheel or base). Exploring new joining techniques (tabs &amp; brackets) to increase the strength of a model. Building on from exploring the properties of materials with regard to how strong/heavy they are.</p>
Disciplinary Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Explore existing products considering: use, materials, how they work, audience, where they might be used</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Use pictures and key words to design and explain.</li> <li>• Design a product with an awareness of the design criteria.</li> <li>• Research similar existing products.</li> <li>• Explain what the product is for, and how it will work.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Measure, mark out, cut and shape, with support</li> <li>• Try to use finishing techniques to make product look good</li> <li>• Begin to measure and join materials, with some support</li> <li>• Consider &amp; suggest ways to make material/product stronger</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Talk about my work, linking it to what I was asked to do</li> <li>• Talk about things that other people have made</li> <li>• Evaluate existing products, and say what is and isn't good, begin to talk about what could make product better</li> </ul>
Substantive Knowledge	<p>Plan</p> <ul style="list-style-type: none"> <li>• Begin to use simple ICT appropriately to design using previous learning and experience.</li> <li>• Think of their own ideas and be able to explain what they want to do.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Select tools and equipment to cut, shape, join.</li> <li>• Suggest ways to make material/product stronger</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Explore and understand effective ways to join with a product.</li> </ul>

## Spring Term

<p><b>Unit Content</b></p>	<p>Creating a Moving Picture – Mechanisms To create a 'pop-up book' style card with a moving element a pulley &amp; lever mechanism to create a moving picture.</p> <p>Building upon attaching and joining using glue and tape. Arranging, measuring and sorting materials. Cutting using scissors.</p>
<p><b>Disciplinary Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>● Explain the purpose of a product, how it will work and how it will be suitable for the user.</li> <li>● Talk about existing products considering: use, materials, how they work, audience, where they might be used; express opinions, likes and dislikes.</li> <li>● Evaluate how good existing products are</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>● <b>Come up with their own ideas</b> and plan what to do next.</li> <li>● <b>Explain what they want to do</b> and describe how they plan to do it.</li> <li>● Describe a design using pictures and words.</li> <li>● Design products following a design.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>● <b>Measure, mark out, cut and attach materials</b> with support.</li> <li>● Talk about my work, linking it to what I was asked to do.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>● Describe what went well, thinking about design criteria</li> <li>● Talk about what I would do differently if I were to do it again and why</li> <li>● Begin to talk about what could make product better.</li> </ul>
<p><b>Substantive Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>● Choose the best tools and materials.</li> <li>● Identify and name the mechanism being used (pulley and Lever).</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>● Explain what they are making</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>● Explore and understand mechanisms (Basic Levers) in a product.</li> </ul>

## Summer Term

<b>Unit Content</b>	<p>Making Fruit Salads - Food &amp; Nutrition</p> <p>To create an “easy to eat on the go” fruit salad, combining fruits with flavours that complement each other and shaping fruit to make them easier to eat with a fork.</p> <p>Introduction to chopping ingredients using the claw technique and consider how they complement each other.</p> <p>Building on mixing &amp; shaping ingredients to create biscuits and/or chips in EYFS.</p>
<b>Disciplinary Knowledge</b>	<p>Plan &amp; Explore</p> <ul style="list-style-type: none"> <li>• Think of their own ideas and be able to explain what they want to do.</li> <li>• Use pictures and key words to design and explain.</li> <li>• Design a product with an awareness of the design criteria.</li> </ul> <ul style="list-style-type: none"> <li>• Talk about ingredients considering: how they taste and how easy they are to prepare.</li> <li>• Talk about ingredients and say what is and isn't good</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Work in a safe and hygienic manner</li> <li>• Wash hands and clean surfaces, with guidance</li> <li>• Weigh, measure and mix with support</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Talk about my work, linking it to what I was asked to do</li> <li>• Begin to talk about what could make product better</li> </ul>
<b>Substantive Knowledge</b>	<p>Plan</p> <ul style="list-style-type: none"> <li>• Begin to use simple ICT appropriately to design using previous learning and experience.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Select tools and equipment to cut, shape.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• To begin to understand how to work safely and hygienically, with direction.</li> </ul>

# Y2

## Autumn Term

<p>Unit Content</p>	<p>Tower Building – Structure</p> <p>To create the tallest free-standing tower with kebab skewers and a variety of suitable sweets.</p> <p>To use the positioning and shape of a stock set of materials (e.g. kebab sticks, jelly sweets &amp; marshmallows) to strengthen a structure.</p> <p>Building on strengthening joins/structures using tabs and brackets (rolling toy)</p>
<p>Disciplinary Knowledge</p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Explain the purpose of a product, how it will work and how it will be suitable for the user.</li> <li>• Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion</li> <li>• Evaluate how good existing products are</li> <li>• Identify and name the mechanism being used.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• <b>Explain what they want to do</b> and describe how they may do it</li> <li>• Describe a design using pictures, words, models, diagrams and simple ICT design</li> <li>• Design products following a design criterion</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Measure, mark out, cut and <b>shape materials</b> and components, with support.</li> <li>• Join materials and components together in different ways</li> <li>• Join materials in different ways</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Describe what went well, thinking about design criteria</li> <li>• Talk about what I would do differently if I were to do it again and why</li> </ul>
<p>Substantive Knowledge</p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion, likes and dislikes</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Choose the best tools and materials, and <b>explain choices</b></li> <li>• <b>Have their own ideas</b> and plan what to do next</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Use own ideas to try to make product stronger (via positioning and shape of materials)</li> <li>• Explore using positioning and shape to strengthen a structure.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Explain what they are making and why it fits the purpose</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Apply their understanding of structures, exploring how they can be made stronger, stiffer and more stable</li> </ul>

## Spring Term

Unit Content	<p>Raisin Box Racers – Mechanisms</p> <p>To create a car, with a spinning axle, that can be either pulled or pushed.</p>
Disciplinary Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Explain the purpose of a product, how it will work and how it will be suitable for the user.</li> <li>• Evaluate how good existing products are</li> <li>• Identify and name the mechanism being used</li> <li>• Explain what they want to do and describe how they may do it</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Explain what they want to do and describe how they may do it</li> <li>• Describe a design using <b>pictures</b>, words, models, <b>diagrams</b> and simple ICT design</li> <li>• Design products following a design criterion</li> <li>• Use knowledge of existing products to produce ideas</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Begin to use spinning axels with support</li> <li>• Measure materials</li> <li>• Use joining, layering, rolling or folding to make it stronger</li> <li>• Identify and name the mechanism being used</li> <li>• Try to use finishing techniques to make product look good.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Explain what they are making and why it fits the purpose</li> <li>• Describe what went well, thinking about design criteria</li> <li>• Talk about what I would do differently if I were to do it again and why</li> </ul>
Substantive Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Use knowledge of existing products to produce ideas</li> <li>• Have their own ideas and plan what to do next</li> <li>• <b>Choose the best tools and materials, and explain choices (class discussion)</b></li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Consider the size and position of elements that make up a moving axle and the effect this will have on the performance of the product.</li> </ul>

## Summer Term

<p><b>Unit Content</b></p>	<p>Bookmarks (Running Stitch) – Textiles</p> <p>To create a bookmark by using a basic running stitch to make an embroidered design.</p>
<p><b>Disciplinary Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Explain the purpose of a product, how it will work and how it will be suitable for the user.</li> <li>• Evaluate how good existing products are</li> <li>• Identify and name the stitch being used.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• <b>Explain what they want to do</b> and describe how they plan do it</li> <li>• Describe a design using pictures &amp; words.</li> <li>• Create a design to follow using a design template.</li> <li>• Design products following a design criterion</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Mark out designs onto fabric and use running stitch with support.</li> <li>• Join materials and components together using stitch</li> <li>• Sort and identify fabrics and threads.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Explain what they are making and why it fits the purpose</li> <li>• Describe what went well, thinking about design criteria</li> <li>• Talk about what I would do differently if I were to do it again and why.</li> </ul>
<p><b>Substantive Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Choose the best tools and materials, and <b>explain choices (colourful thread for embroidery technique)</b></li> <li>• Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion, likes and dislikes.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• <b>Have their own ideas</b> and plan what to do next</li> <li>• Make a choice based on materials that they plan to use.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Understand and use a basic running stitch.</li> </ul>

# Y3

## Autumn Term

<b>Unit Content</b>	<p>Using Nets and Templates to create a prototype (e.g. Picture Frame, Lunchbox, Elf House) - Structure</p> <p>To measure, cut and join materials using different techniques to strengthen a form.</p> <p>Strengthening using cladding (+ introducing rendering) building on the use of tabs &amp; brackets to create a cardboard prototype photo frame.</p> <p>Use of measuring.</p> <p>Combining materials (paper, card and glue) to create (joining) and strengthen a frame.</p>
<b>Disciplinary Knowledge</b>	<p>Explore</p> <ul style="list-style-type: none"><li>• Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</li><li>• Use research for design ideas</li><li>• Explain how product will work.</li></ul> <p>Make</p> <ul style="list-style-type: none"><li>• Use strengthening techniques to create a photo frame out of cardboard.</li><li>• Use cutting and measuring to create appropriate parts.</li></ul> <p>Evaluate</p> <ul style="list-style-type: none"><li>• Use criteria to evaluate product</li><li>• Consider what was successful about their product.</li><li>• Compare their work against the success criteria.</li></ul>
<b>Substantive Knowledge</b>	<p>Plan</p> <ul style="list-style-type: none"><li>• Plan and select appropriate materials to use to create a photo frame.</li><li>• Plan and select appropriate techniques to use to strengthen a product.</li></ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"><li>• Understand and use cladding and rendering to strengthen a product.</li></ul>



## Spring Term

<b>Unit Content</b>	Weaving to create a fabric – Textiles  To make a piece of fabric using traditional woven techniques.  Children learn techniques from other cultures.  Children learn how to create their own piece of woven fabric.  Consolidate threading a needle and familiarising themselves with materials.
<b>Disciplinary Knowledge</b>	Explore <ul style="list-style-type: none"><li>• Explore examples of woven products.</li><li>• Learn techniques from different cultures.</li><li>• Learn what a loom is and how it is used to create fabric.</li></ul> Plan <ul style="list-style-type: none"><li>• Create a plan for a woven piece of fabric</li></ul> Make <ul style="list-style-type: none"><li>• Use traditional textile techniques.</li><li>• Follow a plan to make a woven piece of fabric.</li><li>• Create a woven piece of fabric using a cardboard loom.</li></ul> Evaluate <ul style="list-style-type: none"><li>• Use WWW and EBI to evaluate the product made.</li></ul>
<b>Substantive Knowledge</b>	Make <ul style="list-style-type: none"><li>• Select materials, and explain choices to best create traditional patterns.</li><li>• Accurately select and sort materials.</li></ul> Technical Knowledge <ul style="list-style-type: none"><li>• Appreciate and recognise how weaving is used to create traditional fabrics.</li></ul>

## Summer Term

Unit Content	<p>Creating a Crane (with Pulley) – Mechanisms</p> <p>To create a simple crane that distributes the weight it lifts using a fixed pulley mechanism.</p> <p>Building on mechanisms to look at lifting rather than moving items/content</p>
Disciplinary Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose</li> <li>• Describe purpose the of a product</li> <li>• Have at least one idea about how to create a product</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Show how the design meets a range of requirements</li> <li>• Follow a given design criterion</li> <li>• Describe the design using an accurately labelled sketch and words</li> <li>• Explain how a product will work</li> <li>• Use a range of media to show the design including ICT software</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Work through a plan in order &amp; look at design criteria while designing and making</li> <li>• Begin to measure, mark out, cut and shape materials and components with some accuracy</li> <li>• Begin to assemble, join and combine materials and components with some accuracy</li> <li>• Work accurately to make <b>cuts and holes</b>, with support.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Use design criteria to evaluate finished product</li> <li>• Say what I would change to make design better</li> </ul>
Substantive Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Explore some inventors/designers/ engineers/chefs/ manufacturers of ground -breaking products.</li> <li>• Begin to understand by whom, when and where products were designed</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Select appropriate materials, fit for purpose.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Make design decisions in the planning stage based on new knowledge and experiences.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Begin to select tools and handle them safely.</li> <li>• Begin to develop their own techniques to reinforce and strengthen structures</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Begin to use pulleys to create movement, with support, and implement them into a product to move items.</li> </ul>

# Y4

## Autumn Term

<p><b>Unit Content</b></p>	<p>Creating Fake-Away Pizzas</p> <p>To create a fake away pizza with a wrap base using the most popular ingredients from their class. To consider how flavours combine and how to present their toppings to make the overall dish attractive to the consumer.</p> <p>Building on chopping ingredients to shape using the bridge &amp; claw technique.</p> <p>Using an oven to cook safely.</p>
<p><b>Disciplinary Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Use a range of media to show the design including ICT software.</li> <li>• Use research for design ideas</li> <li>• Refer to design criteria while designing and making</li> <li>• Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Use research for design ideas.</li> <li>• Have at least one idea about how to create product and suggest improvements for its design.</li> <li>• Include an annotated sketch as part of the design process.</li> <li>• Make and explain design decisions considering availability of resources.</li> <li>• Use a range of media to show the design including ICT software.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Work through a plan in order.</li> <li>• Prepare and cook dishes safely and hygienically.</li> <li>• Demonstrate skills in the following techniques: peeling, chopping, slicing, grating, mixing, spreading.</li> <li>• Understand how to use an oven safely, knowing and reducing risks.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Use criteria to evaluate products.</li> <li>• Begin to explain how I could improve original design.</li> </ul>
<p><b>Substantive Knowledge</b></p>	<p>Make</p> <ul style="list-style-type: none"> <li>• Select a wider range of tools and equipment to perform practical tasks accurately, safely and hygienically.</li> <li>• Select a wider range of materials including ingredients according to their properties and aesthetic qualities.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Understand and apply the principles of a healthy and varied diet.</li> <li>• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</li> <li>• Understand how to work hygienically by considering a range of factors including food storage, preparation of areas and sell by dates.</li> </ul>

## Spring Term

Unit Content	<p>Paddle Boats – Mechanisms</p> <p>To create a paddle boat that is self-propelled using a twirling mechanism. Building on creating a moving vehicle with an axel that was not self-propelled.</p> <p>Introduction of hot glue as an adhesive.</p>
Disciplinary Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> <li>• Use research for design ideas</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Show how a design meets a range of requirements and is fit for purpose</li> <li>• Begin to create their own design criteria, with support</li> <li>• Have at least one idea about how to create product and suggest improvements for its design.</li> <li>• Include an annotated sketch as part of the design process</li> <li>• Make and explain design decisions considering availability of resources</li> <li>• Explain how product will work</li> <li>• Use a range of media to show the design including ICT software.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Work through a plan in order.</li> <li>• Measure, mark out, cut and shape materials and components with some accuracy</li> <li>• Assemble, join and combine materials and components with some accuracy</li> <li>• Apply a range of finishing techniques with some accuracy</li> <li>• Measure accurately and carefully to avoid mistakes</li> <li>• Strengthen and reinforce products using <b>joining</b>, hammering, overlapping, <b>layering</b>.</li> <li>• Use finishing techniques</li> <li>• Refer to design criteria while designing and making</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Use criteria to evaluate product</li> <li>• Begin to explain how I could improve original design</li> <li>• Research (consider) whether products can be recycled or reused.</li> </ul>
Substantive Knowledge	<p>Make</p> <ul style="list-style-type: none"> <li>• Select suitable tools and equipment, explain choices in relation to required techniques and use accurately.</li> <li>• Select appropriate materials, fit for purpose; explain choices.</li> <li>• Realise if the product is going to be good quality and adjust accordingly</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Understand how twirling mechanisms are used to transfer &amp; store energy in order to propel.</li> </ul>

## Summer Term

Unit Content	<p>Plastic Bag Kites – Structures</p> <p>To measure, cut and join materials with different properties to create a kite that flies.</p> <p>Strengthening using cladding (+ introducing rendering) building on the use of tabs &amp; brackets to create a prototype (elf house, photo frame, lunch box).</p> <p>Use of cardboard nets &amp; templates.</p>
Disciplinary Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</li> <li>• Use research for design ideas</li> <li>• Explain how product will work</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Show how a design meets a range of requirements and is fit for purpose</li> <li>• Begin to create their own design criteria, with support</li> <li>• Have at least one idea about how to create product and suggest improvements for its design.</li> <li>• Include an annotated sketch as part of the design process</li> <li>• Make and explain design decisions considering availability of resources</li> <li>• Use a range of media to show the design including ICT software.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Work through a plan in order.</li> <li>• Realise if the product is going to be good quality and adjust accordingly</li> <li>• Measure, mark out, cut and shape materials and components with some accuracy</li> <li>• Assemble, join and combine materials and components with some accuracy</li> <li>• Apply a range of finishing techniques with some accuracy</li> <li>• Measure accurately and carefully to avoid mistakes</li> <li>• Strengthen and reinforce products using <b>joining</b>, hammering, overlapping, <b>layering</b>.</li> <li>• Use finishing techniques</li> <li>• Refer to design criteria while designing and making</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Use criteria to evaluate product</li> <li>• Begin to explain how I could improve original design</li> </ul>
Substantive Knowledge	<p>Make</p> <ul style="list-style-type: none"> <li>• Select suitable tools and equipment, explain choices in relation to required techniques and use accurately.</li> <li>• Select appropriate materials, fit for purpose; explain choices.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Consider and appreciate whether products can be recycled or reused, drawing on previous experience and understanding.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Reapply cladding and rendering to strengthen a product within a different context.</li> </ul>

# Y5

## Autumn Term

<b>Unit Content</b>	3D Christmas Decoration - Textiles To make a textiles Christmas decoration. To use a blanket stitch to create a textile product within a different context and for a different purpose Children have previously created a fabric bookmark, made their own woven fabric and learned basic stitching techniques.
<b>Disciplinary Knowledge</b>	<p>Explore</p> <ul style="list-style-type: none"><li>• Children look at a range of shop bought textile Christmas decorations.</li><li>• Children evaluate strengths and weaknesses, likes and dislikes of the products.</li></ul> <p>Plan</p> <ul style="list-style-type: none"><li>• Create a plan for a textile Christmas decoration.</li><li>• Create a template to follow.</li><li>• Learn how to create a design for a 3D textile object.</li></ul> <p>Make</p> <ul style="list-style-type: none"><li>• Create a textiles Christmas decoration in line with a design.</li><li>• Learn blanket stitch and use appropriate textile techniques.</li><li>• Use selected subject specific terminology appropriately.</li></ul> <p>Evaluate</p> <ul style="list-style-type: none"><li>• Use evaluation and analysis to evaluate the product made.</li></ul>
<b>Substantive Knowledge</b>	<p>Make</p> <ul style="list-style-type: none"><li>• Select suitable tools and equipment, explain choices in relation to required techniques and use accurately.</li><li>• Select appropriate materials, fit for purpose; explain choices.</li></ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"><li>• Understand how textiles can be decorated to be appealing to consumers.</li><li>• Understand seam allowance and pattern layout.</li></ul>

## Spring Term

Unit Content	<p>Cam Toy – Mechanisms</p> <p>To create a basic cam toy (building of shaping and joining card to create movement – lift rather than slide) &amp; lifting objects in different ways (pulley vs. CAM).</p> <p>Measuring and shaping wooden dowels (moving from card to wood) with growing accuracy in order to connect pre-cut CAMs.</p> <p>Building on creating movement within a 2D format using sliders to create a moving picture (simple lever mechanism).</p>
Disciplinary Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Use research for design ideas</li> <li>• Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, <b>how they have been made, fit for purpose.</b></li> <li>• Clearly explain how parts of product will work.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Make design decisions considering time and resources.</li> <li>• Use computer-aided designs as part of the planning process</li> <li>• Clearly explain how parts of product will work.</li> <li>• Use research for design ideas.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Mainly accurately measure, mark out, cut and shape materials and components to increase precision.</li> <li>• Mainly accurately assemble, join and combine materials and components using different methods (screwing, nailing, hammering, cutting).</li> <li>• Reinforce and strengthen using different materials and techniques.</li> <li>• Mainly accurately apply a range of finishing techniques</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Test and evaluate final product</li> <li>• Evaluate ideas and finished product against specification (planning), considering purpose and appearance.</li> </ul>
Substantive Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Explore some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products and the impact this has had on the evolution of the product.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Begin to be resourceful with practical problems</li> <li>• Select appropriate tools and equipment and use with good level of precision.</li> <li>• Select appropriate materials, fit for purpose; explain choices, considering functionality.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Select and use Cams to create a pre-planned movement based on their size and shape.</li> </ul>

## Summer Term

<p><b>Unit Content</b></p>	<p>Buzz Wire Game - Structure &amp; Electronics</p> <p>To create a challenging buzz wire game that successfully incorporates an electrical circuit with a switched via a Raspberry Pi.</p> <p>Pupils to alter the layout of the circuit to make it more compact and add elements to create a break/switch (wire frame).</p> <p>Building on creating a complete circuit using Raspberry Pi components (connector cables, resistor, LED, breadboard).</p>
<p><b>Disciplinary Knowledge</b></p>	<p>Explore &amp; Plan</p> <ul style="list-style-type: none"> <li>• Use research for design ideas</li> <li>• Make design decisions considering time and resources.</li> <li>• Clearly explain how parts of product will work.</li> <li>• Use computer-aided designs as part of the planning process</li> </ul> <p>Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose.</p> <p>Plan</p> <ul style="list-style-type: none"> <li>• Make design decisions considering time and resources.</li> <li>• Use computer-aided designs as part of the planning process</li> <li>• Clearly explain how parts of product will work.</li> <li>• Use research for design ideas.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Use number of components within circuit, with support</li> <li>• Incorporate switch into a product</li> <li>• Mainly accurately measure, mark out, cut and shape materials and components</li> <li>• Mainly accurately assemble, join and combine materials and components</li> <li>• Measure accurately to increase precision</li> <li>• Ensure product is strong using strengthening techniques, folding, layering, rolling &amp; Reinforce and strengthen structure.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose (as part of explore in the planning process)</li> <li>• Evaluate ideas and finished product against specification, considering purpose and appearance.</li> </ul>
<p><b>Substantive Knowledge</b></p>	<p>Make</p> <ul style="list-style-type: none"> <li>• Begin to be resourceful with practical problems</li> <li>• Select appropriate tools and equipment and use with good level of precision.</li> <li>• Select appropriate materials, fit for purpose; explain choices, considering functionality.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Begin to evaluate and recognise how much products cost to make and how innovative they are.</li> <li>• Consider how sustainable materials are and begin to consider the advantages of using different materials.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Understand and use electrical systems (circuits and multiple components) within a larger product.</li> <li>• Recognise that a switch opens and closes a circuit and associate this with whether or not an LED lights up or buzzer sounds within a simple series circuit.</li> </ul>



# Y6

## Autumn Term

<p><b>Unit Content</b></p>	<p>Pumpkin Soup - Food and Nutrition</p> <p>To cook a pumpkin soup that can be served to others - Boiling, Blending, seasoning and purifying ingredients.</p> <p>Children to learn the seasonality of produce and where the ingredients they are using are grown/ harvested. Children learn hazards in the kitchen and health and safety tips.</p> <p>Building on chopping ingredients to shape using the bridge &amp; claw technique and learning to combine ingredients in Y4 Pizzas</p>
<p><b>Disciplinary Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Visit Mickey's Kitchen or school kitchen to see and explore a working kitchen.</li> <li>• Identify and recognise potential hazards and what could be done to prevent it.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• Create a recipe for pumpkin soup</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Follow a recipe</li> <li>• Accurately prepare, peel, measure, cut, chop, dice, boil, cook, blend, purify and season ingredients.</li> <li>• Develop understanding of hazards in the kitchen</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Consider seasoning or adding additional ingredients to improve taste</li> <li>• Use sensory analysis to evaluate the product made.</li> <li>• Consider feedback from the public.</li> </ul>
<p><b>Substantive Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Select appropriate utensils and equipment and begin to use them precisely</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Understand and apply the principles of a healthy and varied diet.</li> <li>• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</li> <li>• Understand how to work hygienically by considering a range of factors including food storage, preparation of areas and sell by dates.</li> </ul>

## Spring Term

Unit Content	<p>Mechanical Butterflies - Mechanisms</p> <p>To create a butterfly that can be wound up and twirls when released.</p> <p>The manipulation of wire on a smaller and more complex scale. Reapplication of a twirling mechanism using more components (4 instead of 2).</p> <p>Wire has also been cut and manipulated to create a larger structure when creating a buzz wire game.</p>
Disciplinary Knowledge	<p>Plan</p> <ul style="list-style-type: none"> <li>• Create their own design criteria and specification</li> <li>• Follow and refine a logical plan.</li> <li>• Use annotated sketches, cross-sectional planning and exploded diagrams</li> <li>• Clearly explain how parts of design will work, and how they are fit for purpose</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Follow, and adapt detailed step-by-step plans (how to video)</li> <li>• Accurately measure, mark out, <b>cut and shape</b> materials and components</li> <li>• Accurately assemble, join and <b>combine materials</b> and components</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• Test and evaluate final product</li> <li>• Evaluate ideas and finished product against specification (planning), considering purpose and appearance.</li> </ul>
Substantive Knowledge	<p>Explore</p> <ul style="list-style-type: none"> <li>• Use observation techniques to identify the way a butterfly fly's and use creative thinking.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• Begin to be resourceful with practical problems</li> <li>• Select appropriate tools and equipment and use with good level of precision.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• Recreate twirling mechanisms to transfer &amp; store energy in order to propel on a more complex and smaller scale.</li> </ul>

## Summer Term

<p><b>Unit Content</b></p>	<p>Bug Hotels – Structures</p> <p>To create a usable bug hotel using sustainable resources.</p> <p>Children apply Cutting, joining &amp; strengthening knowledge to create a wooden bug hotel. They select materials that are fit for purpose &amp; consider their sustainability.</p> <p>Children have learned joining techniques (tabs, brackets, cladding and rendering) and learned how to create a prototype frame that can be applied in a different context to this structure.</p>
<p><b>Disciplinary Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• To learn why it is important to make these kinds of products and the benefit this has on the environment.</li> <li>• To explore existing bug hotels.</li> </ul> <p>Plan</p> <ul style="list-style-type: none"> <li>• To create a design for a bug hotel.</li> <li>• To plan the resources and materials they will use in their making process.</li> </ul> <p>Make</p> <ul style="list-style-type: none"> <li>• To make a product using sustainable and recycled materials.</li> <li>• To create a product that is fit for purpose.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• To evaluate strengths and weaknesses of an end product.</li> <li>• To consider WWW and EBI of their outcome.</li> </ul>
<p><b>Substantive Knowledge</b></p>	<p>Explore</p> <ul style="list-style-type: none"> <li>• Children learn and consider the benefits of using recycled and sustainable resources.</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>• To consider how successful their product has been.</li> <li>• To consider if their product is fit for purpose.</li> </ul> <p>Technical Knowledge</p> <ul style="list-style-type: none"> <li>• To apply tabs, brackets, cladding and rendering to create a robust wooden frame and contents.</li> <li>• Research, explore and consider how sustainable materials are and the advantages of using different materials – including the impact on the wider world.</li> </ul>

## EYFS

In the Early Years Foundation Stage, Design and Technology forms part of the 'Expressive Arts and Design' category. Through daily continuous provision within class, children are provided with a multitude of opportunities to explore and develop their early design and technology skills. The daily, engaging tasks provided will enable our children to build on their previous learning and exploration, as well as beginning to refine and develop their skills. Collaborative learning is encouraged through child-initiated learning and is the platform for our children to create and share their ideas with their peers as they investigate a variety of resources and tools.

Our staff also encourage Design and Technology with an adult-led approach, incorporating the projects, designed with EYFS in mind, that encourage our children to reflect and discuss their ideas. It also allows for discussion and problem solving as a group whilst providing a range of tools and materials to discover and explore. All of the skills our children are provided and encouraged with, will support them in their progression into KS1, where the foundation of these skills will be further built upon and developed. Pupils also complete the following projects that focus on the following specific areas of Design and Technology:

- **Food and Hygiene:** Baking biscuits
- **Structure:** Exploring different materials linked the 3 little pigs.
- **Textiles:** Exploring textiles and materials to make dolly peg characters.

## The Base & Thrive Provisions

Thrive & Red Base provisions focus on the strands of our curriculum by consolidating a reduced focus on key skills within the wider context of other lessons in the curriculum (e.g. cutting skills, shaping materials, baking). Yellow & Blue Base complete simplified and/or scaffolded versions of selected projects from KS1 or lower KS2 that are tailored to their ability and allow children experience of each strand. Some children from these provisions also access the subject with their mainstream class.