



## Curriculum Overview for Design and Technology

### National Curriculum Aims

The national curriculum for Design and Technology aims to ensure that all pupils:

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

**Range of Opportunities**

**Early Years**

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The following information demonstrates which statements from the Bunny School’s Early Years Curriculum are prerequisite skills for Design and Technology within the national curriculum.

The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for Design and Technology.

The most relevant statements for Design and Technology are taken from the following areas of learning:

- Personal, Social and Emotional Development
- Physical Development
- Understanding the World
- Expressive Arts and Design

**Three and Four-Year-Olds**

**Physical Development**

- Use large-muscle movements to wave flags and streamers, paint and make marks.
  - Choose the right resources to carry out their own plan.
  - Use one-handed tools and equipment, for example, making snips in paper with scissors.
- Understanding the World
- Explore how things work.

**Expressive Arts and Design**

- Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park.
- Explore different materials freely, in order to develop their ideas about how to use them and what to make.

**Reception**

**Physical Development**

- Progress towards a more fluent style of moving, with developing control and grace.
- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.

**Expressive Arts and Design**

- Explore, use and refine a variety of artistic effects to express their ideas and feelings.
- Return to and build on their previous learning, refining ideas and developing their ability to represent them.

**ELG**

**Physical Development – Fine Motor Skills**

- Use a range of small tools, including scissors, paintbrushes and cutlery.

**Expressive Arts and Design – Creating with Materials**

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.

Curriculum Map for Design and Technology

<ul style="list-style-type: none"> <li>• Develop their own ideas and then decide which materials to use to express them.</li> <li>• Create closed shapes with continuous lines, and begin to use these shapes to represent objects.</li> </ul> <p><b><u>Personal, Social and Emotional Development</u></b></p> <ul style="list-style-type: none"> <li>• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.</li> </ul>	<ul style="list-style-type: none"> <li>• Create collaboratively, sharing ideas, resources and skills.</li> </ul>	
<p style="text-align: center;"><b><u>Key Stage 1 – Year 1/2</u></b></p> <p>Pupils at Bunny C of Primary are taught:</p> <p>Structures</p> <ul style="list-style-type: none"> <li>• Build structures such as windmills and chairs, exploring how they can be made stronger, stiffer and more stable.</li> <li>• Recognise areas of weakness through trial and error.</li> </ul> <p>Mechanisms</p> <ul style="list-style-type: none"> <li>• Introduce and explore simple mechanisms, such as sliders, wheels and axles in their designs.</li> <li>• Recognise where mechanisms such as these exist in toys and other familiar products</li> </ul> <p>Textiles</p> <ul style="list-style-type: none"> <li>• Explore different methods of joining fabrics and experiment to determine the pros and cons of each technique.</li> </ul> <p>Cooking and Nutrition</p> <ul style="list-style-type: none"> <li>• Learn about the basic rules of a healthy and varied diet to create dishes.</li> <li>• Understand where food comes from, for example plants and animals.</li> </ul>	<p style="text-align: center;"><b><u>Key Stage 2 – Year 3/4/5/6</u></b></p> <p>Pupils at Bunny C of E Primary are taught:</p> <p>Structures</p> <ul style="list-style-type: none"> <li>• Continue to develop KS1 exploration skills, through more complex builds such as pavilion and bridge designs. Understand material selection and learn methods to reinforce structures.</li> </ul> <p>Mechanical Systems</p> <ul style="list-style-type: none"> <li>• Extend pupils understanding of individual mechanisms, to form part of a functional system, for example: Automatas, that use a combination of cams, followers, axles/shaft, cranks and toppers.</li> </ul> <p>Textiles</p> <ul style="list-style-type: none"> <li>• Understand that fabric can be layered for effect, recognising the appearance and technique for different stitch and fastening types, including their:             <ul style="list-style-type: none"> <li>• Strength</li> <li>• Appropriate use</li> <li>• Design</li> </ul> </li> </ul> <p>Cooking and Nutrition</p>	

## Curriculum Map for Design and Technology

	<ul style="list-style-type: none"><li>• Understand and apply the principles of a healthy and varied diet to prepare and cook a variety of dishes using a range of cooking techniques and methods.</li><li>• Understand what is meant by seasonal foods.</li><li>• Know where and how ingredients are sourced.</li></ul> <p>Electrical Systems - KS2 only*</p> <ul style="list-style-type: none"><li>• Create functional electrical products that use series circuits, incorporating different components such as bulbs, LEDs, switches, buzzers and motors. Consider how the materials used in these products can:<ul style="list-style-type: none"><li>• Protect the circuitry</li><li>• Reflect light</li><li>• Conduct electricity</li><li>• Insulate</li></ul></li></ul> <p>Digital World - KS2 only*</p> <ul style="list-style-type: none"><li>• Learn how to develop an electronic product with processing capabilities. Apply Computing principles to program functions within a product including to control and monitor it.</li><li>• Understand how the history and evolution of product design lead to the on-going Digital revolution and the impact it is having in the world today.</li></ul>
--	---

Curriculum Map for Design and Technology

Due to the curriculum organisation at Bunny C of E Primary School a 2 year rolling cycle is in place

<u>Cycle A</u>	<u>Cycle B</u>
<p><b>Year 1 / 2</b> <b><u>Autumn</u></b> <b><i>Textiles</i></b> <i>Pouches</i> <i>Introduction to sewing. Pupils make their own template, accurately cut their fabric and sew a basic running stitch.</i></p> <p><b><u>Spring</u></b> <b><i>Mechanisms</i></b> <i>Making a moving monster</i> <i>After learning the terms: pivot, lever and linkage, pupils design a monster that will move using a linkage mechanism. Pupils practise making linkages and experiment with various materials to bring their monsters to life</i></p> <p><b><u>Summer</u></b> <b><i>Food</i></b> <i>Fruit and vegetables</i> <i>Handle and explore fruits and vegetables and learn how to identify which category they fall into, before undertaking taste testing to establish chosen ingredients for a smoothie they will make, with accompanying packaging.</i></p>	<p><b>Year 1 / 2</b> <b><u>Autumn</u></b> <b><i>Textiles</i></b> <i>Puppets</i> <i>Explore different ways of joining fabrics before creating hand puppets based upon characters from a well-known fairytale. Develop technical skills of cutting, glueing, stapling and pinning.</i></p> <p><b><u>Spring</u></b> <b><i>Structures</i></b> <i>Constructing a windmill</i> <i>Design, decorate and build a windmill for a mouse (client) to live in, 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.</i></p> <p><b><u>Summer</u></b> <b><i>Structures</i></b> <i>Fairground wheel</i> <i>Design and create a functional Ferris wheels, consider how the different components fit together so that the wheels rotate and the structure stands freely. Select appropriate materials and develop their cutting and joining skills.</i></p>

Curriculum Map for Design and Technology

Cycle A	Cycle B
<p><b>Year 3 / 4</b></p> <p><b><u>Autumn</u></b>  <b>Textiles</b>            Cushions            Learn and apply two new sewing techniques – cross-stitch and appliqué.            Utilise these new skills to design and make a cushion.</p> <p><b><u>Spring</u></b>  <b>Food</b>  <i>Eating seasonally</i>  <i>Pupils discover when and where fruits and vegetables are grown and learn about seasonality in the UK. They look at the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.</i></p> <p><b><u>Summer</u></b>  <b>Mechanical Systems</b>            Pneumatic toys            Explore pneumatic systems, then apply this understanding to design and make a pneumatic toy including thumbnail sketches and exploded diagrams.</p>	<p><b>Year 3 / 4</b></p> <p><b><u>Autumn</u></b>  <b>Electrical Systems</b>  <i>Torches</i>  <i>Pupils apply their scientific understanding of electrical circuits to create a torch made from recycled and reclaimed materials and objects. They design and evaluate their product against set design criteria.</i></p> <p><b><u>Spring</u></b>  <b>Digital World</b>            Mindful moments timer            Explore what is meant by mindfulness and write design criteria to fulfil a brief to develop a programmed product for timing a mindful moment.</p> <p><b><u>Summer</u></b>  <b>Structure</b>  <i>Constructing a castle</i>  <i>Learning about the features of a castle, pupils design and make one of their own. They will also be using configurations of handmade nets and recycled materials to make towers and turrets before constructing a stable base.</i></p>

Curriculum Map for Design and Technology

Cycle A	Cycle B
<p><b>Year 5 / 6</b></p> <p><b><u>Autumn</u></b>  <b>Mechanical Systems</b>            Automated Toys  <i>Using woodworking materials and skills, pupils construct a window display using an automata mechanism; measuring and cutting their materials, assembling the frame, choosing cams, designing the characters that sit on the followers and also finishing with a foreground and background.</i></p> <p><b><u>Spring</u></b>  <b>Electrical Systems</b>            Electronic greetings cards  <i>Explore how circuits can be adapted to suit different purposes, explore series circuits and recreate one using conductive adhesive copper tape. Apply this knowledge to design and create an electronic greeting card.</i></p> <p><b><u>Summer</u></b>  <b>Textiles</b>            Waistcoats  <i>Selecting suitable fabrics, using templates, pinning, decorating and stitching to create a waistcoat for a person or purpose of their choice.</i></p>	<p><b>Year 5 / 6</b></p> <p><b><u>Autumn</u></b>  <b>Digital world</b>            Monitoring devices  <i>Apply Computing knowledge and understanding to program a Micro: bit animal monitoring device. Develop 3D CAD skills by learning how to navigate the Tinkercad interface and essential tools to combine multiple objects.</i></p> <p><b><u>Spring</u></b>  <b>Structures</b>            Playgrounds  <i>Design and create a model for a new playground featuring five apparatus, made from three different structures. Using a footprint as the base, practise visualising objects in plan view and get creative including natural features.</i></p> <p><b><u>Summer</u></b>  <b>Food</b>            What could be healthier?  <i>Research and modify a traditional bolognese sauce recipe to make it healthier. Cook improved versions, creating appropriate packaging and learn about where the ingredients the importance of animal welfare when farming cattle.</i></p>