



# East Midlands Academy Trust

## Design and Technology Curriculum - Overview



### Why Teach Design and Technology?

Design and Technology involves learning about designed and manufactured products. It fosters an understanding of how things work and takes children on a journey to design and make functional products for specific purposes and users. It is an avenue through which children can develop their creativity and innovation through design – discovering the manmade world that they live in.

Design and Technology is a practical and valuable subject. It enables children and young people to actively contribute to the creativity, culture, wealth and well-being of themselves, their community and their nation. It teaches how to take risks and so become more resourceful, innovative, enterprising and capable.

### Design and Technology – Substantive Big Ideas

KS1 Only	KS1 and KS2			KS2 only	
Mechanisms	Food	Textiles	Structures	Mechanical Systems	Electrical Systems

### Design and Technology Principles

These elements should be in place to ensure that learning is genuinely design and technological in nature. Different projects will have a different profile, depending on the project being undertaken, each D&T principle will be emphasised to a greater or lesser degree.

 <b>User</b> Who the products are for	 <b>Purpose</b> What tasks the products will perform	 <b>Functionality</b> How the products will work
 <b>Design Decisions</b> The opportunity to make choices	 <b>Innovation</b> Being original with thinking	 <b>Authenticity</b> How believable/real the products are

### Curriculum Overview

The following table provides an overview of the projects taught in each year and term. The key aspects of design and technology are covered including, textiles, food, construction materials, mechanical components and in key stage 2 electrical components.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	Mechanisms Sliders and Levers	Textiles Templates and Joining Techniques	Mechanical Systems Levers and Linkages	Structures Shell Structures	Mechanical Systems Cams	Textiles Combining Different Fabric Shapes
Spring	Structures Freestanding Structures	Food Preparing Fruit and Vegetables	Mechanical Systems Pneumatics	Textiles 2-D Shape to 3-D Product	Structures Frame Structures	Electrical Systems More Complex Switches and Circuits
Summer	Mechanisms Wheels and Axles		Food Healthy and Varied Diets	Electrical Systems Simple Circuits and Switches	Food Celebrating Culture and Seasonality	Mechanical Systems Pulleys or Gears

### Disciplinary Knowledge

	<b>Designing</b>	Understanding contexts, users and purposes
		Generating, developing, modelling and communicating ideas
	<b>Making</b>	Planning
		Practical skills and techniques
	<b>Evaluating</b>	Own ideas and products
		Existing products
		Key events and individuals

### Design and Technology Teaching Approaches

Following the D&T Association's 'Projects on a Page' we use the following approaches to teaching topics.

<b>Investigative and Evaluative Activities</b>	(IEAs) where children learn from a range of existing products and find out about D&T in the wider world;
<b>Focused Tasks</b>	(FTs) where they are taught specific technical knowledge, designing skills and making skills;
<b>Design, Make and Evaluate Assignment</b>	(DMEA) where children create functional products with users and purposes in mind.



# East Midlands Academy Trust

## Design and Technology Curriculum Map – **EYFS & KS1**



EYFS	KS1	Year 1			Year 2			
		Autumn	Spring	Summer	Autumn	Spring	Summer	
<p><b>Early Learning Goal: Creating with Materials</b></p> <ul style="list-style-type: none"> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;</li> <li>Share their creations, explaining the process they have used;</li> <li>Make use of props and materials when role playing characters in narratives and stories.</li> </ul> <p><b>Typical learning experiences include:</b></p> <p><b>Constructing:</b> Learning to construct with a purpose in mind, some children use scissors, glue, string and a hole punch to make a bag. Using woodwork materials to make a birdhouse or bug hotel. Junk modelling to make instruments. Construction blocks to make homes for Three Little Pigs.</p> <p><b>Structure and joins:</b> Following a visit to their local high street, some children make a church tower out of small wooden bricks. Using a range of tapes and glue to join materials together.</p> <p><b>Using a range of tools:</b> Through this, children will learn about planning and adapting initial ideas to make them better. For example, a child might choose to use scissors, a stapler, elastic bands and glue to join bits together to make a toy vehicle. But they might then modify their initial idea by using masking tape.</p> <p><b>Cooking techniques:</b> Children learn basic cooking skills – mixing, quantities and amounts, spreading, chopping, pouring, weighing, following instructions, kitchen and tool safety, process of change, language. For example, children wanted to make a cake for a tea party – an ingredient list was made after finding a recipe, children in the class then worked together to make a cake.</p> <p><b>Exploration:</b> Children will dismantle things and learn about how everyday objects work. For example, a child might dismantle a pepper grinder and discover how it is put together and the materials different parts are made of.</p> <p><b>Discussion:</b> Children will be given opportunities to discuss reasons that make activities safe or unsafe, for example hygiene, electrical awareness, and appropriate use of senses when tasting different flavourings. They will also learn to record their experiences by, for example, drawing, pictures writing and making a video or model.</p>	<p><b>Aspect</b></p>	<p><b>Mechanisms</b></p>	<p><b>Structures</b></p>	<p><b>Mechanisms</b></p>	<p><b>Food</b></p>	<p><b>Textiles</b></p>		
	<p><b>Focus</b></p>	<p><b>Sliders and Levers</b> <i>Making Toys</i></p>	<p><b>Freestanding Structures</b> <i>Building playground equipment</i></p>	<p><b>Wheels and Axles</b> <i>Making a vehicle</i></p>	<p><b>Preparing Fruit and Vegetables</b> <i>Food from around the world</i></p>	<p><b>Templates and Joining Techniques</b> <i>Creating a Character</i></p>		
	<p><b>Prior Learning</b></p>	<ul style="list-style-type: none"> <li>Early experiences of working with paper and card to make simple flaps and hinges. (EYFS)</li> <li>Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape. (EYFS)</li> </ul>	<ul style="list-style-type: none"> <li>Experience of using construction kits to build walls, towers and frameworks. (EYFS)</li> <li>Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. (EYFS)</li> <li>Experience of different methods of joining card and paper. (EYFS)</li> </ul>	<ul style="list-style-type: none"> <li>Assembled vehicles with moving wheels using construction kits. (EYFS)</li> <li>Explored moving vehicles through play. (EYFS)</li> <li>Gained some experience of designing, making and evaluating products for a specified user and purpose. (EYFS)</li> <li>Developed some cutting, joining and finishing skills with card. (EYFS)</li> </ul>	<ul style="list-style-type: none"> <li>Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell. (EYFS)</li> <li>Experience of cutting soft fruit and vegetables using appropriate utensils. (EYFS)</li> </ul>	<ul style="list-style-type: none"> <li>Explored and used different fabrics. (EYFS)</li> <li>Cut and joined fabrics with simple techniques. (EYFS)</li> <li>Thought about the user and purpose of products. (Yr1)</li> </ul>		
	<p><b>Design</b></p>	<ul style="list-style-type: none"> <li>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</li> <li>Develop, model and communicate their ideas through drawings and mock-ups with card and paper.</li> </ul>	<ul style="list-style-type: none"> <li>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</li> <li>Develop, model and communicate their ideas through talking, mock-ups and drawings.</li> </ul>	<ul style="list-style-type: none"> <li>Generate initial ideas and simple design criteria through talking and using own experiences.</li> <li>Develop and communicate ideas through drawings and mock-ups.</li> </ul>	<ul style="list-style-type: none"> <li>Design appealing products for a particular user based on simple design criteria.</li> <li>Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.</li> <li>Communicate these ideas through talk and drawings.</li> </ul>	<ul style="list-style-type: none"> <li>Design a functional and appealing product for a chosen user and purpose based on simple design criteria.</li> <li>Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology</li> </ul>		
	<p><b>Make</b></p>	<ul style="list-style-type: none"> <li>Plan by suggesting what to do next.</li> <li>Select and use tools, explaining their choices, to cut, shape and join paper and card.</li> <li>Use simple finishing techniques suitable for the product they are creating.</li> </ul>	<ul style="list-style-type: none"> <li>Plan by suggesting what to do next.</li> <li>Select and use tools, skills and techniques, explaining their choices.</li> <li>Select new and reclaimed materials and construction kits to build their structures.</li> <li>Use simple finishing techniques suitable for the structure they are creating.</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.</li> <li>Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</li> <li>Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.</li> </ul>	<ul style="list-style-type: none"> <li>Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.</li> <li>Select from and use textiles according to their characteristics</li> </ul>		
	<p><b>Evaluate</b></p>	<ul style="list-style-type: none"> <li>Explore a range of existing books and everyday products that use simple sliders and levers.</li> <li>Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</li> <li>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and evaluate a range of products with wheels and axles.</li> <li>Evaluate their ideas throughout and their products against original criteria.</li> </ul>	<ul style="list-style-type: none"> <li>Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.</li> <li>Evaluate ideas and finished products against design criteria, including intended user and purpose</li> </ul>	<ul style="list-style-type: none"> <li>Explore and evaluate a range of existing textile products relevant to the project being undertaken.</li> <li>Evaluate their ideas throughout and their final products against original design criteria.</li> </ul>		
	<p><b>Technical Knowledge</b></p>	<ul style="list-style-type: none"> <li>Explore and use sliders and levers.</li> <li>Understand that different mechanisms produce different types of movement.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>	<ul style="list-style-type: none"> <li>Know how to make freestanding structures stronger, stiffer and more stable.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and use wheels, axles and axle holders.</li> <li>Distinguish between fixed and freely moving axles.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>	<ul style="list-style-type: none"> <li>Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.</li> <li>Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell plate.</li> <li>Know and use technical and sensory vocabulary relevant to the project.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how simple 3-D textile products are made, using a template to create two identical shapes.</li> <li>Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.</li> <li>Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>		