



# Design and Technology at Star of the Sea School

## **D&T Skills and Progression Map by Year Group**

In EYFS children will be encouraged to...

**Explore and use media and materials**

Explore colour and how colours can be changed.

Begin to be interested in and describe the texture of things.

Use various construction materials.

Begin to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.

Join construction pieces together to build and balance.

Realise tools can be used for a purpose.

Explore what happens when they mix colours.

Experiment to create different textures.

Understand that different media can be combined to create new effects.

Manipulate materials to achieve a planned effect.

Construct with a purpose in mind, using a variety of resources.

Use simple tools and techniques competently and appropriately.

Select appropriate resources and adapt work where necessary.

Select tools and techniques needed to shape, assemble and join materials they are using.

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

**Be imaginative**

Capture experiences and responses with a range of media, such as music, dance and paint and other materials or words.

Choose particular colours to use for a purpose.

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

**Understand Technology and the World**

Operate mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car.

Show an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.

Show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.

Complete a simple program on a computer.

Select and use technology for particular purposes.

**Physical Development (Moving and Handling)-Scissors, simple tools (gardening and cooking utensils etc)**

Use one-handed tools and equipment, e.g. make snips in paper with child scissors.

Use simple tools to effect changes to materials.

Handle tools, objects, construction and malleable materials safely and with increasing control.

Handle equipment and tools effectively.

	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
<p><b>Background Research</b></p> <p>Exploring context and existing products.</p>	<ul style="list-style-type: none"> <li>- Understand what a product is and who it is for.</li> <li>- Understand how a product works and how it is used.</li> <li>- Identify where you might find this product.</li> </ul>	<ul style="list-style-type: none"> <li>- Understand what a product is and who it is for.</li> <li>- Understand how a product works and how it is used.</li> <li>- Identify where you might find this product.</li> <li>- Identify the materials used to make the product.</li> <li>- Express an opinion about the product.</li> </ul>	<ul style="list-style-type: none"> <li>- Identify who made the product, when it was made and what its purpose is.</li> <li>- Identify what the product has been made from.</li> <li>- Evaluate the product on design and use.</li> </ul> <p><b>Delving deeper:</b> Research facts about famous inventors/ chefs / designers etc linked to product.</p>	<ul style="list-style-type: none"> <li>- Identify who made the product, when it was made and what its purpose is.</li> <li>- Identify what the product has been made from.</li> <li>- Evaluate the product on design and use.</li> </ul> <p><b>Delving deeper:</b> Research facts about famous inventors/ chefs / designers etc linked to product.</p>	<ul style="list-style-type: none"> <li>- Identify who made the product, when it was made and what its purpose is.</li> <li>- Identify what the product has been made from and how environmentally friendly the materials are.</li> <li>- Evaluate the product on design, appearance and use.</li> <li>- Identify the cost to make the product.</li> </ul> <p><b>Delving deeper:</b> Research facts about famous inventors/ chefs / designers etc linked to product.</p>	<ul style="list-style-type: none"> <li>- Identify who made the product, when it was made and what its purpose is.</li> <li>- Identify what the product has been made from and how environmentally friendly the materials are.</li> <li>- Evaluate the product on design, appearance and use.</li> <li>- Identify the cost to make the product and whether it has any other purposes eg. Leading innovation of the time, trend setting.</li> </ul> <p><b>Delving deeper:</b> Research facts about famous inventors/ chefs / designers etc linked to product.</p>
<p><b>Design Criteria</b></p> <p>Understanding their intended users and their own product.</p>	<ul style="list-style-type: none"> <li>- Explain what product they will be designing and making.</li> <li>- Explain who their product will be used by.</li> <li>- Describe what their product will be used for</li> </ul>	<ul style="list-style-type: none"> <li>- Use own experiences and existing products to develop ideas.</li> <li>- Explain what product they will be designing and making.</li> <li>- Explain who their product will be used by.</li> <li>- Describe what their product will be used for and how it will work</li> <li>- Explain why their product is suitable for the intended user.</li> </ul>	<p><b>Delving deeper:</b></p> <ul style="list-style-type: none"> <li>- Understand and gather information about what a particular group or people want from a product.</li> <li>- Describe the purpose of their product and how it will work.</li> <li>- Identify design features that will appeal to intended users.</li> <li>- Explain how parts of their product work.</li> <li>- Generate realistic ideas that meet needs of user.</li> </ul>	<p><b>Delving deeper</b></p> <ul style="list-style-type: none"> <li>- Understand and gather information about what a particular group or people want from a product.</li> <li>- Describe the purpose of their product.</li> <li>- Identify design features that will appeal to intended users.</li> <li>- Explain how parts of their product work.</li> <li>- Develop their own design criteria and use for planning ideas.</li> <li>- Generate realistic ideas that meet needs of user and take into account availability of resource.</li> </ul>	<p><b>Delving deeper</b></p> <ul style="list-style-type: none"> <li>- Understand and gather information about what a particular group or people want from a product, using questionnaires, surveys etc</li> <li>- Describe the purpose of their product.</li> <li>- Identify design features that will appeal to intended users.</li> <li>- Explain how parts of their product will work.</li> <li>- Develop their own design criteria and use for planning ideas.</li> <li>- Generate innovative ideas that meet needs of user and take into account availability of resources.</li> </ul>	<p><b>Delving deeper</b></p> <ul style="list-style-type: none"> <li>- Understand and gather information about what a particular group or people want from a product.</li> <li>- Describe the purpose of their product.</li> <li>- Identify design features that will appeal to intended users.</li> <li>- Explain how parts of their product will work.</li> <li>- Create a design description for their product.</li> <li>- Highlight the impact of time, resources and cost within their design ideas.</li> <li>- Generate innovative ideas that meet needs of user and take into account availability of resources.</li> </ul>
<p><b>Planning</b></p> <p>Communicating ideas and creating prototypes for product</p>	<ul style="list-style-type: none"> <li>- Discuss what their steps for making could be.</li> <li>- Represent ideas through talking and drawing.</li> </ul>	<ul style="list-style-type: none"> <li>- Discuss what their steps for making could be.</li> <li>- Represent ideas through talking, drawing and computing.</li> <li>- Choose materials to use based on suitability of their properties.</li> </ul>	<ul style="list-style-type: none"> <li>- Share and discuss ideas with others.</li> <li>- Order the main stages of making.</li> <li>- Choose materials to use based on suitability of their properties.</li> <li>- Represent ideas in diagrams, annotated</li> </ul>	<ul style="list-style-type: none"> <li>- Share and discuss ideas with others.</li> <li>- Order the main stages of making.</li> <li>- Choose materials to use based on suitability of their properties.</li> <li>- Represent ideas in diagrams, annotated</li> </ul>	<ul style="list-style-type: none"> <li>- Share and discuss ideas with others.</li> <li>- Record a step by step plan for making.</li> <li>- Produce lists for the tools, equipment and materials they will be using.</li> <li>- Choose materials to use based on suitability of their</li> </ul>	<ul style="list-style-type: none"> <li>- Share and discuss ideas with others.</li> <li>- Record a step by step plan for making.</li> <li>- Produce lists for the tools, equipment and materials they will be using.</li> <li>- Choose materials to use based on suitability of their</li> </ul>

		<ul style="list-style-type: none"> <li>- Create templates/pattern pieces and explore materials whilst developing ideas.</li> </ul>	<ul style="list-style-type: none"> <li>sketches and computer based programmes (where appropriate).</li> <li>- Create pattern pieces and prototypes.</li> </ul>	<ul style="list-style-type: none"> <li>sketches and computer based programmes (where appropriate)</li> <li>- Create pattern pieces and prototypes.</li> </ul>	<ul style="list-style-type: none"> <li>properties and aesthetic qualities.</li> <li>- Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate).</li> <li>- Create pattern pieces and prototypes.</li> </ul>	<ul style="list-style-type: none"> <li>properties and aesthetic qualities.</li> <li>- Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate).</li> <li>- Create pattern pieces and prototypes.</li> </ul>
<p><b>Making</b></p> <p>Selecting the tools and applying the practical skills and techniques</p>	<ul style="list-style-type: none"> <li>- Use materials construction materials and kits, textiles, food and mechanical components.</li> <li>- Choose suitable tools for making.</li> <li>- Follow safety and food hygiene procedures.</li> <li>- Measure, mark, cut and shape materials/components.</li> <li>- Join, assemble and combine materials and components.</li> </ul>	<ul style="list-style-type: none"> <li>- Choose suitable tools for making whilst explaining why they should be used.</li> <li>- Follow safety and food hygiene procedures.</li> <li>- Measure, mark, cut and shape materials and components.</li> <li>- Join, assemble and combine materials and components.</li> <li>- Use finishing techniques, including skills learnt in Art.</li> </ul>	<p><u>Across KS2</u></p> <ul style="list-style-type: none"> <li>- Choose suitable tools for making whilst explaining why they should be used Use design criteria whilst making.</li> <li>- Follow safety and food hygiene procedures.</li> <li>- Measure, mark, cut and shape materials and components with some accuracy.</li> <li>- Join, assemble and combine materials and components with some accuracy.</li> <li>- Use finishing techniques, including skills learnt in Art with some accuracy.</li> </ul>		<p><u>Across KS2</u></p> <ul style="list-style-type: none"> <li>- Choose suitable tools for making whilst explaining why they should be used.</li> <li>- Use design criteria whilst making.</li> <li>- Follow safety and food hygiene procedures.</li> <li>- Measure, mark, cut and shape materials and components accurately.</li> <li>- Join, assemble and combine materials and components accurately.</li> <li>- Demonstrate problem solving skills when encountering a mistake or practical problem.</li> <li>- Use finishing techniques that involve a number of steps, including skills learnt in Art accurately.</li> </ul>	
<p><b>Evaluation</b></p> <p>Referring to planning and initial ideas in evaluating their product</p>	<ul style="list-style-type: none"> <li>- Talk about their design ideas and what they have made.</li> <li>- Make simple judgements of how the product met their design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>- Talk about their design ideas and what they have made.</li> <li>- Make simple judgements of how the product met their design ideas.</li> <li>- Suggest how their product could be improve.</li> </ul>	<ul style="list-style-type: none"> <li>- Use design criteria to evaluate product identifying both strengths and areas for development.</li> <li>- Consider the views of others, including intended user, whilst evaluating product.</li> </ul>	<ul style="list-style-type: none"> <li>- Use design criteria to evaluate product identifying both strengths and areas for development.</li> <li>- Consider the views of others, including intended user, whilst evaluating product.</li> </ul>	<ul style="list-style-type: none"> <li>- Use design criteria to evaluate product identifying both strengths and areas for development.</li> <li>- Consider the views of others, including intended user, whilst evaluating product.</li> </ul>	<ul style="list-style-type: none"> <li>- Use design criteria to evaluate product – looking at quality of end product and design and whether it is fit for its intended purpose.</li> <li>- Consider the views of others, including intended user, whilst evaluating product.</li> </ul>
<p><b>Technical knowledge</b></p> <p>Making products work</p>	<p><u>Across Key Stage 1.</u></p> <ul style="list-style-type: none"> <li>- Know about the simple working characteristics of materials and components.</li> <li>- Know about the movement of simple mechanisms such as levers, sliders, wheels and axles.</li> <li>- How freestanding structures can be made stronger, stiffer and more stable.</li> <li>- That a 3-D textiles product can be assembled from two identical fabric shapes.</li> <li>- That food ingredients should be combined according to their sensory characteristics.</li> <li>- The correct technical vocabulary for the projects they are undertaking.</li> </ul>		<p><u>Across Key Stage 2</u></p> <ul style="list-style-type: none"> <li>- How to use learning from science to help design and make products that work.</li> <li>- How to use learning from mathematics to help design and make products that work</li> <li>- That materials have both functional properties and aesthetic qualities.</li> <li>- That materials can be combined and mixed to create more useful characteristics.</li> <li>- That mechanical and electrical systems have an input, process and output.</li> <li>- The correct technical vocabulary for the projects they are undertaking</li> </ul> <p><u>In early KS2 pupils should also know:</u></p> <ul style="list-style-type: none"> <li>- How mechanical systems such as levers and linkages or pneumatic systems create movement.</li> <li>- How simple electrical circuits and components can be used to create functional products.</li> <li>- How to program a computer to control their products.</li> <li>- How to make strong, stiff shell structures.</li> <li>- That a single fabric shape can be used to make a 3D textiles product.</li> <li>- That food ingredients can be fresh, pre-cooked and processed.</li> </ul> <p><u>In late KS2 pupils should also know:</u></p> <ul style="list-style-type: none"> <li>- How mechanical systems such as cams or pulleys or gears create movement.</li> <li>- How more complex electrical circuits and components can be used to create functional products.</li> <li>- How to program a computer to monitor changes in the environment and control their products.</li> </ul>			

		<ul style="list-style-type: none"> <li>- How to reinforce and strengthen a 3D framework</li> <li>- That a 3D textiles product can be made from a combination of fabric shapes.</li> <li>- That a recipe can be adapted by adding or substituting one or more ingredient</li> </ul>	
<p><b>Food and Nutrition</b></p> <p>Understanding food and food preparation</p> <p>Food preparation, cooking and nutrition</p>	<p><u>Across Key Stage 1.</u></p> <ul style="list-style-type: none"> <li>- Understand that food comes from plants or animals.</li> <li>- Understand that food has to be farmed, caught, or grown.</li> <li>- Sort foods into the 5 groups using The Eatwell Plate</li> <li>- Identify that people should eat at least 5 portions of fruit and vegetables a day.</li> <li>- Prepare simple dishes hygienically and safely without a heat source.</li> <li>- Use cooking techniques such as: cutting, peeling and grating.</li> </ul>	<p><u>Across Key Stage 2</u></p> <ul style="list-style-type: none"> <li>- Understand which foods are reared, caught, or grown and that this happens in the UK and across the globe.</li> <li>- Understand that recipes can be changed by adding or taking away ingredients.</li> <li>- Understand that the seasons can affect food produce.</li> <li>- Sort foods into the 5 groups using The Eatwell Plate and identify that this makes up a healthy diet.</li> <li>- Identify that food and drink are needed to provide energy for a healthy and active lifestyle.</li> <li>- Identify that people should eat at least 5 portions of fruit and vegetables a day.</li> <li>- Prepare simple dishes hygienically and safely, where needed with a heat source.</li> </ul> <p>Use cooking techniques such as: chopping, peeling, grating, slicing, mixing, spreading, kneading and baking.</p>	<p><u>Across Key Stage 2</u></p> <ul style="list-style-type: none"> <li>- Understand which foods are reared, caught, or grown and that this happens in the UK and across the globe.</li> <li>- Understand that the seasons can affect food produce.</li> <li>- Understand that sometimes raw ingredients need to be processed before they can be used in cooking (eg. de-feathering a chicken)</li> <li>- Understand that recipes can be adapted to change the appearance, taste and aroma of a dish.</li> <li>- Sort foods into the 5 groups using The Eatwell Plate and identify that this makes up a healthy diet.</li> <li>- Identify that food and drink provide certain nutritional and health benefits which support a healthy lifestyle.</li> <li>- Identify that people should eat at least 5 portions of fruit and vegetables a day.</li> <li>- Prepare simple dishes hygienically and safely, where needed with a heat source.</li> <li>- Use cooking techniques such as: chopping, peeling, grating, slicing, mixing, spreading, kneading and baking.</li> </ul>

### Design & Technology Progression in the 6 Essentials at Star of the Sea Catholic Primary School

		What does this look like in KS1?	How is this developed further in KS2?
<b>User</b>	Pupils should have a clear idea of who they are designing and making products for, considering their wants, needs, values, interests and preferences. The intended user could be themselves, or others, an imaginary or story-based character, a client, a consumer or a specific target group	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● identify who their products will be for.</li> <li>● suggest possible users of a range of existing products.</li> <li>● explore how existing products are used.</li> <li>● consider where and when their own and others' products might be used.</li> <li>● evaluate whether users' needs and preferences have been met effectively.</li> <li>● appreciate the importance of the user within D&amp;T</li> </ul>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● explore users' needs in a range of contexts</li> <li>● research to identify potential problems and opportunities for users</li> <li>● analyse findings and draw conclusions from their research</li> <li>● distinguish between needs, wants, values, interests and preferences</li> <li>● design products for individuals, clients, consumers and target groups</li> </ul>

<p><b>Purpose</b></p>	<p>Pupils should be able to clearly communicate the purpose of their products they are designing and making. Each product should be designed to perform one or more defined tasks.</p>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● state what they products are for</li> <li>● suggest the purpose of a range of existing products</li> <li>● develop design criteria that take account of the intended purpose of their products</li> </ul>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● clarify the purpose of the products they are designing and making</li> <li>● evaluate how well existing products meet their intended purpose</li> <li>● understand the concept of ‘fitness for purpose’ in the context of their own designing and making</li> <li>● distinguish between how well products are designed and how well they are made</li> <li>● discuss whether their own and existing products have an impact beyond their intended purpose</li> <li>● recognise when products have to fulfil conflicting requirements</li> </ul>
<p><b>Functionality</b></p>	<p>Pupils should design and make products that work effectively in order to fulfil users’ needs, wants and purposes.</p>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● know that their products should work in some way</li> <li>● know how a range of existing products work</li> <li>● develop specific technical knowledge and understanding in order to ensure that their products work well</li> </ul>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● understand the meaning of ‘functionality’ and its importance to design and technology</li> <li>● know how functionality is relevant to the product they are designing</li> <li>● know how the materials and components they use assist the functionality of the product</li> <li>● contrast the functional properties of materials and components with their aesthetics qualities</li> <li>● understand that how products work affects how they are used</li> </ul>
<p><b>Design Decisions</b></p>	<p>Pupils need opportunities to make their own design decisions. Through making design decisions pupils decide on the form their product will take, how their product will work, what task it will perform and who the product will be for. This demonstrates their creative, technical and practical <i>expertise</i>.</p>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● make their own design decisions</li> <li>● discuss the design decisions that have been made in existing products</li> <li>● take into account users’ needs when making design decisions</li> <li>● develop their technical and practical expertise in order that they can make informed design decisions</li> <li>● use D&amp;T related visits and inputs from experts to make informed design decisions</li> </ul>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● discuss the effectiveness of the design decisions made in existing products</li> <li>● discuss the effectiveness of the design decisions made in their own products</li> </ul>
<p><b>Innovation</b></p>	<p>When designing and making, pupils need some scope to be original with their thinking. Projects that encourage innovation lead to a range of design ideas and products being developed. It helps to have open-ended starting points.</p>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● respond creatively and imaginatively to design briefs and problems</li> </ul>	<p>The pupils can:</p> <ul style="list-style-type: none"> <li>● demonstrate some originality when design and making</li> <li>● learn how to take creative risks</li> <li>● understand the meaning of ‘innovation’ within D&amp;T</li> <li>● understand how innovation is an important part of the process of designing and making products</li> </ul>

<b>Authenticity</b>	Pupils should design and make products that are believable, real and meaningful to themselves and others.	The pupils can: <ul style="list-style-type: none"><li>● carry out projects that are real and meaningful to them and others</li><li>● work within a range of relevant contexts, ranging from domestic to industrial</li><li>● work towards realistic and credible outcomes that can be evaluated in use</li><li>● engage in activity that mirrors design and technology in the wider world</li><li>● create products with a genuine purpose and for a real user</li><li>● create products which need to work in some way in order to be successful</li></ul>	The pupils can: <ul style="list-style-type: none"><li>● understand the difference between genuine D&amp;T products and outcomes created in other areas of the curriculum</li></ul>
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