

Sacred Heart Progression of Skills and knowledge Design and Technology



This programme of study follows on from D&T studied in:

EYFS - To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
To 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.

To select appropriate resources and adapt work where necessary

To look closely at similarities, differences, patterns and change.

To handle equipment and tools effectively, including pencils for writing.

To talk about why things happen and how things work.

To construct with a purpose in mind, using a variety of resources.

Year 1 – I know what makes a fruit salad healthy and can make one safely

To design and make a shelter that is fit for purpose

I can make a picture with at least one moving part using a design criteria and evaluate it.

Year 2 - To design and make a frame for a tapestry that I have stitched

Aqueducts and Roman architecture - Understand how key events and individuals in design and technology have helped shape the world.

Healthy food plate. Greek/Mediterranean - To know where food comes from. To use basic food skills to create a healthy snack.

Year 3 - Make a picture frame - To design and make a frame for a tapestry that I have stitched

Aqueducts and Roman architecture - Understand how key events and individuals in design and technology have helped shape the world.

Healthy food plate. Greek/Mediterranean - To know where food comes from. To use basic food skills to create a healthy snack.

Year 4 - I will know how the design of the lever helped to shape the world.

I can choose the appropriate materials and components to build a temporary shelter.

Year 5 - Make a Water Wheel - I will make a water wheel that uses the energy of flowing or falling water.

Mexican Food - I can discover the diverse choice of food available around the world and create a traditional dish.

World War 2 Teddy Bear - I will know how to stitch neatly to design and make a teddy bear for a younger child.

Study

- Make Healthy Bars - use the correct balance of food groups to create a healthy bar for a target audience. (Year 6)
- Fairground Rides - design and make a model of a fairground using an electric motor to produce a rotating movement. (Year 6)
- Textiles - I will know how to create a William Morris inspired wall hanging. (Year 6)

Design, make, evaluate and improve

Year 1/2

- Design products that have a clear purpose and an intended user.
- Make products, refining the design as work progresses.
- Use software to design.
- Design purposeful, functional, appealing products for themselves and other users based on design criteria.
- Generate, develop, model and communicate ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
- Select from and use a range of tools and equipment to perform practical tasks such as cutting, shaping, joining and finishing.
- Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
- Explore and evaluate a range of existing products.
- Evaluate their ideas and products against design criteria.

Year 3/4

- Design with purpose by identifying opportunities to design.
- Make products by working efficiently (such as by carefully selecting materials).
- Refine work and techniques as work progresses, continually evaluating the product design.
- Use software to design and represent product designs.
- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
- Select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately.
- Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.
- Investigate and analyse a range of existing products.
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.



and Technology

Year 5/6

- Ensure products have a high quality finish, using art skills where appropriate.
- Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.
- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.
- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
- Select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately.
- Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.
- Investigate and analyse a range of existing products.
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- Plan, design, make and evaluate a range of quality products, in a variety of materials that are fit for purpose.
- Communicate ideas and designs skilfully and accurately in 2D and 3D, using a variety of techniques, including computing.
- Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
- Make products through stages of prototypes, making continual refinements.

Cooking and nutrition

Year 1/2

- Cut, peel or grate ingredients safely and hygienically.
- Measure or weigh using measuring cups or electronic scales.
- Assemble or cook ingredients.
- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

Year 3/4

- Prepare ingredients hygienically using appropriate utensils.
- Measure ingredients to the nearest gram accurately.
- Follow a recipe.
- Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking)
- Understand and apply the principles of a healthy and varied diet.
- Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

Year 5/6

- Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).
- Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.
- Demonstrate a range of baking and cooking techniques.
- Create and refine recipes, including ingredients, methods, cooking times and temperatures.
- Understand and apply the principles of a healthy and varied diet.
- Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
- Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.



Materials and Technology

Year 1/2

- Cut materials safely using tools provided.
- Measure and mark out to the nearest centimetre.
- Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).
- Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).

Year 3/4

- Cut materials accurately and safely by selecting appropriate tools.
- Measure and mark out to the nearest millimetre.
- Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).
- Select appropriate joining techniques.

Year 5/6

- Cut materials with precision and refine and finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).
- Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).

Construction,

Year 1/2

- Create products using levers, wheels, and winding mechanisms.
- Build structures, exploring how they can be made stronger, stiffer and more stable.
- Explore and use mechanisms, such as levers, sliders, wheels and axles, in their products.
- Create products using levers, wheels, and winding mechanisms.

Year 3/4

- Choose suitable techniques to construct products or to repair items.
- Strengthen materials using suitable techniques.
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Year 5/6

- Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Mechanics

Year 5/6

- Convert rotary motion to linear using cams.
- Use innovative combinations of electronics (or computing) and mechanics in product designs.
- Understand and use mechanical systems in their products, such as gears, pulleys, cams, levers and linkages.
- Increase skills, knowledge and competence in using materials, machinery, technique and processes.
- Complete common practical, diagnostic, repair and maintenance tasks and multi-stage processes.
- Develop well-conceived and well-executed practical solutions.
- Select and use complex tools, equipment, machinery and techniques skill-fully.
- Develop sophisticated practical skills and carry out diagnostic, repair and maintenance tasks in a range of contexts.
- Explore materials and technological developments, and experiment with using them.

Electrics and electronics

Year 5/6

- Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips.)
- Understand and use electrical systems in their products, such as series circuits, incorporating switches, bulbs, buzzers and motors.



Take inspiration from design throughout history

and Technology

Year 1/2

- Explore objects and designs to identify likes and dislikes of the designs.
- Suggest improvements to existing designs.
- Explore how products have been created.

Year 3/4

- Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.
- Improve upon existing designs, giving reasons for choices.
- Disassemble products to understand how they work.
- Understand how key events and individuals in design and technology have helped shape the world.

Year 5/6

- Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.
- Create innovative designs that improve upon existing products.
- Evaluate the design of products so as to suggest improvements to the user experience
- Understand how key events and individuals in design and technology have helped shape the world.
- Analyse the work of others, including iconic designs, to inform work.
- Use historical and contextual references to influence and improve work.
- Understand developments in design and technology and the responsibilities of designers, including environmental responsibilities.