DESIGN TECHNOLOGY SUBJECT VISION AND DRIVERS

Subject Aims

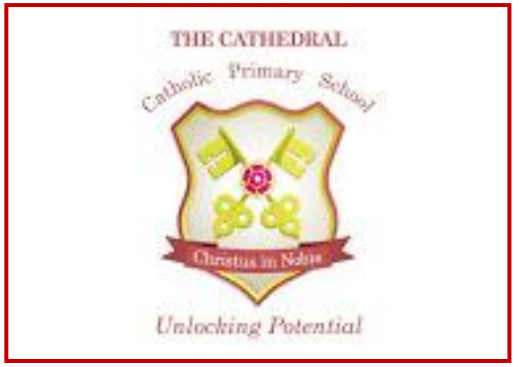
At Cathedral Catholic Primary School, we will provide opportunities that will enable learners to:

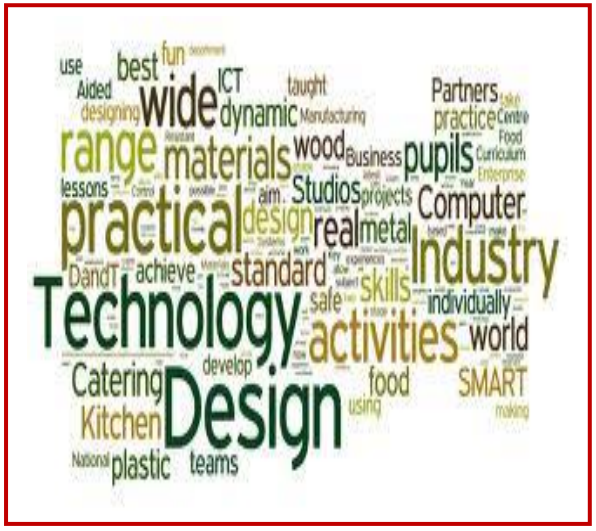
- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products 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.

These aims are consistent with our school philosophy. Our goal is that all children should achieve the highest standards possible in Design and Technology and benefit from a broad, rich and personalised curriculum that addresses the five key outcomes set out in Every Child Matters. Overall, we strive to provide enjoyable, practical and enriching learning opportunities to all children.

Subject Vision

At Cathedral Catholic Primary School we aim for Design & Technology to be an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Through the evaluation of past and present design and technology, pupils develop a critical understanding of its impact on daily life and the wider world, and prepares them to engage in tomorrow's rapidly changing technologies. This subject encourages children to become creative problem solvers and thinkers, and to persevere when faced with challenges. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation. It develops their practical skills with attention to aesthetics, social and environmental issues and develops their awareness of functions of objects and modern industrial practices. Design and Technology presents children with the opportunities to become discerning and informed consumers of products and innovations.





Community	Possibilities	Spirituality
Links will be made with local primary schools and with specialist Design Technology secondary schools to enrich the Design Technology curriculum at The Cathedral Catholic Primary School.	Children will learn about the important role that Design Technology plays in many careers and will be confident in their ambitions. Children will have a good understanding of their abilities in D.T. and be positive about their abilities to achieve, demonstrating self-belief and self-worth. Potential stereotypes regarding gender are challenged with the subject being led and championed by female members of staff.	The children will be encouraged to appreciate the impact Design Technology has on the natural world and the part played by Design Technology in looking after God's creation. They will be encouraged to see the wonders around them and appreciate God's design in our world.

CURRICULUM OVERVIEW

EYFS	Key Stage One	Key Stage Two
The children in the Early Years cover three prime and four specific areas. These specific areas include essential skills and knowledge. One of these is Understanding The World. Design Technology is included in this area. Children recognise that a range of technology is used in places such as homes & schools. They select & use technology for particular purposes	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to: **Design** • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** • select from and use a range of tools and equipment to perform practical tasks [for example, 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 **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria **Technical knowledge** • build structures, exploring how they can be made stronger, stiffer and more stable • explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to: **Design** • 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 **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, 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 **Evaluate** • 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 • understand how key events and individuals in design and technology have helped shape the world **Technical knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products

KEY LEARNING IN DT – YEARS 1 & 2

Design	Make	Evaluate
▪ Use pictures and words to convey what they want to design/make. ▪ Propose more than one idea for their product. ▪ Use kits/reclaimed materials to develop more than one idea. ▪ Model ideas with kits, reclaimed materials. ▪ Select appropriate technique explaining: First… Next… Last…. ▪ Explore ideas by rearranging materials. ▪ Select pictures to help develop ideas. ▪ Use drawings to record ideas as they are developed. ▪ Add notes to drawings to help explanations. ▪ Describe their models and drawings of ideas and intentions.	▪ Discuss their work as it progresses. ▪ Select materials from a limited range that will meet the design criteria. ▪ Select and name the tools needed to work the materials. ▪ Explain what they are making. ▪ Explain which materials they are using and why. ▪ Name the tools they are using. ▪ Describe what they need to do next.	▪ Explore existing products and investigate how they have been made. ▪ Decide how existing products do/do not achieve their purpose. ▪ Talk about their design as they develop and identify good and bad points. ▪ Note changes made during the making process as annotation to plans/drawings. ▪ Say what they like and do not like about items they have made and attempt to say why. ▪ Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.

Food	Textiles	Structures	Mechanisms
▪ Develop a food vocabulary using taste, smell, texture and feel. ▪ Group familiar food products e.g. fruit and vegetables. ▪ Explain where food comes from. ▪ Cut, peel, grate, chop a range of ingredients ▪ Work safely and hygienically. ▪ Understand the need for a variety of foods in a diet. ▪ Measure and weigh food items, non-statutory measures e.g. spoons, cups.	▪ Cut out shapes which have been created by drawing round a template onto the fabric. ▪ Join fabrics by using e.g. running stitch, glue, staples, over sewing, tape. ▪ Decorate fabrics with attached items e.g. buttons, beads, sequins, braids, ribbons. ▪ Colour fabrics using a range of techniques e.g. fabric paints, printing, painting.	▪ Explore how to make structures stronger. ▪ Investigate different techniques for stiffening a variety of materials. ▪ Test different methods of enabling structures to remain stable. ▪ Join appropriately for different materials and situations e.g. glue, tape. ▪ Mark out materials to be cut using a template. ▪ Use a glue gun with close supervision.	▪ Join appropriately for different materials and situations e.g. glue, tape. ▪ Try out different axle fixings and their strengths and weaknesses. ▪ Make vehicles with construction kits which contain free running wheels. ▪ Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels. ▪ Roll paper to create tubes. ▪ Cut dowel using hacksaw and bench hook. ▪ Attach wheels to a chassis using an axle. ▪ Mark out materials to be cut using a template. ▪ Fold, tear and cut paper and card. ▪ Cut along lines, straight and curved. ▪ Use a hole punch. ▪ Insert paper fasteners for card. ▪ Experiment with levers and sliders to find different ways of making things move in a 2D plane.

Yearly Overview – Year 1 and Year 2

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year A	**Penguins, Possums & Pigs**	**Fire! Fire!**	**Growth & Green Fingers**	**Family Album**	**The Great Outdoors**	**Robots**
		Mechanisms – pop ups and simple card levers	Food – preparing and combining foods		Structures – stability and strength	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year B	**The Place Where I Live**	**Fighting Fit**	**Explorers**	**The Farm Shop**	**Wind in the Willows**	**Buckets & Spades**
			Mechanisms – wheels and axels	Food – the eat-well plate, where food comes from, principles of a healthy diet	Textiles – using a template, simple joining, choice of stitches, choice of materials	

KEY LEARNING IN DT – YEARS 3 & 4

Design	Make	Evaluate
▪ Develop more than one design or adaptation of an initial design. ▪ Plan a sequence of actions to make a product. ▪ Record the plan by drawing using annotated sketches. ▪ Begin to use cross-sectional and exploded diagrams. ▪ Use prototypes to develop and share ideas. ▪ Think ahead about the order of their work and decide upon tools and materials. ▪ Propose realistic suggestions as to how they can achieve their design ideas. ▪ Consider aesthetic qualities of materials chosen. ▪ Use CAD where appropriate.	▪ Prepare pattern pieces as templates for their design. ▪ Cut slots. ▪ Cut internal shapes. ▪ Select from a range of tools for cutting shaping joining and finishing. ▪ Use tools with accuracy. ▪ Select from techniques for different parts of the process. ▪ Select from materials according to their functional properties. ▪ Plan the stages of the making process. ▪ Use appropriate finishing techniques.	▪ Investigate similar products to the one to be made to give starting points for a design. ▪ Draw/sketch products to help analyse and understand how products are made. ▪ Research needs of user. ▪ Identify the strengths and weaknesses of their design ideas in relation to purpose/user. ▪ Decide which design idea to develop. ▪ Consider and explain how the finished product could be improved. ▪ Discuss how well the finished product meets the design criteria of the user. ▪ Investigate key events and individuals in Design and Technology.

Food	Textiles	Structures	Mechanical and Electrical Systems and ICT
▪ Develop sensory vocabulary/knowledge using, smell, taste, texture and feel. ▪ Analyse the taste, texture, smell and appearance of a range of foods (predominantly savoury). ▪ Follow instructions/recipes. ▪ Make healthy eating choices – use the *Eatwell plate*. ▪ Join and combine a range of ingredients. ▪ Explore seasonality of vegetables and fruit. ▪ Find out which fruit and vegetables are grown in countries/continents studied in Geography. ▪ Develop understanding of how meat/fish are reared/caught.	▪ Develop vocabulary for tools materials and their properties. ▪ Understand seam allowance. ▪ Join fabrics using running stitch, over sewing, blanket stitch. ▪ Prototype a product using J cloths. ▪ Use prototype to make pattern. ▪ Explore strengthening and stiffening of fabrics. ▪ Explore fastenings (inventors?) and recreate some. ▪ Sew on buttons and make loops. ▪ Use appropriate decoration techniques.	▪ Develop vocabulary related to the project. ▪ Create shell or frame structures. ▪ Strengthen frames with diagonal struts. ▪ Make structures more stable by giving them a wide base. ▪ Measure and mark square section, strip and dowel accurately to 1cm.	▪ Develop vocabulary related to the project. ▪ Use mechanical systems such as gears, pulleys, levers and linkages. ▪ Incorporate a circuit into a model. ▪ Use electrical systems such as switches bulbs and buzzers. ▪ Use ICT to control products. ▪ Use lolly sticks/card to make levers and linkages. ▪ Use linkages to make movement larger or more varied.

Yearly Overview – Year 3 and Year 4

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year A	**There's No Place Like Home**	**Healthy Humans**	**Rock and Roll!**	**The Iron Man**	**What the Romans Did For Us**	**How Does Your Garden Grow?**
		Food – simple dish – the eatwell plate		Mechanical systems – levers and linkages		Structures – shell/frame structures and strengthening

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year B	**Sparks Might Fly!**	**The Great Plague**	**The Art of Food**	**Passport to Europe**	**Water, Water Everywhere**	**Hunted**
	ICT and electrical systems – control and electrical components			Textiles – seams, stiffening and strengthening, materials and fastenings		Food – simple savoury food and cooking techniques

KEY LEARNING IN DT – YEARS 5 & 6

Design	Make	Evaluate
▪ List tools needed before starting the activity. ▪ Plan the sequence of work e.g. using a storyboard. ▪ Record ideas using annotated diagrams. ▪ Use models, kits and drawings to help formulate design ideas. ▪ Combine modelling and drawing to refine ideas. ▪ Devise step by step plans which can be read / followed by someone else. ▪ Use exploded diagrams and cross-sectional diagrams to communicate ideas. ▪ Sketch and model alternative ideas. ▪ Decide which design idea to develop.	▪ Make prototypes. ▪ Develop one idea in depth. ▪ Use researched information to inform decisions. ▪ Produce detailed lists of ingredients / components / materials and tools. ▪ Use a computer to model ideas. ▪ Select from and use a wide range of tools. ▪ Cut accurately and safely to a marked line. ▪ Select from and use a wide range of materials. ▪ Use appropriate finishing techniques for the project. ▪ Refine their product – review and rework/improve.	▪ Research and evaluate existing products (including book and web based research). ▪ Consider user and purpose. ▪ Identify the strengths and weaknesses of their design ideas. ▪ Give a report using correct technical vocabulary. ▪ Consider and explain how the finished product could be improved related to design criteria. ▪ Discuss how well the finished product meets the design criteria of the user. Test on the user! ▪ Understand how key people have influenced design.

Food	Textiles	Structures	Mechanical and Electrical Systems and ICT
▪ Prepare food products taking into account the properties of ingredients and sensory characteristics. ▪ Weigh and measure using scales. ▪ Select and prepare foods for a particular purpose. ▪ Work safely and hygienically. ▪ Show awareness of a healthy diet (using the eatwell plate). ▪ Use a range of cooking techniques. ▪ Know where and how ingredients are grown and processed. ▪ Consider influence of chefs e.g. Jamie Oliver and school meals, Hugh Fearnley-Whittingstall and sustainable fishing etc.	▪ Use the correct vocabulary appropriate to the project. ▪ Create 3D products using patterns pieces and seam allowance. ▪ Understand pattern layout. ▪ Decorate textiles appropriately (often before joining components). ▪ Pin and tack fabric pieces together. ▪ Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision). ▪ Combine fabrics to create more useful properties. ▪ Make quality products.	▪ Use the correct terminology for tools materials and processes. ▪ Use bradawl to mark hole positions. ▪ Use hand drill to drill tight and loose fit holes. ▪ Cut strip wood, dowel, square section wood accurately to 1mm. ▪ Join materials using appropriate methods. ▪ Build frameworks to support mechanisms. ▪ Stiffen and reinforce complex structures.	▪ Develop a technical vocabulary appropriate to the project. ▪ Use mechanical systems such as cams, pulleys and gears. ▪ Use electrical systems such as motors. ▪ Program, monitor and control using ICT.

Yearly Overview – Year 5 and Year 6

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year A	**A Kingdom United**	**Food Glorious Food!**	**Earthlings**	**Inventors & Inventions**	**Amazon Adventure**	**Faster, Higher, Stronger**
		Food – food from another culture, variety of cooking techniques		Mechanical systems – cams, pulleys and gears	3D Textiles – using gussets, using patterns, joining with seam allowance, combining fabrics	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year B	**Survival?**	**Britten's Got Talent?**	**Heroes & Villains**	**Super Sleuth**	**Oh I Do Like To Be Beside The Seaside**	
			Food – chefs, food heroes, designing a healthy menu/eatwell plate		Combining learning from across design and technology skills bases – structures, mechanical systems, electrical systems, ICT programming and control	