



# Bishop Hogarth Catholic Education Trust - Design Technology Progression of Skills and Objectives

	<p style="text-align: center;"><b>EYFS</b></p>	<p style="text-align: center;"><b>Key Stage 1</b></p>	<p style="text-align: center;"><b>Lower Key Stage 2</b></p>	<p style="text-align: center;"><b>Upper Key Stage 2</b></p>	<p style="text-align: center;"><b>Key Stage 3</b></p> 
<p><b>Design Process</b></p>	<ul style="list-style-type: none"> <li>- Discuss what a product does or needs to do</li> <li>- Explore the qualities of a range of materials</li> <li>- Make to create an outcome.</li> <li>- Explain why they chose their materials.</li> <li>- Explain what they have made.</li> </ul>	<ul style="list-style-type: none"> <li>- Work from a basic brief to generate ideas and design a simple product fit for purpose and audience.</li> <li>- Explore suitability of common materials before making a choice.</li> <li>- Show awareness of some products similar to their design.</li> <li>- Develop ideas, communicating and recording them in a suitable way (e.g. design book, design page, IT, mind map)</li> <li>- Make a simple mock-up.</li> <li>- Make a final product.</li> <li>- Evaluate their final product – what went well? Did they follow the brief?</li> </ul>	<ul style="list-style-type: none"> <li>- Work from a brief to design an appealing, functional product fit for purpose and audience.</li> <li>- Explore some possible materials, conducting a simple test to ensure suitability before making a choice.</li> <li>- Show awareness of products similar to their own.</li> <li>- Develop an idea, communicating and recording it in a suitable way (e.g. annotated design page, diagrams, IT)</li> <li>- Perform basic tests, make simple prototypes/pattern pieces as appropriate.</li> <li>- Create a final idea and translate this into a final product which fits the brief.</li> <li>- Evaluate their final product – what went well? Did they follow the brief? How could they improve their design?</li> </ul>	<ul style="list-style-type: none"> <li>- Work from a brief with a simple constraint (e.g. audience / purpose) to design an appealing, functional product.</li> <li>- Research a range of materials, conducting tests as appropriate before selecting the best choice.</li> <li>- Research products similar and different to their own to inform their own design.</li> <li>- Develop a design idea, communicating and recording it via a plan and a labelled diagram.</li> <li>- Test ideas using prototypes/creating pattern pieces and where relevant computer aided design.</li> <li>- Develop and make a final product, based on testing, which meets the brief criteria.</li> <li>- Evaluate their final product, including discussion amongst peers to assess their product against the brief and consider improvements.</li> </ul>	<ul style="list-style-type: none"> <li>- Create own brief from a given situation.</li> <li>- Produce a detailed design specification, identifying function, target audience, aesthetics, style, material, cost and size considerations.</li> <li>- Carry out detailed research looking at material properties for a range of materials (e.g. fabrics, wood, metal, polymer &amp; paper)</li> <li>- Identify a range of materials and suitability to a given purpose, based on the material properties.</li> <li>- <b>Research and critically analyse areas necessary for design ideas / product development e.g.</b> <ul style="list-style-type: none"> <li>o Analyse similar products for; function, target audience, aesthetics, style, material, cost and size considerations / ingredient's and methods used.</li> <li>o The work of past and present designers,</li> <li>o Design influences themes -design movements / biomimicry.</li> <li>o Size considerations etc</li> </ul> </li> <li>- Create a range of design proposals which meet given criteria (e.g. specification / target audience needs / cultures/ themes / dietary requirements etc).</li> <li>- Design ideas drawn 3D, rendered and with detailed annotation, discussing materials and construction / ingredients and method.</li> <li>- <b>Review design ideas for suitability (against specification, target audience needs, environmental issues, dietary requirements etc).</b></li> <li>- Use design idea testing to inform design development to create a suitable final design proposal.</li> <li>- Create mock up models, templates, test dishes -using CAD as appropriate.</li> <li>- Create a production plan (plan of making), identifying tools, equipment, ingredients, method as appropriate.</li> <li>- <b>Create a detailed final evaluation, reviewing tools and equipment used and skills developed, user testing of final product / dish, identify potential improvements.</b></li> </ul>
<p><b>Resistant materials</b> *Electronics linked to science objectives</p>	<ul style="list-style-type: none"> <li>- Begin to cut and tear materials.</li> <li>- Stick and glue materials together.</li> <li>- Use junk objects to create their own designs.</li> <li>- Begin to consider how they join materials together.</li> </ul>	<ul style="list-style-type: none"> <li>- Follow basic procedures for safety.</li> <li>- Cut materials safely using scissors.</li> <li>- Tear, fold and curl materials.</li> <li>- Join using gluing and taping.</li> <li>- Begin to use a simple hinge.</li> <li>- Select materials and tools based on their properties.</li> <li>- Create products based on a design.</li> <li>- Explore and use simple mechanisms [e.g. levers, sliders, wheels and axles], in their products.</li> <li>- Build structures, exploring how they can be made stronger, stiffer and more stable.</li> </ul>	<ul style="list-style-type: none"> <li>- Follow procedures for safety.</li> <li>- Cut, tear and shape materials with increasing accuracy.</li> <li>- Use a wider range of joining methods (e.g. fasteners, tabs, flange)</li> <li>- Choose appropriate materials and tools for a product based on their functional properties and aesthetics.</li> <li>- Strengthen, stiffen and reinforce a product using suitable materials.</li> <li>- Make mechanical /moving elements (e.g. pulleys, levers and linkages)</li> <li>- Choose appropriate materials by testing their properties using a prototype.</li> <li>- Incorporate a simple electrical system into their product.*</li> </ul>	<ul style="list-style-type: none"> <li>- Follow procedures for safety with a wider range of tools and processes.</li> <li>- Cut and shape materials based on their design with increasing accuracy.</li> <li>- Choose appropriate tools and methods to cut and form a wider range of materials.</li> <li>- Choose appropriate materials by testing their properties using prototypes, justifying their choices.</li> <li>- Make mechanical /moving elements (e.g. gears, cams and pneumatics)</li> <li>- Use a wider range of joining methods (e.g. inserts, wrap, gusset, notch)</li> <li>- Incorporate a more complex electrical system into their designs (e.g. more than one component / adding a switch).</li> <li>- Use computing to program, monitor and control their products.*</li> </ul>	<ul style="list-style-type: none"> <li>- Be competent in workshop health and safety, to be able to identify potential hazards and understand how to avoid them in the workshop</li> <li>- Use specialist tools and equipment with accuracy and independence.</li> <li>- Understand how to correct manufacture errors as they arise.</li> <li>- Understand the difference between similar tools and be able to correctly chose the appropriate tool (e.g. Hegner Saw, Coping Saw, Tenon Saw)</li> <li>- Be competent using tools and equipment for timber, metal &amp; polymers.</li> <li>- Have a knowledge of the use of motion and mechanical systems (e.g the use of CAM's)</li> <li>- To have knowledge of a range of resistant materials and their environmental impact (Timbers; hardwood, softwood and manufactured boards, Metals; ferrous and non-ferrous, Polymers; thermoplastic and thermosetting plastics)</li> <li>- Accurately dimension and mark out materials following given dimensions /plans. Using the correct tools and equipment (e.g. steel rule, try square, engineers square, marking gauge etc)</li> <li>- To have knowledge of permanent and temporary joining methods for a range of materials (e.g. Timbers; traditional wood joints, components; screws. Metals; rivets, Plastics; solvent glue)</li> <li>- To have knowledge of finishing methods and finishes for a range of materials (e.g. Sanding, Timbers; Oil, Wax, Varnish, Wood Stain, Metal; Filing/abrasives, Polish, Paint etc)</li> <li>- Be able to incorporate the use of CAD /CAM into products where possible</li> <li>- To understand the use of electronics and electronic components <u>*links to science</u></li> <li>- To understand the considerations of products are created in industry (considerations of accuracy, efficiency, cost, quantity, quality, jigs, templates etc)</li> </ul>

Textiles	<ul style="list-style-type: none"> <li>- Stick and decorate textiles with support.</li> <li>- Thread beads onto a string.</li> <li>- Begin to cut fabric using scissors.</li> </ul>	<ul style="list-style-type: none"> <li>- Cut textiles using scissors and a template.</li> <li>- Decorate textiles using crayons, paint or sticking.</li> <li>- Join textiles using glue.</li> <li>- Use a running stitch to join textiles using pre-prepared holes.</li> <li>- Create simple weaving using paper or large strips of fabric.</li> </ul>	<ul style="list-style-type: none"> <li>- Cut textiles with scissors safely.</li> <li>- Thread a needle and tie a knot. (e.g. wool/embroidery needle)</li> <li>- Use a running stitch to join textiles.</li> <li>- Decorate textiles using stamping, printing and simple embellishment.</li> <li>- Weave using a cardboard loom.</li> </ul>	<ul style="list-style-type: none"> <li>- Use seam allowance and back stitch to join textiles to create a simple product (e.g. A cushion or soft toy).</li> <li>- Use a pattern/template to mark and cut fabric into a specific shape</li> <li>- Use cross stitch, running stitch or filling stitch.</li> <li>- Use applique</li> <li>- Thread a needle and tie a knot, including finishing a thread and starting a new one within a project.</li> <li>- Choose appropriate materials for a textile product based on its use.</li> <li>- Weave using a variety of materials.</li> <li>- Sew a button or bead onto a project.</li> </ul>	<ul style="list-style-type: none"> <li>- Use different fastenings to create a functional product.</li> <li>- Create own pattern pieces to cut fabric into shapes for their own design.</li> <li>- Use back stitch and/or running stitch to construct a basic product (eg toy or cushion).</li> <li>- Use a range of decorative techniques to add designs to fabric.</li> <li>- Understand how to use a range of dye techniques (tie dye, marbling) to add colour and pattern to plain fabric.</li> <li>- To understand the difference between decorative and constructive techniques.</li> <li>- Understand how to use a sewing machine for decorative (machine embroidery) and constructive purposes.</li> <li>- Be able to identify appropriate market level for different techniques.</li> <li>- Develop understanding of roles within the textiles industry.</li> <li>- To understand the differences and properties of a range of natural and manmade fabrics</li> <li>- To understand the impact of the textiles / fashion industry on the environment.</li> </ul>
Food and Nutrition * statements link to science	<ul style="list-style-type: none"> <li>- Mix pre-prepared ingredients with the support of an adult, safely and hygienically</li> <li>- Use a blunt knife to spread butter or jam (or alternative) on a cracker or bread.</li> <li>- Understand that fruit and vegetables grow, and which ones are grown in the UK.</li> </ul>	<ul style="list-style-type: none"> <li>- Cut soft foods safely and hygienically using an appropriate tool.</li> <li>- Measure using measuring cups and spoons.</li> <li>- Assemble ingredients to make a simple recipe.</li> <li>- Discuss what a healthy and varied diet should look like, naming and sorting using the five main groups. *</li> <li>- Know where a range of fruits and vegetables come from. *</li> </ul>	<ul style="list-style-type: none"> <li>- Cut a range of foods safely and hygienically with an appropriate tool.</li> <li>- Measure ingredients using scales or jugs.</li> <li>- Follow recipes, starting to use techniques such as peeling, chopping, slicing, mixing, spreading, baking or kneading.</li> <li>- Cook using a pan or oven safely (with supervision and support).</li> <li>- Know where a wider range of foods come from.</li> <li>- Discuss the importance of a range of varied and nutritious foods. *</li> <li>- Discuss the importance of a balanced diet to provide energy for a healthy active lifestyle. *</li> </ul>	<ul style="list-style-type: none"> <li>- Discuss why we need to store and handle food hygienically (micro-organisms).*</li> <li>- Measure ingredients with a degree of accuracy using an appropriate measuring device.</li> <li>- Scale recipes up or down accordingly.</li> <li>- Design their own simple savoury recipes and test them.</li> <li>- Use a range of baking and cooking techniques with increasing confidence (e.g. boiling, frying, baking, grilling, steaming, roasting, microwaving)</li> <li>- Begin to explain why a recipe or meal is healthy or not, giving reasons based on their understanding.*</li> </ul>	<ul style="list-style-type: none"> <li>- Understand and apply their knowledge and understanding of food and nutrition;</li> <li>- Be competent in a range of cooking techniques for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of sensory analysis to adapt and create recipes.</li> <li>- Apply their knowledge to make informed choices around seasonality and characteristics of ingredients;</li> <li>- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently;</li> <li>- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high quality products for a wide range of users;</li> <li>- Evaluate and test their ideas and products and the work of others.</li> </ul>
Products & Designers (Evaluation & Analysis)	<ul style="list-style-type: none"> <li>- Enjoy looking at different products and designs.</li> <li>- Can say whether they like a product/design or not.</li> <li>- Identify materials used to make a product (e.g. plastic, metal, wood)</li> </ul>	<ul style="list-style-type: none"> <li>- Enjoy looking at different products and designs.</li> <li>- Can say whether they like a product/design or not.</li> <li>- Make a link between their work and a product.</li> <li>- Start to ask their own questions about a product or design.</li> </ul>	<ul style="list-style-type: none"> <li>- Continue to develop their knowledge of key designers and products.</li> <li>- Can express an opinion about a product, giving simple reasons why.</li> <li>- Make simple comparisons between designers and products.</li> <li>- Make links between their work and the work of a designer/maker.</li> <li>- Discuss when and where a product or design was created</li> <li>- Begin to make links between key events and individuals in design and technology that have helped shape the world.</li> <li>- Discuss: what products are; who they are for; how they are made and what materials are used.</li> </ul>	<ul style="list-style-type: none"> <li>- Can discuss a range of key designers and products.</li> <li>- Express an opinion about a product, justifying reasons.</li> <li>- Make links between their work and the work of others, noting specific influences and techniques.</li> <li>- Explore: how well products have been designed and made; why materials have been chosen; what methods of construction have been used; how well products achieve their purpose.</li> </ul>	<p>Development of Upper KS2 criteria plus in depth study of the following:</p> <ul style="list-style-type: none"> <li>- Analyse similar products for; function, target audience, aesthetics, style, material, cost and size considerations / ingredients and methods used.</li> <li>- The work of past and present designers,</li> <li>- Design influences themes -design movements / biomimicry.</li> </ul>