



# Design and Technology KS3 Curriculum

Year 7				
	Product - Bird Feeder	Graphics - 2D sketch rendering.	Textiles - LED Lanterns	Food - Balanced diet and dishes.
<b>Content:</b> What will students know by the end of the unit	Understand hardwood and softwood categories. Understand the characteristics of pine and know what sustainable materials are. Students will understand workshop health and safety and learn how to use a range of tools and equipment to produce a pine birdfeeder. Students will be able to read and interpret an orthographic drawing to measure, mark out and accurately cut their pine birdfeeder.	That design concepts can be communicated quickly and efficiently, giving an illusion of material and form, with quick sketch techniques. They will also know that Computer aided design is a powerful tool used by graphic designers. They will know some basic techniques used within illustrator.	Students will extend their knowledge of and improve their understanding of Health and Safety when working in the Textiles room. They will be able to create a range of designs suitable for a fabric lantern. They will learn about and use fabric transfer paints and how to use a heat press with assistance to transfer their designs to fabric. Students will learn about simple methods of embellishing fabric to improve and extend decoration and construction of lantern i.e. hand embroidery, fabric pens and paints, sequins. They will understand the safe use of LED Tea lights to light and complete their decorated fabric lantern.	Students will know key health and safety guidelines when working in the kitchen, basic knife skills and basic key food making techniques. They will know what the Eatwell Guide is and its key healthy eating messages and key terminology used when cooking. They will demonstrate their learning of food safety when producing products using the hob, grill and oven. Products made include cheese straws, chilli-con-carne, fajitas, pizza toast, pasta salad fruit crumble. A variety of high risk ingredients are utilised enabling the students to become familiar with their safe storage and handling of these ingredients.
<b>Skills:</b> What will students be able to do	Use a range of workshop tools and equipment including independently, accurately and safely. This includes scroll saw, belt sander, pillar drill, tenon saw, coping saw and bobbin sander. Students will be able to recognise and interpret a orthographic drawing. The pupils will learn to manage their time and project activities.	How to represent design concepts with quick 2D rendered sketching. How to use light and shade to give an illusion of 3 dimensions. How to use a crate to help sketch in proportion. Illustrator skills using basic shape and line, Unite pathfinder tool, line and fill, patter, image trace and control of gradients and some basic typography skills.	Students will be able to create a range of designs suitable for a fabric lantern. They will learn about and use fabric transfer paints and how to use a heat press with assistance to transfer their designs to fabric. Students will learn about simple methods of embellishing fabric to improve and extend decoration and construction of lantern i.e. hand embroidery, fabric pens and paints, sequins. They will understand the safe use of LED Tea lights to light and complete their decorated fabric lantern.	Students will be able to use the hob, grill and oven safely, safely and accurately prepare and cook vegetables, raw chicken and raw mince meat, make and shape a dough, safely and accurately grate cheese, safely and accurately cook pasta, how to prepare a marinade.
<b>Other:</b> Literacy/Numeracy/D&T Ethos:	Understand metric measurements, how to convert centimetres to millimetres and then use these to accurately mark out.	The Ethos of "not yet". Sketching is a skill that improves with practice. Mathematical shapes and forms. Key Geometry of a circle.	Students will make use of templates to accurately measure and control the shape when cutting out their fabric lantern.	Understanding basic measuring and weighing and cooking times. Developing independence both when reading and following recipes with only guidance from the teacher. Promoting team work and communication skills to help others that are struggling with the recipe and when working to tidy up as the end of the lessons. Promoting a balance diet. Developing independent decision making skills. (is it cooked? is this looking right?)
<b>Assessment:</b>	Practical skills assessment, accuracy and precision of final product. Recall and describe tools, how they are used and what they can be used for.	Practical skill assessment of both hand skills and CAD skills.	Health and safety knowledge is tested through Q&A and poster homework exercise. Design and practical skills are assessed throughout and at the end Year 7 task.	1 practical assessment that assesses students basic knives skills (pasta salad), 1 other assessed practical (teacher choosing). Assessed evaluation of pasta salad. End of rotation test.



# Design and Technology KS3 Curriculum

Year 8

	<b>Product - Roller Coaster pencil holder.</b>	<b>Graphics - Character Mirror (CAD/CAM)</b>	<b>Textiles - Book cover</b>	<b>Food - Skill development</b>
<b>Content:</b> What will students know by the end of the unit.	Pupils will understand and recognise manufactured boards and some of their properties in particular MDF. Pupils will create an accurate template out of paper/card. They will understand why we use templates and why they might be used in industry. Students will know of and use pillar drill, scroll saws, coping saws, belt sander and bobbin sander to create a base for their roller-coaster out of MDF. Students will be aware of aluminium tube and know how to face off on the lathe. Pupils will learn about sources and origins of polymers before understanding the difference between thermo and thermosetting plastics.	The pupils will know how to sketch in proportion, and draw inspiration from past designs, to generate original concepts. They will also know that Development and production can be sped up by using CAD/CAM. They will know of laser cutting, and vacuum forming, and the function of packaging.	Students will know how to tie dye, how to make and use their own stencils with some accuracy, how to use a craft knife safely and with some accuracy, how to use the sewing machine safely and with some accuracy, how to do a running stitch, back stitch, whipped running stitch and laced back stitch.	Students will continue to build upon the skills that they learnt in year 7, recapping key knife skills, health and safety, use of the oven and hob and how to prepare and cook meat and vegetables safely. They will know how to make more skilful dishes.
<b>Skills:</b> What will students be able to do	Use scroll saws, coping saws, belt sander and bobbin sander accurately, safely and independently. Setup and use the lathe to face off aluminium bar. They will understand the uses for wet and dry paper and the different grades. Students will be able to use the buff and polish machine for both their aluminium bars and acrylic coasters. Use the pillar drill independently accurately and safely. Students will know what is and be able to use a thread insert. They will be able to safely use heat guns to bend and shape their acrylic coasters. Understand how to get a good finish using acrylic paints.	Use the crating technique to sketch in proportion, develop and apply their illustration skills to control the laser cutter, and operate the vacuum forming and line bending machine. They will have knowledge of the die cutter, and how to set and print on card.	Students will know how to tie dye, how to make and use their own stencils with some accuracy, how to use a craft knife safely and with some accuracy, how to use the sewing machine safely and with some accuracy, how to do a running stitch, back stitch, whipped running stitch and laced back stitch.	Students will be able to make a sauce using the reduction method, develop their accuracy when prepare vegetables, make a roux sauce, make and shape a bread dough, make and shape a scone dough, begin to understand more about how to present and finish their food to a higher standard.
<b>Other:</b> Literacy/Numeracy/ Ethos	Students will understand how to calculate the area of squares, triangles and circles and then use this to calculate the waste area from their base design template.	The focus is for this unit is utilising and appreciating the speed and accuracy offered by CAD/CAM, and for developing illustrator skills which is a critical component for future use of CAD/CAM throughout the key stages.	The "ethos" of creativity and trying your best is a big focus. They also learn about seam allowance. They also learn about the importance of writing for someone else (producing own set of instructions on how to tie dye).	Understanding basic measuring and weighing and cooking times. Developing independence both when reading and following recipes with only guidance from the teacher. Promoting team work and communication skills to help others that are struggling with the recipe and when working to tidy up as the end of the lessons.
<b>Assessment:</b>		Practical skill assessment of both hand skills and CAD skills. Assessment of colour and composition, accuracy and precision of final product.	Final product assessment that assesses both their hand and machine sewing skills, their creativity, composition, accuracy and precision. They are also assessed on their design concepts using their mood boards and the designs produced for the front cover of their planners. They are also assessed on their evaluations for their final products.	2 practical assessments - macaroni cheese assesses sauce making skills and muffins assess their independence, creativity and presentation skills. Mood board to assess their research methods and creativity. Designing assessment to show how they can adapt a basic recipe, their use of colour, annotation and justification for choosing their product to make.



# Design and Technology KS3 Curriculum

Year 9

	Product - Ring Pot	Graphics - Pop Art T shirt	Textiles - Tote bag	Food
<b>Content:</b> What will students know	Students will strengthen their material knowledge by researching sources and origins of raw materials and understanding renewable and non-renewable materials. Students will learn about ferrous and non ferrous metals and develop their metalworking skills whilst making a brass jewellery pot with an acrylic lid. Students will understand soldering and apply this knowledge using the brazing hearth to solder together brass plate to brass tube using flux to stop oxidation occurring in the join.	How to research analyse and apply their findings to creative and original design work. How design concepts must meet constraints of a design specification to be successful. They will know how to vectorise CAD images to manipulate into new artwork, and how to apply advanced CAD techniques (pathfinder) to generate new areas of colour. They will know the requirements and limitations of the vinyl cutter (CAM). They will know how to prepare vinyl for, and how to "heat press". They will know that the iterative process enables development of functional products, and that it is often small changes that make a big difference.	Students will extend their research and design skills as they investigate designers and artists to inspire their practical work. They will extend the range of practical skills used and use a variety of skills and techniques to create a lined tote bag. They will be encouraged to finish and present their work to a high standard. They will revisit skills learnt in Years 7 and 8 and combine these with new ways of transferring colour to fabric and extend their knowledge of machine and hand embroidery to produce a more polished piece of work. Students will learn how to adapt a paper pattern and also how to line a textiles product.	They will know the terms coagulation and shortening. They will also know why it is importance to include fats, carbohydrates, protein, fruit and vegetables in the diet and the consequences of too much or too little in the diet. They will also know how to plan the making of dish and begin to understand how to evaluate dishes to allow them to improve. They will know more advanced food preparation techniques. They will know a range of meals that they can make to feed themselves and their families.
<b>Skills:</b> What will students be able to do	Students will be able to use the brazing hearth to solder. Students will be able to use tin snips to cut metal before using the lathe to trim the brass base to the same diameter as the tube. Use and set up metalworking vices with soft jaws. Be able to accurately use a file to shape metal. Understand how to use the laser cutter to cut through acrylic. Use and set up the lathe to face off acrylic. Understand different abrasive papers including emery cloth and wet and dry paper. Be able to use the buff and polish machines for both metals and plastics.	Advanced skills of pathfinder-union-subtract, and developing skillset on Illustrator. They will be able to research, analyse and extract knowledge, using this as a foundation to evaluate the effectiveness of their product. They will develop iterative design skills through an applied process. The pupils will use precise skills to heat press, cut card, crease, die cut and staple.	They will revisit skills learnt in Years 7 and 8 and combine these with new ways of transferring colour to fabric and extend their knowledge of machine and hand embroidery to produce a more polished piece of work. Students will learn how to adapt a paper pattern and also how to line a textiles product. In addition to using a range of different stitches they will also use tie 'n dye, batik, silk painting, printing and transfer paints to transfer their designs to fabric	Students will continue to build upon the skills they have learnt in years 7 and 8, recapping key knife skills, health and safety, use of the oven and hob and how to prepare and cook meat and vegetables safely. They will also know how to make and shape a pastry dough, how to make and shape a wet mixture, how to enrobe a product, how to layer a product and multi-task.
<b>Other:</b> Literacy/ Numeracy/ Ethos	Focus on material knowledge of metals and metalworking techniques. Some work on area calculation and applying this to GCSE style questions. Some basic maths calculations volume. Focus on using correct terminology when completing manufacturing diaries.	The focus is for this unit is utilising and appreciating the speed and accuracy offered by CAD/CAM, and for developing illustrator skills which is a critical component for future use of CAD/CAM throughout the key stages.	They will have to measure fabric accurately and ensure that designs are accurately enlarged to fit the correct size of the bag. Measurement will be important when adapting the pattern to make the bag larger or smaller to ensure that it is fit for purpose.	Understanding basic measuring and weighing and cooking times. Developing independence both when reading and following recipes with only guidance from the teacher. Promoting team work and communication skills to help others that are struggling with the recipe and when working to tidy up as the end of the lessons. Understanding the importance of a healthy balanced diet and lifestyle.
<b>Assessment:</b>	Practical skills assessment, accuracy and precision of final product. Recall and describe tools, how they are used and what they can be used for.	Practical skill assessment of both hand skills and CAD skills. Assessment of analytical skills and application of knowledge to design within constraining specifications. Assessment of colour and composition, accuracy and precision of final product.	Students will be assessed on the following skills - research, design and practical skills and techniques. They will also be assessed on the quality of presentation of written, design and all practical skills.	2 practical assessments that assess students knives skills, health and safety and presentation. Written evaluation for own choice of practical dishes produced. Theory based assessment of concepts taught throughout rotation. 2 assessments when planning 2 dishes they are going to make.