

Key Stage 3 Curriculum Map: Design and Technology

All year 7 start the year in the drawing skills project. The remainder of the year is then split into 3 different rotations. The 3 different areas are: DT (Blockbots), DT (Monster Wrap) and Food Preparation and Nutrition. Each rotation topic has 2 assessment points and 2 structured homework tasks.				
	Key Drawing and Communication Skill Development	Blockbots	CAD CAM: Monster Wrap	Food Preparation and Nutrition
Year 7	<p>Students will practise and develop a range of key drawing and presentation skills to help them communicate their ideas effectively. The skills they will cover are:</p> <ul style="list-style-type: none">• Shade, tone and rendering• Isometric drawing• Orthographic drawing <p>Assessment for this unit will mainly consist of peer and self-assessment, with a final teacher assessed task that looks to show progression in all of the skill areas covered in the unit.</p>	<p>Students will practise and develop skill in working with wood to create their own 'block head' toy. They will cover a range of topics and skills within the workshop area including:</p> <ul style="list-style-type: none">• Workshop health and safety• Use of hand saws• Use of the pillar drill• Laminating process• Filing and finishing skills• Marking out and measuring• Knowledge and understanding of different types of woods• Design specification and idea generation• Maths link: Unit conversion, marking out and measuring, area calculations <p>The key assessment points for this unit are Design and Make. All other marking in this unit will be a mixture of peer and self-assessment.</p>	<p>Students will learn about computer aided design and how it can be used in product development and manufacture. They will apply and develop skills in the use of 2D design to create an earphone wrap of their own design using the laser cutter. Students will also be given the opportunity to present their work in Autodesk Inventor as a 3D model and 3D print their outcome. Key learning content includes:</p> <ul style="list-style-type: none">• Task analysis• Specification• CAD CAM – applications, advantages and disadvantages• Advances in 3D printing and new emerging technologies• 2D design• 3D design – Autodesk Inventor• Card modelling development• Practical use of the laser cutter and 3D printer• Maths link: Unit conversion, marking out and measuring, area calculations, diameter and radius calculations <p>The key assessment points for this unit are Design and Evaluate. All other marking in this unit will be a mixture of peer and self-assessment.</p>	<p>Students will learn about the three areas of kitchen hygiene; Personal, Kitchen and Food. They will learn about how to be safe when working independently, focusing particularly on safe knife skills, how to use kitchen equipment without injury and where to store food to prevent cross-contamination.</p> <p>They will look at the importance of a healthy and varied diet as depicted in the Eatwell guide and learn about the sources of Macronutrients and Micronutrients and the importance of knowing why they are needed in the body. Students will also learn that foods provide energy in different amounts and how reading a food label can inform consumer choice.</p> <p>Within the kitchen classroom as well as learning about health and safety; particularly safe knife skills, how to use the kitchen equipment safely and the importance of following strict hygiene procedures they will also learn the importance of following a recipe to achieve a successful outcome, the different effects that different cooking methods can have on the sensory properties of food and how to adapt a simple recipe. They will make Guacamole and Crudités and cook Sweet potato soup, Red Lentil and Sweet Potato curry and then adapt a pasta bake.</p> <p>The key assessment points for this unit are Investigate and Make. All other marking in this unit will be a mixture of peer and self-assessment</p>
Assessment:		Assessment Points: Design/Develop and Make	Assessment Points: Investigate and Design/Develop	Assessment Points: Investigate and Make

Key Stage 3 Curriculum Map: Design and Technology

Year 8	The year is split into 3 different rotations. The 3 different areas are: DT (Mood light), DT (Portable Sound Speaker Project) and Food Preparation and Nutrition. Each rotation topic has 2 assessment points and 2 structured homework tasks.		
	Mood light	Portable Sound Speaker Project	Food Preparation and Nutrition
	<p>Students will practise and develop skills in wood joining using hand tools as well as CAD CAM. They will consider biomimicry to design a night light using 2D which will then be laser cut, as well as working to a technical specification to create the wooden base using more traditional hand cutting and joining skills. Students will also use the BBC Micro:Bit to create a programme for their night light. Topics and skills covered are:</p> <ul style="list-style-type: none">• Task analysis• Specification• Biomimicry in design• CAD – 2D design• CAM – Laser cutter• Orthographic drawing• Programming microcontrollers• Use of hand tools for cutting and shaping wood• Wood joining methods• Maths link: Unit conversion, marking out and measuring, tolerance and waste, area of a triangle, volume of a cuboid <p>The key assessment points for this unit are Design and Make. All other marking in this unit will be mixture of peer and self-assessment.</p>	<p>Students will practise and develop skills in CAD CAM, and plastic forming processes to engineer a portable speaker using a Pringles tube as the main body. The focus on this practical activity is to encourage creativity and confidence in designing and making by developing a more independent outcome. They will also have the opportunity to develop some skills in soldering and knowledge and understanding of electronic components. Skills and learning covered in this unit are:</p> <ul style="list-style-type: none">• Task analysis• Developing a user profile• Specification• Card Modelling and design development• CAD – 2D design• CAM – Laser cutter/3D Printer• Use of heat shaping methods for plastics – Vacuum forming/line bending• Electronic components• Maths link: Calculating volume of a cylinder, diameter, radius and circumference calculations <p>The key assessment points for this unit are Design and Make. All other marking in this unit will be mixture of peer and self-assessment.</p>	<p>Students will develop an understanding of how the correct storage of food contributes to preventing food poisoning and bacteria multiplication. They will know where their food comes from and how it gets from farm to fork. They will look at foods from around the world and be introduced to a diverse range of ingredients. They will learn about a variety of environmental factors that affect peoples choice of food such as seasonality and food waste and learn how availability of food changes depending on where in the world someone lives. They will investigate the ingredients in bread making, particularly how yeast works to help raise a bread product and then develop all this knowledge to design and make their own bread product.</p> <p>Within the kitchen classroom, students will learn how to follow a recipe that has two elements in (e.g. spaghetti bolognese), demonstrate more complex knife skills, know how to prevent food poisoning and bacteria multiplication whilst cooking slightly more complex dishes.</p> <p>They will make Spaghetti Bolognese, select from Chicken Goujons, Fish Fingers or Aubergine Fries, Vegetable Stir Fry and then make a multicultural bread product.</p> <p>The key assessment points for this unit are Investigate and Make. All other marking in this unit will be a mixture of peer and self-assessment</p>
	Assessment Points: Design/Develop and Make	Assessment Areas: Design/Develop and Make	Assessment Points: Investigate and Make

Key Stage 3 Curriculum Map: Design and Technology

Year 9	The year is split into 3 different rotations. The 3 different areas that the pupils will rotate through are: DT (Marble Run), DT (Sustainable Project) and Food Preparation and Nutrition. Each rotation topic has 2 assessment points and 2 structured homework tasks.		
	STEM: Card Engineering Marble Run Challenge	Design and Innovation: Design for a sustainable future	Food Preparation and Nutrition
	<p>Students work in small groups to engineer structures out of card to create a marble run. Applying skills in Science, Technology, Engineering and Math, students will have to use a combination of leaver, cam and pulley systems to successfully design and build a suitable course for a marble to travel down in 1 minute. Topics and skills covered are:</p> <ul style="list-style-type: none">• Task analysis• Specification• Leavers, Linkages, Gear and Cam systems• Forces and friction• Card engineering – testing and evaluating• Iterative design process• Maths link: velocity ratio, forces and levers <p>The key assessment points for this unit are Design and Evaluate. All other marking in this unit will be mixture of peer and self-assessment.</p>	<p>Students will consider an architectural brief and respond with a creative solution. They will make links to sustainability and the 6 R's and are encouraged to consider the different fluences and impact society has on the design process, exploring how ideas have evolved and where they might lead us in the future.</p> <ul style="list-style-type: none">• Task analysis• Developing a user profile• Product analysis• Sustainability• Card Modelling and design development• CAD – 2D design, 3D modelling• CAM – Laser cutter/3D Printer• Use of heat shaping methods for plastics –line bending• Maths link: areas of shapes, tessellation <p>The key assessment points for this unit are Design and Make. All other marking in this unit will be mixture of peer and self-assessment.</p>	<p>Students will look at the many factors that can affect the choice of food. This will include religious and cultural choices, costing and adapting recipes to suit a budget and the ethical and moral considerations of eating particular foods. They will apply their knowledge of nutrition to adapt existing recipes to suit these needs building on the knowledge they've learnt in year 7 and 8 about the principles of nutrition and sourcing of ingredients to plan appropriate recipes. They will begin to understand how their food is processed and look at the differences between ready made and homemade foods.</p> <p>Within the kitchen classroom students will incorporate more complex cooking skills within a meal such as pastry and dough making. They will also consolidate how the storage of food contributes to preventing food poisoning and bacteria multiplication.</p>
	Assessment Areas: Design/Develop and Evaluate	Assessment Areas: Design/Develop and Make	Assessment Points: Make and Evaluate