Design & Technology – Key Stage 3

Curriculum

Design & Technology is studied in Years 7-9. Pupils work on a rotation system studying three projects a year across Design & Technology and Food & Nutrition. Pupils can continue to study within the field of Design & Technology or Food & Nutrition in Years 10-11 as an option subject. The option choices available include GCSE Design & Technology, Cambridge National Level 1/ 2 in Engineering and GCSE Food Preparation and Nutrition.

	Unit	Knowledge and Skills
Year 7	The DT curriculum introduces pupils to creative thinking and problem solving, whilst developing skills to communicate ideas effectively and realise them as models or finished practical outcomes. There are opportunities to experiment with and investigate a range of materials, techniques, processes and approaches. As their designs develop, pupils are encouraged to take risks and think in alternative ways, producing individualised outcomes within a class. Pupils learn within three key areas of study during Year 7 and they will be assessed during each unit of work. We intend to teach the following projects if circumstances allow.	
	Communication	Pupils will be introduced to a range of communication skills throughout this unit of work. Pupils will be taught how to communicate their ideas through drawing techniques such as oblique drawing, one point perspective drawing, two- point perspective drawing and orthographic. Alongside this, pupils will learn how to annotate their ideas effectively to best communicate their thoughts surrounding their ideas. Finally, pupils will learn how to use the CAD program 'Sketch Up' so they can produce realistic renders of their ideas. Key Assessment: Final Milestone containing a portfolio of drawing work, annotations, CAD drawings and end of unit knowledge test on drawing techniques.
	Food Preparation and Nutrition	Pupils will be introduced to the kitchen environment and cooking techniques including learning how to use knives, stoves and the oven safely and hygienically. They will build up skills through demonstrations and practical making activities which focus on the key skills of chopping, frying, baking and tidying up. Pupils will learn about healthy eating relating to the 'eat well' plate and different ways of analysing dishes through sensory analysis. Pupils will utilise their skills to design and make their own healthy dish. Please be aware that pupils will need to bring their own ingredients to cook with and will require a large watertight container to transport their dishes home. Key assessment: Written Final milestone designing a healthy breakfast, lunch and dinner. Assessed practical outcome.
	Metals	The 'Metals' project provides pupils with a toolkit of further strategies for creative idea generation that they can use throughout and beyond the course. They will spend quality time developing their ideas into realistic design solutions, which they will plan and make following experimentation with different material options. This year, pupils will work with Pewter and learn how to cast. Pupils will need to plan effectively, taking into account constraints such as time, size and materials. As they make their designs, they will become familiar with the

		workshop environment, tools, equipment and processes such as cutting, joining and forming. They will gain understanding of how to safely use hand-held tools and machines such as the coping saws and pillar drill. They will test and evaluate their product to consolidate their learning. Key assessment: Final idea milestone, final practical outcome and end of unit knowledge test on metals

Groupings

Pupils will be taught in either all male or all female mixed ability classes. Pupils will be taught by the same teacher throughout the year for each area of the curriculum.

Homework Information

Homework will be set every two weeks and should take students an average of 30 minutes to complete.

Equipment

Food Preparation and Nutrition – pupils will be expected to bring ingredients from home, along with a large container so that food can be safely transported. They will be told each week what is needed.

Metals – pupils may bring a craft apron to lessons. However, aprons are provided.

	Unit	Knowledge and Skills
Year 8	The DT curriculum is designed to embed the learning of creative thinking and problem solving from Year 7, whilst developing skills effectively to communicate ideas and realise them as models or finished practical outcomes. Students will continue to experiment with and investigate a range of materials, techniques, processes and approaches. As their designs develop, students are encouraged to take risks and think in alternative ways, producing individualised outcomes within a class. Students learn within three key areas of study during Key Stage Three. We intend to teach the following projects if circumstances allow.	
	Polymers & paper and board	This unit of work aims to provide students with a toolkit of further strategies for creative idea generation which they can use throughout and beyond the course. They will spend quality time developing their ideas into realistic design solutions, which they will plan and make following experimentation with polypropylene and card. This year, students will work mainly with two materials to make a creative piece of lighting design. Students will need to plan effectively, taking into account constraints such as time, materials and manufacturing process. As they make their designs, they will develop their skills in a workshop environment using tools, equipment and construction processes such as laser cutting and joining. They will test and evaluate their product to consolidate their learning. Key assessment: Final idea milestone, final practical outcome and end of unit knowledge test on polymers
	DOT - Dexterity & Vision	In this unit of work, students will explore the topic of inclusive design and work through the cyclical process of iterative design. Pupils will look at how to design for all rather than just designing for one part of a diverse

		population. Using their research and task analysis's, pupils will respond to a design brief and produce a series of conceptual models working through an iterative design process leading to a final practical outcome. All resources have been provided via the DOT project in collaboration with the University of Cambridge. Key assessment: Final idea milestone and final practical outcome and end of unit knowledge test on anthropometrics and ergonomics
	Food Preparation & Nutrition	Building on skills learnt in the Year 7 cooking module, students will develop their skills within the kitchen environment. Pupils will use their school as inspiration to design their own health food bar to be sold in their school cafeteria. In order to build the understanding to this final outcome, pupils will look at Healthy Eating including the Eatwell guide and importance of a balanced diet. Pupils will also learn about nutritional value, labelling and the importance of allergies within design. Key assessment: Final recipe milestone 'design your own health food bar and wrapper' and final practical outcome

Groupings

Students will be taught in their tutor groups and therefore will be fully mixed ability and gender. However, there are some exceptions to this where students will not be in their tutor group. This decision will be made by the Head of Department. Students will be taught by the same teacher throughout the year for each area of the curriculum.

Homework Information

Homework will be set every two weeks and should take students an average of 30 minutes to complete.

Equipment

Food Preparation and Nutrition – pupils will be expected to bring ingredients from home, along with a large container so that food can be safely transported. They will be told each week what is needed.

Polymers – pupils may bring a craft apron to lessons. However, aprons are provided.

DOT Dexterity and Vision - pupils may bring a craft apron to lessons. However, aprons are provided.

	Unit	Knowledge and Skills
Year 9	The DT curriculum is designed to embed the learning of creative thinking and problem solving from Year 7 and Year 8, whilst developing skills effectively to communicate ideas and realise them as models or finished practical outcomes. Pupils will continue to experiment with and investigate a range of materials, techniques, processes and approaches. As their designs develop, pupils are encouraged to take risks and think in alternative ways, producing individualised outcomes within a class. We intend to teach the following projects if circumstances allow.	
	Material Exploration	In this unit of work, students will explore the topic of designing an inclusive product. Whilst designing, students will explore the properties

		and qualities of different materials when testing their ideas. Students will take the project in the direction of their choosing designing for a primary user and other stakeholders. Key assessment: Final idea milestone, final practical outcome, and a manufacturing diary.
	Build for Tomorrow	Pupils will be given a real life design problem and they will need to respond to the design brief in a creative and sustainable manor. The challenge is to design a shelter for homeless people which aims to have a low environmental impact and to improve the experience for all stakeholders. Pupils will research the problem, learn about sustainable energy sources and explore different ideas that aim to offer solutions and then through development work and feedback they will arrive at a final idea. Their final prototype will need to meet all of the design specification criteria and will be done in Teams practicing a range of modelling techniques to communicate their ideas. Key assessment: Final idea milestone, final practical outcome and knowledge test on paper and board.
	Food Preparation & Nutrition	Pupils will build on their understanding from Year 7 + 8 within theory lessons including health and safety, The Eatwell guide, Food Miles and Sustainability. This will be taught within the theme 'All around the world' where pupils will also learn about different cultural foods and important ingredients to those cultures. Key assessment: Final written/design milestone and practical outcome.

Groupings

Pupils will be taught in fully mixed ability and gender groups. Pupils will be taught by the same teacher throughout the year for each area of the curriculum.

Homework Information

Homework will be set weekly and should take pupils an average of 30 minutes to complete.

Equipment

Food Preparation and Nutrition – pupils will be expected to bring ingredients from home, along with a large container so that food can be safely transported. They will be told each week what is needed.

Material Exploration – pupils may bring a craft apron to lessons. However, aprons are provided.

Build for Tomorrow – pupils may bring a craft apron to lessons. However, aprons are provided. Pupils will also be encouraged to bring in scrap materials from home to build their models.