

Design & Technology

Design & Technology (D&T) is an area of study that focuses on planning, designing and creativity. The subject gives all students the opportunity to learn how to make things, repair products and discover solutions to different problems. This subject is one of the most progressive on the national curriculum, mainly due to the developments in technology and the rapidly changing world we live in. Technology is having an impact on the whole planet and we need to prepare our students for the developments they will encounter. Students in Design & Technology develop designing and making skills in addition to learning about electronics, computing, engineering, CAD, CAM, robotics, materials and textiles technology. They also develop business critical skills through problem-solving, innovation and team-work.

Throughout the Key Stage 3 course (Years 7 – 9), we aim to give all students a basic level of knowledge by helping them to be more creative, resilient, work independently, in groups and develop problem solving skills. These skills are transferable to other subjects and are all skills which will assist these children as they progress through the school and onwards.

In both Key Stages 3 and 4, students develop practical skills, creative skills and a knowledge of technology that will help prepare them for other academic subjects and their future. The course helps students to be more considerate of environmental impacts and the technological changes in the world they will encounter. Students are encouraged to work independently, develop problem solving skills and understand the process of design. The Key Stage 4 D&T course helps to develop some of the important skills, techniques and knowledge required for those students who intend to progress onto Key Stage 5. The course also develops the skills to lead into apprenticeships or specific college courses that focus on practical and creative skills.

Throughout Key Stages 3 and 4, we intend to deliver a wide curriculum giving students the chance to explore different areas of Design & Technology. The children develop and practise new skills and we aim to ensure that all students are confident in the following areas

- Help students to develop a variety of creative and practical skills through working with different techniques and materials
- Gain an understanding of designing, making and evaluating with a range of materials
- Develop technical knowledge in mechanical systems and properties of materials.
- Give students the opportunity to learn skills in cookery and be able to cook a range of predominantly savoury dishes.
- Develop an understanding of nutrition and health.
- Learn different techniques and skills in the kitchen.
- Understand about ingredients, their source, seasonality and the characteristics of the ingredients.
- Help to prepare students for an increasingly technical world.
- Gain awareness and understanding of the following factors
 - History of design
 - Social
 - Cultural
 - Environmental
 - Economic
- Further develop creative skills and techniques through, designing, making and evaluating.
- Prepare students to progress into apprenticeships or full-time career in creative and practical industries.
- Prepare students to progress into A Level course in product design.

Teaching Design & Technology is very different to other subjects. It focuses on so many different skills. Those who find creative subjects difficult can still excel in Design & Technology through the construction, engineering, science and mathematical elements of the subject. Those who are creative can work more with designing and

manufacturing. The course develops students to work both with function and form and our aim as a department is to help students to develop skills in both of these areas.

The expectation is that all young people will be able to enjoy and succeed in the different areas of Design & Technology, regardless of their prior experience and their background. The outcomes at Key Stage 4 rely heavily on completion of Non-Examination Assessment (NEA). We have high expectations for every learner and know that it is possible for all to achieve high grades in the NEA. This gives students the confidence when entering the examination and ultimately progressing and achieving beyond their target grade.

Year 8 – Design & Technology

Students will study each of the units of work below for a period of 8 weeks. They will then rotate to the next teacher to learn another area of technology. Students learn four subjects in Year 8 - Graphics, Resistant Materials, Textiles and Food Nutrition & Preparation. Students will also study for a 4 week theme park project incorporating design brief, specification, designing and making skills.

Resistant Materials

Content of study	Link Toy
What are the aims and objectives of this term?	During weeks one to eight, students revisit the skills learnt using timber by producing a children's toy using soft wood. They learn about different tools and develop skills learnt in Year 7. The theory we cover includes: • Learning about timber and ecological issues related to this material • Anthropometrics • Ergonomics • Isometric design • Design of chosen product with analysis • Product life cycle • Inclusive design • Scales of production • Evaluations and modifications
What previous knowledge is required?	Many of the skills, tools and equipment used in this project will be skills previously learnt in Year 7. Students will have also learnt about drawing techniques in graphics, which they will be able to revisit in this project.
How will this term's content help with future learning?	The practical skills students learn in this project helps to develop their confidence when using tools and equipment. There are topics in this unit which students must understand for work at Key Stages 4 and 5. Ergonomics and anthropometrics is a key term learnt at all key stages.
Resources	Students who wish to develop further knowledge on the areas of study covered in Year 7 can research areas on the link below. ENGINEERING - DESIGN AND TECHNOLOGY (technologystudent.com) Below are some of the videos that we use in this unit of work. https://www.bbc.co.uk/bitesize/guides/zdj8jty/video https://www.bbc.co.uk/bitesize/guides/zdj8jty/revision/3 https://www.youtube.com/watch?v=uWYI51QJ0Zw https://www.youtube.com/watch?v=rCa9u9ii3qM https://www.youtube.com/watch?v=AMgeNjXtYx4

	https://www.youtube.com/watch?v=IhVuc6RNYaw HTTPS://WWW.YOUTUBE.COM/WATCH?V=AMGENJXTYX4 https://www.youtube.com/watch?v=g9INpSAtHgl https://www.youtube.com/watch?v=tfr74gIDbKs
Links to the national curriculum/specification	• Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • use research and exploration, such as the study of different cultures, to identify and understand user needs • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools • identify and solve their own design problems and understand how to reformulate problems given to them • test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups • understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists
Assessments	Students will be assessed on the practical piece of work they complete. They will receive a formal assessment which takes place in week 4 of the rotation – this is based on the child's ability to design in 3D, annotate the idea and evaluate their design. Students will receive homework every fortnight. One of these homework tasks is a piece of assessed work. Students are able to choose a Homework task from a choice of 48 different activities.

Food Preparation and Nutrition

Content of study	Food Theory and Practical Cookery
What are the aims and objectives of this term?	During weeks one to eight, we help students to build on the practical skills learnt in the previous year. The theory we cover includes: • Diet, nutrition and health • Factors that influence food choice • Fats – function, sources, deficiency and excess • Special diets • Food and the environment • Vitamins – fat and water soluble • Traditional cuisine
What previous knowledge is required?	Some students enter Key Stage 3 with prior D&T knowledge but many have little if any experience of the subject. The aim is to develop student's knowledge to bring them to a similar level by the end of this rotation.
How will this term's content help with future learning?	The practical skills students learn in this project helps to develop their confidence when using tools and equipment. The theory work involved in this unit gives the students an understanding of some of the basic skills required in the subject which will be used throughout Key Stages 3 and 4.

Resources	Students who wish to develop further knowledge on the areas of study covered in Year 8 Food can research areas on the link below. Food A Fact Of Life Below are some of the videos that we use in this unit of work. https://youtu.be/HPk2vM6ClnM https://youtu.be/6KuHU2X7gQ0 https://www.youtube.com/watch?v=DIL5TwjIZIQ https://www.youtube.com/watch?v=RFykl-haljY https://www.youtube.com/watch?v=hvF5wWChxbk
Links to the national curriculum/specification	• Understand and apply the principles of nutrition and health • Become competent in a range of cooking techniques • Cook a range of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet. • Use utensils and equipment • Apply heat in different ways • Understand the source, seasonality and characteristics of a broad range of ingredients -what factors influence my choice of foods; how to identify allergens and intolerances; looking at labels • Recommended guidelines for a healthy diet. How people's nutritional needs change. • Major diet related health risks. • The specific functions, main sources dietary reference values and consequences of malnutrition of macronutrients and micronutrients. • The development of culinary traditions in British and international cuisines, their distinctive features and characteristics, traditional and modern variations of recipes, cooking methods, presentation and eating patterns.
Assessments	Students will be assessed on the practical skills they use when cooking their dishes. They will receive a formal assessment which takes place in week 3 of the rotation – this is based on the student's ability to identify the function of fat in the body, the food sources and different types of fat, excess and deficiency of fat and how to give advice and adapt a shopping list that has high fat contents. Students receive feedback on their work and are given the opportunity to improve their work and grade in week 5. Students will receive homework every fortnight. One of these homework tasks is a piece of assessed work. Students are able to choose a Homework task from a choice of 48 different activities.

Graphics

Content of study	Cinema Project
What are the aims and objectives of this term?	During weeks one to eight, our practical lessons concentrate on working with corrugated board to make a cinema display stand to promote a new fairy-tale film for young children. Students will learn about cutting and shaping corrugated board; and designing graphics and promotional material including leaflets, cinema tickets. The theory we cover includes: • Drawing skills • Colour theory • Sources of paper and boards

	• Nets – creasing and folding / die cutting • Paper folding techniques • Leaflet design • Cinema ticket design • Designer Influence
What previous knowledge is required?	Students will have learnt some basic graphics skills in Year 7 - the aim is to build this knowledge further.
How will this term's content help with future learning?	The practical skills students learn in this project helps to develop their confidence when using tools and equipment. The theory work involved in this unit gives the children an understanding of some of the basic skills required in the subject which will be used throughout Key Stages 3 and 4.
Resources	Students who wish to develop further knowledge on the areas of study covered in Year 7 can research areas on the link below. GRAPHICS SECTION (technologystudent.com) Below are some of the videos that we use in this unit of work. https://www.youtube.com/watch?v=pgNQRn-g7Hw https://www.youtube.com/watch?v=oQqKH_PIH1s http://www.youtube.com/watch?v=EDYps4anRJ8 https://www.youtube.com/watch?v=RfilRUu8BMU&app=desktop isometric https://www.youtube.com/watch?v=AiGCMxWyRos&app=desktop https://www.youtube.com/watch?v=IzO86ZhiHrk&ap https://osmaps.ordnancesurvey.co.uk/51.23678,0.51981,14
Links to the national curriculum/specification	• Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • use research and exploration, such as the study of different cultures, to identify and understand user needs • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools • identify and solve their own design problems and understand how to reformulate problems given to them • analyse the work of past and present professionals and others to develop and broaden their understanding
Assessments	Students will be assessed on their practical piece of work. They will receive a formal assessment which takes place in week 3 of the rotation – this is based on the child's ability to research the origin of paper, GSM, microns, a range of papers and boards with properties and uses, and a conclusion to summarise their findings. Students will receive homework every fortnight. One of these homework tasks is a piece of assessed work. Students are able to choose a Homework task from a choice of 48 different activities.
Textiles	
Content of study	Textile Bag

What are the aims and objectives of this term?	During weeks one to eight, our practical lessons focus on creating a bag from a t-shirt. Students create a felt design and sew using creative stitches onto the front of the bag. An over locker is used to sew the base of the bag. The theory we cover includes: • Development of designs • Manufacturing Specification • Laminated materials • Sustainability of textiles • Recycling textiles – designing • Machinery used in textiles • CAD/CAM
What previous knowledge is required?	Students will have learnt some basic textiles skills in Year 8 - the aim is to build upon this knowledge.
How will this term's content help with future learning?	The practical skills students learn in this project helps to develop their confidence when using tools and equipment. The theory work involved in this project gives the students an understanding of some of the basic skills required in the subject which will be used throughout Key Stages 3 and 4.
Resources	Below are some of the videos that we use in this unit of work: https://www.youtube.com/watch?v=cOO7stx89yA https://www.youtube.com/watch?v=JkqBWJslHLw https://www.youtube.com/watch?v=BlInCFUQtU https://www.youtube.com/watch?v=D77oe8ZzXWo
Links to the national curriculum/specification	• Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • use research and exploration, such as the study of different cultures, to identify and understand user needs • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties • identify and solve their own design problems and understand how to reformulate problems given to them
Assessments	Students will be assessed on their practical piece of work. They will receive a formal assessment which takes place in week 3 of the rotation – this is based on the child's ability to create a manufacturing specification. Students will receive homework every fortnight. One of these homework tasks is a piece of assessed work. Students are able to choose a Homework task from a choice of 48 different activities.

Theme Park Project

Content of study	Theme park
What are the aims and objectives of this term?	During weeks one to four, our practical lessons focus on making prototypes of the theme park rides, merchandise to sell in the shop, menu for a café and designing a theme park map. The theory we cover includes: • Design brief • Specification • Design ideas • Development

What previous knowledge is required?	Students will have learnt some research, design and development, and practical skills in Year 8 - the aim is to build upon this knowledge.
How will this term's content help with future learning?	The practical skills students learn in this project helps to develop their confidence when using tools and equipment. The theory work involved in this project gives the students an understanding of some of the basic skills required in the subject which will be used throughout Key Stages 3 and 4.
Resources	Below are some of the videos that we use in this unit of work: https://www.youtube.com/watch?v=k_9Q-KDSb9o
Links to the national curriculum/specification	• Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture • use research and exploration, such as the study of different cultures, to identify and understand user needs • select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties • identify and solve their own design problems and understand how to reformulate problems given to them
Assessments	Students will be assessed on their practical piece of work. Students will receive homework every fortnight. One of these homework tasks is a piece of assessed work. Students are able to choose a Homework task from a choice of 48 different activities.