CURRICULUM INTENT

DESIGN AND TECHNOLOGY

We aim to provide students with the opportunity to solve real-life problems through creative and technical approaches. Student will work in a stimulating and diverse range of DT subjects (Resistant Materials, Graphic Design, Textiles, Systems Technology and Food & Nutrition) to build robust subject knowledge and high-level practical skills delivered through unique project work and challenges. Students will be passionate, enthusiastic learners equipped to take on a career in Design Technology in the future.

CURRICULUM INTENT OVERVIEW

HEAD
KNOWLEDGE-RICH

Students will:

- Develop core subject knowledge, common to all DT areas, developed over our curriculum with opportunities built in for revisiting and reinforcing this knowledge.
- Understand the intricacies of how the design process works within different areas of Design Technology, particularly the concept of iterative design.
- This core knowledge includes:
- Materials (including ingredients in food), their properties and applications E.g. woods, metals, plastics, papers and board, meats, fruits & veg and dairy.
- Designing and presentation techniques
- Manufacturing and processing methods
- Healthy and safety measures including safe tool and machine operation
- Electronic and mechanical systems
- Design history and style
- The iterative design processes
- Students will also develop knowledge specific to the five technology areas, allowing students to acquire a broad set of knowledge with the opportunity to specialise in their favourite area during KS4 and 5.
- Knowledge in DT enables students with the tools to problem-solve and to be creative.

HEART
FAITH, LOVE AND RESPECT

Students will:

- Be given the opportunity to work collaboratively on projects and assignments
- Respond to design challenges and topics within a variety of social and moral contexts
- Study the concept of environmental awareness and consider the impact of materials and products on our planet
- Study the moral implication of the design decisions they make for different cultures, nationalities and beliefs
- Have the opportunity to personalise their projects to a theme they love or appreciate
- Have the opportunity to study outside of the classroom with a set of homework assignments
- Students can opt to take part in extra curricula activities, trips and competitions with creative themes

HANDS
APPLICATION OF KNOWLEDGE

Students will:

- Use a variety of presentation techniques to present design ideas for their products
- Present research information in clear and concise ways
- Be able to analyse research information and be able to extract important designing criteria from it
- Specify the exact requirements they need from a design for it to be successful
- Be able to logically plan activities and be able to follow these plans to produce quality outcomes
- Work collaboratively, responding to feedback or modification suggestions, showing resilience in their work
- Be able to apply physical making skills with independence to produce made items of high quality
- Be self-motivated and lead their own work
- Be considerate of the impact of their design choices on others around them
- Appreciate the joy of solving a problem or challenge with a successful solution
- Be ready to continue their study of design in future careers such as engineering, graphic, textiles, electronic or mechanical design, food / nutrition science and many more.

CURRICULUM TO CLASSROOM

HEAD KNOWLEDGE-RICH	KNOWLEDGE FOCUSED	Students in KS3 are provided with a knowledge and workbook; this structures the content that the students are required to know/do. At KS4 and 5 pupils work in both exercise books and from teacher designed worksheets and booklets. These are collated in a folder to help organise the work. Lessons are designed and planned to help students learn this knowledge.
	EXPERT TEACHERS (EXPLANATIONS)	Teachers try to offer concise explanations of new knowledge and in small chunks. Often teachers will recap knowledge that they have been taught before which is relevant to the new teaching; for example through warm-up activities that help students to recall that previous learning. Stories and analogies might be used to explain concepts and aid understanding.
	TAUGHT TO BE REMEMBERED	DT teachers rigorously test students on this is a variety of ways to help them to retain core knowledge. They do this in a variety of ways; for example via regular retrieval practice, low-stakes quizzing, Do Now activities, use of mini-whiteboards, cold-calling and so on. Teachers will make sure that they revisit previous learning from previous topics to help ensure that it is not forgotten.
HEART FAITH, LOVE AND RESPECT	ENCOURAGING CLASSROOMS BASED ON FAITH, LOVE & RESPECT	Classroom routines in DT include school prayers, the setting up of practical work, tidying up equipment and retrieval. We have high expectations of both conduct and work; students cannot opt out of class activities. We aim to create an environment which is calm and productive via firm classroom control – follow through with actions and are consistent in praise, challenge and any required consequences. We operate a caring 'we will work hard for you' approach.
HANDS APPLICATION OF KNOWLEDGE	EXPERT TEACHERS (MODELLING)	DT teachers use a variety of techniques to model their expertise and thinking. For example, teachers may talk out loud to explain thought processes, they may use visualisers to demonstrate 'live' practical skills or how to produce written answers, they may show and dissect excellent students work, they may make deliberate mistakes in order to model bad practice. Often DT teachers use an "I do – you do" modelling approach.
	DELIBERATE PRACTICE	As part of the curriculum, time allowed for independent work. Scaffolding is provided to help break down the task in steps. Students may repeat a skill or knowledge piece multiple times until it is secure. Teachers should circulate around the room to support students on a one-to-one or small group basis. Students are given regular activities where they rework, sort or organise in order embed knowledge

LEARNING SEQUENCE – YEAR 7

OUTCOMES	• In Year 7 pupils will understand the structure and routines used within Design Technology. • They will begin to understand the structure of a design project. • They will be trained in heath and safety, tool and machinery operation. • They will develop introductory presentation skills for design work. • They will begin the development of both core and specialist subject knowledge.				
TOPIC	**Food and Nutrition**	**Resistant Materials**	**Systems Technology**	**Graphic Design**	**Textiles Technology**
EXPLANATION	Pupils will focus on nutrition and health eating. They will understand food safety and hygiene. They will develop introductory level practical skills.	Pupils will learn hand and machine practical skills. They learn workshop safety rules. They will learn about woods and their properties.	Pupils will learn about electronic components and simple mechanical systems. They will practice hand and machine making skills. They will reinforce workshop safety rules.	Pupils will develop basic 3D drawing and lettering skills. They will build models. They will understand about papers and boards and their properties.	Pupils will learn about fabrics and their properties. They will learn how to hand sew and embellish. They will develop their templating skills

LEARNING SEQUENCE – YEAR 8

OUTCOMES	• In Year 8 pupils will build upon and reinforce their knowledge from Year 7 • They will engage in projects of a higher technical difficulty • They will work with new tools and machinery • They will have more opportunity to personalise their projects and conduct research				
TOPIC	**Food and Nutrition**	**Resistant Materials**	**Systems Technology**	**Graphic Design**	**Textiles Technology**
EXPLANATION	Pupils will learn about the school food plan and about traceability of food. They will carry out practical tasks at a medium difficulty level with more ingredients than in Year 7.	Pupils will learn about metals, their origin and properties. They will use jigs and templates to shape metals. They will use new tools and equipment. They will iterate their designing.	Pupils will learn about circuits and how to build a circuit board. They will learn about sensors and how to represent their circuits as diagrams. They will solder and work with plastics.	Pupils will develop their drawing skills both by hand and in CAD. They will learn about matching materials to uses and about industrial processes used in graphics	Pupils will learn new processes including batik, tie dye and quilting. They will learn about sustainable design in textiles and about matching fabrics to functions.

LEARNING SEQUENCE – YEAR 9

OUTCOMES	• In Year 9 pupils study subjects in-depth, preparing them for KS4 style work. • They will engage in projects of high technical difficulty • They will apply practical skills learnt in Year 7 and 8 in projects of their own. • They will have a good understanding of the design process and be able to lead their own work to some extent.				
TOPIC	**Food and Nutrition**	**Resistant Materials**	**Systems Technology**	**Graphic Design**	**Textiles Technology**
EXPLANATION	This course introduces students to a variety of multicultural cuisines, cultures and traditions. They make dishes of high complexity and will study functional and chemical properties of ingredients.	Pupils will learn about the influence of various design styles from history and use it inspire their own work. They will learn about stock forms and material finishes. They will make a product requiring high degrees of precision.	Pupils will learn about the influence of art nouveau style and use it in their own work. They learn about pre-made components and the importance of prototyping. They will study plastics manufacturing processes.	Pupils will learn about Bauhaus style in depth and apply it to an architecture project. They will learn about industrial manufacturing of graphics items. They will learn higher level 3D drawing and CAD skills	Pupils will study the influence of brands and use this to design their own brand. They will use 2D CAD to apply with brand onto a product via transfer printing. They will learn about the construction of fabrics and make heavy use of the sewing machine.

LEARNING SEQUENCE – YEAR 10

OUTCOMES	• To understand DT subject knowledge related to their GCSE exam • To practice using this knowledge within exam contexts • To undertake projects and tasks that are more independent, providing the higher level skills and experience they need for the demands of NEA (coursework) • To be confident in their work and drive their own study	
COURSE	**Food and Nutrition**	**GCSE DT**
EXPLANATION	Pupils will produce dishes of high complexity, covering a range of sweet and savoury choices. Example practical skills: Knife skills, handling high-risk ingredients, testing for readiness, boiling, simmering, frying, baking, presentation skills, combining ingredients. Example subject knowledge: Eatwell guide and balanced diets, nutrition, denaturation, gelatinisation, coagulation, macronutrients, HVB and LBV proteins, the role of fats in the diet, functional and chemical properties of fats, Micronutrients – vitamins	Pupils will study their core subject knowledge first, followed by specialist subject knowledge, both with their main teacher. They will also complete skills projects which mimic NEA style work to prepare them for Year 11. Example subject knowledge: Properties and applications of materials Manufacturing methods Components Electronics and mechanisms Sustainable design Human factors Iterative design process Example projects: Toolbox and tools Table football Aeroplane model Clothing Decorative cushions Board games Architecture

LEARNING SEQUENCE – YEAR 11

OUTCOMES	• To put into practice the skills acquired in Year 10 to produce their NEA (coursework) project. • To apply subject knowledge within this project • To retrieve and revise subject knowledge, to demonstrate their depth of understanding. • To de confident and independent learners	
COURSE	**Food and Nutrition**	**GCSE DT**
EXPLANATION	In both of these courses the focus this year is an independent Non-Examined Assessment (NEA) project whereby pupils design and make products for a customer. This forms 50% of their final grade. Pupils work through the processes taught in year 10 to self-manage their project to the best of their ability. Alongside this work, pupils will be guided through regular subject knowledge retrieval and testing to keep their subject knowledge sharp. This is to prepare them for their summer exam.	

LEARNING SEQUENCE – YEAR 12

We offer A Levels in Resistant Materials, Graphics and Textiles and Btec qualifications in Health and Social Care. These are 2 year courses all with NEA and exam elements.

OUTCOMES	• To understand subject knowledge related to their A Level / Btec exam • To practice using this knowledge within exam contexts • To undertake projects and tasks that mimic the demands of A Level NEA and bridge and skills gaps from GCSE • To carryout NEA (coursework) assignments in an essay structure (Btec)	
COURSE	**Btec Health and Social Care**	**A Level DT courses**
EXPLANATION	This year pupils will learn subject knowledge to prepare them for the unit 1 and 2 exams, sat in summer of year 12. The 2 focusses are: -Human Lifespan Development -Working in Health and Social care. They will also complete essay style NEA units with the focus on: -Meeting individual care and support needs -Principles of safe practice in health and social care	Pupils will study their subject knowledge 2 lessons a week where we build on knowledge form GCSE study, introduce new topics, and use regular retrieval and testing to embed. They will also complete skills projects which mimic NEA style work to prepare them for Year 13. Example subject knowledge: Design history and fashion Form and Function Properties of Materials and their applications Industrial manufacture Legislation Processes Example projects: Camera Architecture Casting metal figures Toy and Games Jewellery Clothing

LEARNING SEQUENCE – YEAR 13

OUTCOMES	• To de confident and independent learners • To understand subject knowledge related to their A Level / Btec exam • To practice using this knowledge within exam contexts • To carryout NEA (coursework) assignments independently.	
COURSE	**Btec Health and Social Care**	**A Level DT courses**
EXPLANATION	This year pupils will learn subject knowledge to prepare them for the unit 4 exam, sat in summer of year 12. The unit focus is: -Enquiries into current research in Health and Social Care. They will also complete essay style NEA units with the focus on: -Nutritional Health -Promoting Public Health -Psychological Perspectives	In DT A Level courses the focus this year is an independent Non-Examined Assessment (NEA) project whereby pupils design and make products for a customer. This forms 50% of their final grade. Alongside this work, subject knowledge topics are still taught as it takes 2 years to study all the content. Regular retrieval and practice is used to keep these skills sharp.

ENRICHMENT, SUPPORT, EXTRA-CURRICULAR

- DT is proud to offer both lunchtime and after school extra-curricular activities to students. These include clubs and competitions, but also chances to just come and work.
- The DT staff are very welcoming and never turn away a student who wants to come and work
- You can also often find us helping other departments out or supporting whole school events such as shows, sports days and prize giving events, be that through making resources, taking photos or even filming the events for the school.
- We are a highly experienced and knowledgeable team.