Stafford Manor
High School

Subject: Design & Technology

Curriculum Intent Statement

The Key to unlocking the future is the ability to meet challenges head on, solve problems where they arise and make the world a better place for all.
This is at the core of Design & Technology at Stafford Manor High School where we strive to teach our students the skills to carry this out no matter what direction their life may take.
Through the years and the various different material disciplines the students learn and embed a process of analysing situations, researching, developing concepts, creating a final solution and evaluating their success.

The National Curriculum states:
Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims
The national curriculum for design and technology aims to ensure that all pupils:

- ☐☐develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- ☐☐build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- ☐☐critique, evaluate and test their ideas and products and the work of others
- ☐☐understand and apply the principles of nutrition and learn how to cook.

KS3 – Y7

When joining us in year 7 the students will have had a limited experience of Design & Technology at primary school in the format we cover in high school. Therefore we strive to give our students a solid foundation of knowledge, skills and most importantly health & safety upon which the rest of their KS3 DT knowledge can be built.

Term	Curriculum coverage	National Curriculum link
Autumn term 1	Introduction to Design & Technology: Design and make skills including CAD/CAM	select from and use specialist tools, techniques, processes, equipment and machinery precisely,

		including computer-aided manufacture
Autumn term 2	Put it into practice: Project 1 Themed clock. Materials and their working properties: Natural and *Manufactured Timbers (3.1.6.1)*	use research and exploration, such as the study of different cultures, to identify and develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools understand user needs select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties
Spring term 1 **Spring term 2**	Understanding Mechanisms - Focussed tasks: Levers-Catapult/ Linkages-Scissor Monster/Cams-Crate Monster Toy/Combining mechanical elements-Flying Pig. *Mechanical Devices: Different types of movement- (3.1.5)*	understand how more advanced mechanical systems used in their products enable changes in movement and force analyse the work of past and present professionals and others to develop and broaden their understanding
Summer term 1	Papers and Boards: It's all wrapped up - Packaging and display. *Materials and their Working Properties (3.1.6.1)*	select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties understand and use the properties of materials and the performance of structural elements to achieve functioning solutions understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
Summer term 2	Food technology: A taste test - not so naughty but nice, making healthier confectionery.	understand and apply the principles of nutrition and health analyse the work of past and present professionals and others to develop and

		broaden their understanding

Year 8

Now that our students have their foundation knowledge we can add further layers as we look at a broader material base and the understanding of more complex tools and processes along with their application to manufacture functioning prototypes.

Term	Curriculum coverage	National Curriculum link
Autumn term 1 **Autumn term 2**	Metals in action: Trophy. Understanding and manipulating metals using specialist tools and equipment. *Using and Working with Materials (3.2.5)*	use research and exploration, such as the study of different cultures, to identify and understand user needs develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
Spring term 1 **Spring term 2**	Focus on Architecture: Moneybox. Using man made boards for more sustainable design. *Specialist Techniques and Processes (3.2.8)* *Surface Treatments and Finishes (3.2.9)*	use research and exploration, such as the study of different cultures, to identify and understand user needs use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses

		select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties analyse the work of past and present professionals and others to develop and broaden their understanding understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists
Summer term 1	Papers and Boards: That's Some Smart Packaging - Keeping it hot. *Developments in New Materials (3.1.3)*	use research and exploration, such as the study of different cultures, to identify and understand user needs identify and solve their own design problems and understand how to reformulate problems given to them develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture

		select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties analyse the work of past and present professionals and others to develop and broaden their understanding investigate new and emerging technologies test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
Summer term 2	Food technology: That can't be healthy! Developing healthy fast food-Pizza	understand and apply the principles of nutrition and health understand the source, seasonality and characteristics of a broad range of ingredients

Year 9

In year 9 we prepare students for GCSE by providing more complex and challenging material areas which are set to ensure that the application of their skills is such that they are able to produce quality outcomes both safely and with accuracy.

Term	Curriculum coverage	National Curriculum link
Autumn term 1	Combining materials: Mobile phone stand. Materials and their Working Properties:	use research and exploration, such as the study of different cultures, to identify and understand user needs select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties analyse the work of past and present professionals and others to develop and
Autumn term 2	Timbers, Metals & Alloys and Polymers *Materials and their Working Properties (3.1.6.1)*	

		broaden their understanding
Spring term 1 **Spring term 2**	Electronic future: Amplifier circuit. Preparing for the jobs of tomorrow with an IT/Systems/Electronics focus. *Systems Approach to Designing (3.1.4)*	analyse the work of past and present professionals and others to develop and broaden their understanding select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties analyse the work of past and present professionals and others to develop and broaden their understanding understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
Summer term 1 **Summer term 2**	Cooking and Nutrition Throughout this term students will explore the various aspects of food. This will include planning meals, preparing meal elements Understanding nutrition and seasonal foods.	analyse the work of past and present professionals and others to develop and broaden their understanding identify and solve their own design problems and understand how to reformulate problems given to them develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital

		presentations and computer-based tools select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties analyse the work of past and present professionals and others to develop and broaden their understanding test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups understand and apply the principles of nutrition and health cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes] understand the source, seasonality and characteristics of a broad range of ingredients

Stafford Manor High School

KS4

AQA Design & Technology (8552)

Year 10

The first two terms of year 10 are crucial to the overall course as it is hear that we build on the knowledge foundation from KS3 to give the students the best chance they have to achieve well in the end of course examination. We also develop the design and making skills that are required to complete the Non Examined Assessment (coursework) portion of the course. These are both worth 50% of the overall mark.

Term	Curriculum coverage	Useful web links
Autumn term 1	Revisiting knowledge and skills. Through a series of small focussed tasks, theory lessons and a simple design project students will revisit their understanding of DT and the Design Loop that they developed in KS3	
Autumn term 2	As the students continue to develop we start to look at the assessment criteria for the NEA. When doing the NEA feedback or marks are not allowed under the exam board regulations. So we train students to mark their own work throughout these first two terms so that when they begin the final project they know what is expected for each of the Assessment Objectives	
Spring term 1	Students to continue to build on their theory skills while also developing their understanding and use of Computer Aided design and Manufacture to create detailed working drawings, 3d digital modelling, 3D prototyping, etc.	
Spring term 2	Students will undertake a simple design and make project following the key Assessment Objectives of the NEA. This involves designing and making a focussed desk lamp for teen agers who are studying more at home. Again at each stage students will learn what the specification marking criteria looks for and assess their own/each other's work.	
Summer term 1		
Summer term 2	The NEA project is released for the first week back of this half term. The focus will	

	shift in lessons to the students identifying the situation they wish to investigate and they will embark on a research and analysis phase in preparation for the design phase in year 11.	

Year 11

Year 11 is predominantly occupied with the completion of the NEA and preparation for the end of course examination.

Term	Curriculum coverage	National Curriculum link
Autumn term 1	Students will look at the development of their design ideas based on the Specification they developed at the end of year 10. This will involve them producing initial design concepts, then developing these further in greater detail and then finally developing a solution.	
Autumn term 2	As part of the design process during this term the students will refine their designs by using a range of modelling techniques to test out elements and then make informed alterations before starting to make their functioning prototype.	
Spring term 1		
Spring term 2	In this half term the students will test and evaluate their prototype and consider what changes would need to be made in order to bring their product to market. Alongside this students will resume the development of their theory knowledge and examination technique.	
Summer term 1	Final examination preparation takes place in lessons. Structured revision and revisiting of key areas, exam technique and developing an understanding of what it takes to gain those higher marks.	

Key resources:

Web links as shown above, Examination practice books, teacher developed resources on Satchel 1