

Design Technology Curriculum Summary May 2024

Vision:

- To stimulate and sustain student's enthusiasm, enjoyment, curiosity and concerns about the ever-changing technical world in which they live.
- To employ teaching methods and approaches, techniques and resources that support and assist all students to have equal access to all Technologies and to experience success and enjoyment in their work.
- Encourage safe working practice within all areas of Technology.
- Provide knowledge for all Technology areas to enhance students' lives.
- Teach all students in all technology areas practical life skills.
- Demonstrate creativity, innovation and independence on practical and theoretical challenges.
- To encourage the inclusion of local businesses by way of product design and creation that is adjudicated by business representatives.

The Technology Department is dedicated to enabling all students to achieve their potential. Our aim within the curriculum is to offer students a diverse range of projects, which have various focuses that can be either, design and make practical tasks or product analysis centred tasks or challenge tasks.

The general aim in Technology is the need to provide students with the skills to contribute to tomorrow's ever-changing technologies and life skills they will need. Within Technology teaching, students learn to think innovatively and develop abilities to enhance the quality of the environment, solving problems as an individual and a team member. Students combine both practical and theoretical skills with a realisation of social, moral, ethical, economic, aesthetic, technical, environmental



and manufacturing issues. Whilst reflecting and evaluating both past and present technology, its uses and influences. Via Technology students become innovators and discerning and knowledgeable users of products. We aim to make every student confident in all areas of technology ready for adulthood and the workplace.

Yearly Intent Statements

Year 7:

Food:

- Work safely in a kitchen when applying practical skills.
- Work hygienically in a kitchen when applying practical skills.
- Safely use a cooker and hob.
- Hygienically use a fridge.
- Apply the following practical skills: weighing ingredients, preparing the
 appropriate equipment for recipes, safe application of knife skills, use of the
 rubbing in and creaming method, blending ingredients and dough making.
- Use current healthy eating advice to choose a varied balanced diet for their needs and those of others.
- Know that food and drinks provide energy and nutrients in different amounts; that
 they have important functions in the body; and that people require different
 amounts during their life, e.g. infant feeding, teenage years.
- Understand the importance of energy balance and the implications of dietary excess or deficiency, e.g. malnutrition, maintenance of a healthy weight.
- Know that our bodies contain water and that they need fluid from food and drinks to keep the body working properly.



- Know that food is produced, processed and sold in different ways, e.g.
 conventional and organic farming, fair trade.
- Compare the cost of food when planning to eat out or cook at home.
- Understand that people eat or avoid certain foods according to religion, culture,
 ethical belief, or personal choices.
- Be aware that food choice depends on many personal and lifestyle factors, e.g.
 role models, body image.
- Know that it is important to include a variety of activities in everyday living.
- Know how different activities can affect health in different ways.
- Know how physical activity contributes to physical, social and mental wellbeing.

Product Design:

By the end of the year students will be able to:

- Understand materials and their properties.
- Accurately measure and mark out a range of materials, finishing techniques and quality checks.
- Cut and shape a range of materials.
- Know and understand materials and components.
- Accurately use a drawing board.
- Produce basic 3D shapes in CAD.
- Produce basic technical drawing techniques.
- Work with tools, equipment, materials and components to manufacture quality products.
- Identify the risks in a workshop.

Textiles:



By the end of the year students will be able to:

- Safely use a sewing machine.
- Identify the risks of using machinery and hand tools in the workshop.
- Safely use a heat press to transfer an image onto fabric.
- Accurately create repeat patterns by hand and digitally.
- Sample and apply plain seam when constructing a basic cushion.
- Identify and recall knowledge of four Pop Artists.
- Create an image board to inspire design ideas.
- Conduct artist research and produce an artist study using shading techniques.
- Gain a basic understanding of how the manufacture of textile products impacts global warming.

Year 8:

Food:

- Further develop skills and knowledge acquired from year 7.
- Work safely in a kitchen when applying practical skills.
- Work hygienically in a kitchen when applying practical skills.
- Safely use a cooker and hob.
- Hygienically use a fridge.
- Apply accurate temperature control of food
- Apply the following practical skills: weighing ingredients, preparing the appropriate equipment for recipes, safe application of knife skills, use of the rubbing in and creaming method, blending ingredients and dough making,



shaping, layering and baking, sauce making and combining, pastry making and melting method.

- Use current healthy eating advice to choose a varied balanced diet for their needs and those of others.
- Know that food and drinks provide energy and nutrients in different amounts; that
 they have important functions in the body; and that people require different
 amounts during their life, e.g. infant feeding, teenage years.
- Understand the importance of energy balance and the implications of dietary excess or deficiency, e.g. malnutrition, maintenance of a healthy weight.
- Know that our bodies contain water and that they need fluid from food and drinks to keep the body working properly.
- Know about the different stages in food production and processing.
- Understand that people eat or avoid certain foods according to religion, culture,
 ethical belief, or personal choices.
- Be aware that food choice depends on many personal and lifestyle factors, e.g.
 role models, body image.
- Know that it is important to be aware of portion size when choosing food and drinks.
- Use nutrition and allergy information on food labels to help make informed food and drink choices.
- Know that it is important to include a variety of activities in everyday living.
- Know how different activities can affect health in different ways.
- Know how physical activity contributes to physical, social and mental wellbeing.
- Be aware of links between when and what to eat and drink before, during and after exercise.

Product Design:



By the end of the year students will be able to:

- Further develop skills and knowledge acquired from year 7
- Know and understand the basics of 2D CAD and CAM.
- Understand the appropriate properties associated with a range of materials.
- Apply design thinking to solve basic problems.
- Have a basic understanding of electronic components and systems.
- Have a basic understanding of hand tools, equipment and machinery.
- Understand, develop and communicate design ideas.
- Know and understand the evaluative and reflective processes.

Textiles:

By the end of the year students will be able to:

- Further develop skills and knowledge acquired from year 7
- Safely use a sewing machine.
- Identify the risks of using machinery and hand tools in the workshop.
- Safely use a heat press to transfer an image onto fabric.
- Sample and apply a range of hand embroidery stitches.
- Identify and recall knowledge of three textile portrait artists.
- Create an image board to inspire design ideas.
- Conduct artist research and produce an artist study using shading techniques.
- Understand how portraiture has changed over the last two centuries.
- Explain how the manufacture of textile products impacts global warming.

Year 9:



Food:

- Further develop skills and knowledge skills and knowledge acquired from year 8.
- Work safely in a kitchen when applying practical skills.
- Work hygienically in a kitchen when applying practical skills.
- Safely use a cooker and hob.
- Hygienically use a fridge.
- Apply accurate temperature control of food.
- Apply the following practical skills: weighing ingredients, preparing the
 appropriate equipment for recipes, safe application of knife skills, use of the
 rubbing in and creaming method, blending ingredients and dough making,
 shaping, layering and baking, sauce making and combining, pastry making,
 melting method, plating up meals (with a focus on presentation).
- Use current healthy eating advice to choose a varied balanced diet for their needs and those of others.
- Know that food and drinks provide energy and nutrients in different amounts; that
 they have important functions in the body; and that people require different
 amounts during their life, e.g. infant feeding, teenage years.
- Understand the importance of energy balance and the implications of dietary excess or deficiency, e.g. malnutrition, maintenance of a healthy weight.
- Know that our bodies contain water and that they need fluid from food and drinks to keep the body working properly.
- Understand how geography, weather and climate influence the availability of food and drink.



- Understand that people eat or avoid certain foods according to religion, culture,
 ethical belief, or personal choices.
- Be aware that food choice depends on many personal and lifestyle factors, e.g.
 role models, body image.
- Understand the influence of food marketing, advertising and promotion on their own diet and purchasing behaviour.
- Use nutrition and allergy information on food labels to help make informed food and drink choices.
- Know that it is important to include a variety of activities in everyday living.
- Know how different activities can affect health in different ways.
- Know how physical activity contributes to physical, social and mental wellbeing.
- understand how water is used by the body during physical activity and that extra water may be needed before, during and after being physically active.

Product Design:

By the end of the year students will be able to:

• Further develop skills and knowledge skills and knowledge acquired from year 8.



- Know and understand the basics of 3D Printing.
- Create parts that require accuracy in order to function.
- Know and understand the appropriate properties associated with a range of materials.
- Understand, develop and communicate design ideas.
- Understanding and applying the iterative design process.
- Understanding of specialist tools, equipment and machinery.
- Understand and apply a designer's styling on a design.
- Understand and apply QC throughout manufacture.

Textiles:

By the end of the year students will be able to:

- Further develop skills and knowledge skills and knowledge acquired from year 8.
- Safely use a sewing machine.
- Identify the risks of using machinery and hand tools in the workshop.
- Sample and apply a range of hand embroidery stitches.
- Sample and apply a plain seam.
- Sample and apply applique to create a logo.
- Explain what soft sculpture is.
- Identify and recall knowledge of four soft sculpture artists.
- Create an image board to inspire design ideas.
- Conduct artist research and produce an artist study using shading techniques.

Year 10:



Food:

By the end of the year students will be able to:

- Identify types of establishments that provide hospitality and catering services,
 Job roles within the establishments and how a kitchen brigade works.
- Understand how food poisoning can be prevented, as well as the laws
 surrounding food safety including the role of an Environmental Health Officer.
- Understand how cooking methods can impact nutritional value as well as menu planning.
- Create nutritional balanced food with a focus on the importance of nutrition.

Product Design:

- Further develop skills and knowledge skills and knowledge acquired from KS3
- Understand and explain how power is generated from oil, gas, coal and nuclear sources.
- Understand and explain how renewable energy is generated from a variety of sources.
- Describe kinetic pumped storage systems.
- Name and define a range of modern, smart and composite materials.
- Understand the unique properties of technical textiles.
- Describe the benefits of microencapsulation.
- Recognise and describe a range of input and output components, physically and symbolically.
- Understand that all systems comprise one or more inputs, processes and outputs.



- Recognise different types of mechanical movement.
- Be able to state examples of first, second and third order levers.
- Understand how linkages change the direction of movement
- Recognise different types of cams and followers.
- Understand that pulleys can change the magnitude of force required to lift mass.

Textiles:

By the end of the year students will be able to:

- Further develop skills and knowledge skills and knowledge acquired from KS3.
- How to conduct primary research.
- How to analyse the work of other artists.
- How to successfully annotate their work in order to meet exam board criteria.
- How to present work in a sketchbook, following a criteria for success.
- Apply a range of drawing and painting techniques when responding to research.
- Accurately create repeat patterns by hand and digitally.
- Sample and apply applique and reverse applique in response to artist studies.
- Sample and apply free machining in response to artist studies.
- Sample and apply lino printing in response to artist studies.
- Sample and apply batik in response to artist studies.
- Sample and apply fabric manipulation techniques in response to artist studies.
- Sample and apply heat transfer printing in response to artist studies.
- Complete a final piece of work in response to a project brief.

Year 11:



Food:

By the end of the year students will be able to:

- Recap and renew their theory knowledge from year 10.
- Identify their strengths and weaknesses by responding to feedback from the teacher.
- Use theory notes from year 10 along with exam board specific revision textbooks and memory recall strategies, such as dual coding, to ensure high quality revision is undertaken.
- Create menus for different dietary needs focusing on portion sizes, cost and nutritionally balanced menus.
- Learn how to dovetail time plans ready for the NEA2.
- Use their knowledge from year 10 and apply it when planning and creating a nutritious menu around a scenario that is given by the exam board.
- Will demonstrate their menu planning skills, their knowledge of the importance of nutrition whilst creating 2 dishes in a set time.

Product Design:

- Further develop skills and knowledge skills and knowledge acquired from Y10
- Revisit the material already covered in Y10 within the context of NEA.
- Develop sketching, annotating, and rendering skills.
- Be proficient in the iterative design process.
- Apply sketching techniques, modelling, CAD drawings, exploded diagrams,
 Isometric drawings.
- Use NEA to inform their understanding of the theory.



- Develop exam skills, exam timekeeping, hit high value questions and answer extended questions to mark weighting.
- Use appropriate materials, order material to correct stock sizes and appropriate workshop equipment.
- Calculate costs of quantities from material orders.
- Use production aids effectively (Jigs and templates etc) to assist gaining consistent quality.
- Understand what production techniques would be used in industry and how could production be scaled-up?
- Use NEA to inform their understanding of the theory and suggest manufacturing approaches for roll-out of product in NEA.

Textiles:

- Create any textiles product they want based on a theme using any of the textiles skills learned during year 10. This culminates in the product being constructed during their 5- hour mock exam in December.
- Use all the assessment objectives to fulfil this and complete a portfolio of evidence, usually sketchbook and image boards.
- Evaluate and modify designs throughout the design process, including a written evaluation at the end.
- Undertake an independent project selecting from Exam Board questions and create a portfolio of evidence as well as a final product. The final construction takes place during their 10-hour exam. This covers all the Assessment Objectives.



Rationale behind sequencing:

Year 7

Food:

The skills taught within these projects equip students in year 7 with basic skills and techniques, which will continue to be enhanced and embedded throughout their Key Stage 3 Cooking for life experience. The aptitude with practical tools and equipment is required in Key Stage 3 and Key Stage 4, as are the mathematical and literacy skills. These projects provide students with a range of basic skills, techniques and knowledge. In terms of how this relates to previous content they will have covered at Key Stage 2; the students will have established some basic culinary skills depending on their primary school education. However, most year 7 students would not have experienced working in a food kitchen area and would not have used a variety of equipment on site. It is a necessity that students have a clear understanding early on in Key Stage 3 with regards to the health and safety guidelines, which are to be followed when working within the kitchen environment with all tools and equipment (i.e. cookers, knives etc).

Product Design:

The skills taught within these projects equip students in year 7 with basic skills and techniques, which will continue to be enhanced and embedded throughout their Key Stage 3 Product Design experience. The aptitude with practical tools and equipment is required in Key Stage 3 and Key Stage 4, as are the mathematical and literacy skills. These projects provide students with a range of basic skills, techniques and knowledge. In terms of how this relates to previous content they will have covered at Key Stage 2, the students will have developed some Design Technology skills, but



they will not have been exposed to a high amount of Product Design tools or equipment in a primary school setting. It is a necessity that students have a clear understanding early on in Key Stage 3 with regards to the health and safety guidelines, which are to be followed when working with all tools, equipment, machinery, materials and CAD & CAM.

Textiles:

The skills taught within these projects equip students in year 7 with basic skills and techniques, which will continue to be enhanced and embedded throughout their Key Stage 3 Textiles experience. The aptitude with practical tools and equipment is required in Key Stage 3 and Key Stage 4, as are the mathematical and literacy skills. These projects provide students with a range of basic skills, techniques and knowledge. In terms of how this relates to previous content they will have covered at Key Stage 2, the students will have developed some Design Technology skills, but they will not have been exposed to a high number of Textiles tools or equipment in a primary school setting. It is a necessity that students have a clear understanding early on in Key Stage 3 with regards to the health and safety guidelines, which are to be followed when working with all tools, equipment, machinery and materials.

Year 8

Food:



The skills taught within these projects equip students in year 8 with developing skills, techniques and knowledge, which will continue to be enhanced and embedded throughout their Key Stage 3 Cooking for life experience. The aptitude with practical tools and equipment is required in Key Stage 3 and Key Stage 4, as are the mathematical and literacy skills. In terms of how this relates to previous content they will have covered at Key Stage 2; the students will have established some basic culinary skills depending on their primary school education. During year 7 students' progress at different levels depending on what they covered in primary or what they have learnt from home life. However, year 8 students would have only experienced working in a food kitchen area for 12 weeks so recapping and re-building confidence is vital to ensure good progress. It is a necessity that students have a clear understanding early on in Key Stage 3 with regards to the health and safety guidelines, which are to be followed when working within the kitchen environment with all tools and equipment (i.e. cookers, knives etc).

Product Design:

The skills taught within these projects provide students in year 8 with skills, knowledge and techniques, which will continue to be augmented and embedded throughout their Key Stage 3 Product Design experience. The proficiency with practical tools, equipment and machinery is necessitated in Key Stage 3 and in Key Stage 4. With regards to electronic systems and how this links to former content students will have covered at primary school. In Key Stage 2 students will have developed a basic awareness of electronic systems, such as being taught about conductors, insulators. It is necessary therefore to build on student's primary school learning and further their learning experience on electronic systems in Key Stage 3

Textiles:



The skills taught within these projects provide students in year 8 with skills, knowledge and techniques, which will continue to be augmented and embedded throughout their Key Stage 3 Textiles experience. The proficiency with practical tools, equipment and machinery is necessitated in Key Stage 3 and in Key Stage 4. With regards to practical processes and how this links to former content students will have covered at primary school. In Key Stage 2 and in year 7 students will have developed a basic awareness of Textile production, such as being taught about basic decorative and joining techniques. It is necessary therefore to build on students' primary school learning and further their learning experience on construction and decorative techniques in Key Stage 3.

Year 9

Food:

The skills taught within these projects equip students in year 9 with developing skills, techniques and knowledge, which will continue to be enhanced and embedded throughout their Key Stage 3 Cooking for life experience. The aptitude with practical tools and equipment is required in Key Stage 3 and Key Stage 4, as are the mathematical and literacy skills. In terms of how this relates to previous content they will have covered at Key Stage 2; the students will have established some basic culinary skills depending on their primary school education. During year 7 students' progress at different levels depending on what they covered in primary or what they have learnt from home life. Year 7 & 8 students would have experienced working in a food kitchen area for 12 weeks so recapping and re-building confidence is vital in year 9 to ensure good progress. It is a necessity that students have a clear understanding early on in Key Stage 3 with regards to the health and safety guidelines, which are to be followed when working within the kitchen environment



with all tools and equipment (i.e. cookers, knives etc). For some students year 9 units will be last they get to learn and practice so making sure all life skills are embedded for is also a key element in this year.

Product Design:

The proficiencies taught within these projects provide students in year 9 with skills, knowledge and techniques, which will strengthen their prior learning in their concluding Key Stage 3 Product Design experience. Competence and know-how with all practical tools, equipment and machinery is required in Key Stage 3 and Key Stage 4. The projects furnish students with a range of techniques, expertise and knowledge. At GCSE these skills, both practical and theoretical will be utilised further.

Textiles:

The proficiencies taught within these projects provide students in year 9 with skills, knowledge and techniques, which will strengthen their prior learning in their concluding Key Stage 3 Textiles experience. Competence and know-how with all practical tools, equipment and machinery is required in Key Stage 3 and Key Stage 4. The projects furnish students with a range of techniques, expertise and knowledge to support students opting for a Technology or Art/Textiles GCSE.

Year 10

Food:



Following on from the students' KS3 education students will gain more in-depth knowledge into a variety of specialised areas within the hospitality and catering sector. These include theoretical learning objectives including: the understating of the environment in which hospitality and catering providers operate, to understand how hospitality and catering provision operates, to understand how hospitality and catering provision meets health and safety requirements, to know how food can cause ill health and be able to propose a hospitality and catering provision to meet specific requirements. In relation to practicality, the students are provided with a theme (e.g. special diet, fast food, restaurant standard etc.) which they would have to research, prepare, cook, portion and present on a bi-weekly basis.

Product Design:

The theory and practical skills taught in lessons provide students with skills, knowledge and techniques, which will strengthen and advance their prior learning from their experiences at Key Stage 3 Product Design. Competence and knowledge with all practical tools, equipment and machinery is required at Key Stage 4 and has been built upon and embedded during Key Stage 3 projects and theoretical learning. The unit, New and Emerging Technologies is the first unit delivered to students, as it encompasses a range of theoretical learning and knowledge, which leads into subsequent units of learning hereafter finishing with Designing Principles and Making Principles. These last two theoretical units are linked to the first three sections of the students NEA coursework; Identifying & investigating design possibilities, producing a design brief & specification and generating design ideas. Students will then sit an assessment test, comprising questions similar to those found on the GCSE exam paper on each of the units covered. Students will also be enabled to draw upon this



knowledge, theory and practical skills, to support and assist them during their NEA contextual challenge and when revising for their written exam.

Textiles:

The intent of our Textiles curriculum is to ensure students are offered a breadth and depth of knowledge and skills throughout the 2-year course. Students are offered challenging opportunities, life-long learning to prepare them for future pathways and community involvement. The course enables students to develop knowledge, experience and understanding of textile techniques (both constructed and decorative), trends, designing, fashion, clothing, surface pattern and manufacture. GCSE Art and Design is a vibrant and dynamic specification. The process of creative thinking and innovation inspires students to develop undiscovered talents, which in turn cultivates an independent personal development, self-confidence and belief in their abilities to achieve. It also challenges and appeals to the creative instincts that have driven humanity to discover, adapt and overcome. The course gives the freedom to teach GCSE Art and Design in ways that inspire and bring out the best in students, whilst equipping them with the skills to continue the subject with confidence at AS, A-level and beyond. Textiles touches our daily lives, from casual wear to household products to more technically advanced medical applications and industrial products. Textiles has been synonymous with human activity for thousands of years. Textile products we see, purchase and use have all been designed. The designer can have great influence on the Spiritual, Moral, Social and Cultural development of a product and in some way, help prepare for our future. Students will be developing an understanding of textile design and trend issues, supporting the environment and their communities, ranging from developing project links with local primary schools and making connections with local industry. It allows for progression from key stage



3 whilst providing a strong foundation for further study as well as vocational pathways. To support this progression, the assessment objectives, structure and titles are very similar to those detailed in the AS and A level Art and Design specification. The qualification features a wide range of titles, which allow for the study of art and design in both breadth and depth. This is a skills-based approach specification, allowing students to develop knowledge and understanding during the course through a variety of learning experiences and approaches. This allows them to develop the skills to explore, create and communicate their own ideas.

Students will be inspired and motivated to develop knowledge, understanding and skills relevant to their chosen title through integrated practical, critical and contextual study. This can be through a very personal investigation. Students may work in any combination of media, or medium. This can include a variety of surface pattern techniques and incorporate mixed media such as; paint, pencil, pens, stitching into paper, overlapping layers of transparent paper to create individual and personal surface textures and experiments. Students must learn through practical experiences, experimental work and demonstrate knowledge and understanding of sources that inform their intentions. Intentions should be realised through exciting visual language, visual concepts, media, materials and the application of suitable techniques. Students must develop and apply relevant subject specific skills in order to use visual language to communicate personal ideas, meanings and responses.

Students will be inspired and motivated to develop knowledge, understanding and skills relevant to their chosen title through integrated practical, critical and contextual study. This can be through a very personal investigation. Students may work in any combination of media, or medium. This can include a variety of surface pattern



techniques and incorporate mixed media such as; paint, pencil, pens, stitching into paper, overlapping layers of transparent paper to create individual and personal surface textures and experiments. Students must learn through practical experiences, experimental work and demonstrate knowledge and understanding of sources that inform their intentions. Intentions should be realised through exciting visual language, visual concepts, media, materials and the application of suitable techniques. Students must develop and apply relevant subject specific skills in order to use visual language to communicate personal ideas, meanings and responses.

Year 11

Food:

During Year 10 students sit the written unit exam, but they are able to resit in Year 11 if required. This means that in Year 11 the coursework units are studied and then all units that were previously learnt in Year 10 are studied for revision.

In Year 11 students complete a coursework project worth 60% of their final grade, but the final grade is awarded to the lowest marked unit. The units delivered are:

- LO1: Understand the importance of nutrition when planning menus.
- AC1.1 describes functions of nutrients in the human body.
- AC1.2 compares nutritional needs of specific groups.
- AC1.3 explains characteristics of unsatisfactory nutritional intake.
- AC1.4 explains how cooking methods impact on nutritional value.
- LO2: Understand menu planning.
- AC2.1 explains factors to consider when proposing dishes for menus.
- AC2.2 explain how dishes on a menu address environmental issues
- AC2.3 explain how menu dishes meet customer needs



- AC2.4 plan production of dishes for a menu
- LO3: Be able to cook dishes. This is the practical exam that all students complete to go alongside their coursework.
- AC3.1 use techniques in preparation of commodities.
- AC3.2 assure quality of commodities to be used in food preparation.
- AC3.3 use techniques in cooking of commodities.
- AC3.4 complete dishes using presentation techniques.
- AC3.5 use food safety practices.

Product Design:

The theory and practical skills taught in Key Stage 3 lessons and Key Stage 4 provide students with enhanced skills, knowledge and techniques, strengthening their prior learning from their experiences at Key Stage 3 Product Design. Thus, enabling students to draw upon this knowledge, theory and practical skills, to support and assist them during their NEA contextual challenge and also when revising for their written 2-hour exam.

Textiles:

The theory and practical skills taught at Key Stage 3 and in Y10 are the foundations for implementing this knowledge when working on independently led projects and exam briefs set in Y11. Work is refined and developed, and students are expected to focus on areas that they are specifically inspired by. The work produced will support applications for further education and students are also taught how to display a portfolio of work ready for college interviews (if applicable).