

D&T: 3D Design Key Stage 4 Curriculum



Curriculum Intent

At TASE, our Design and Technology curriculum is designed with the intent of nurturing creative problem solvers, innovators, and critical thinkers. Our curriculum aims to provide students with a solid foundation in design principles, technical skills, and an understanding of the impact of technology on society. We strive to develop students' abilities to design and make products that are functional, aesthetically pleasing, and sustainable.

Our intent is to inspire a love for design and technology by engaging students in meaningful and practical projects that connect with their interests and the world around them. Through hands-on experiences, we aim to foster a deep understanding of the design process, from initial concept development to the production of high-quality outcomes. We encourage students to think critically, evaluate their work, and seek innovative solutions to real-world problems. The "Golden Threads" in Design and Technology (D&T) refer to the essential themes and principles that run throughout the curriculum. They provide a consistent framework for teaching and learning in this subject:

- **Design Thinking:** This thread emphasises the design process. It encourages students to identify and understand problems, generate creative ideas, develop plans, make prototypes, and then evaluate and improve their designs. It teaches them how to think critically and creatively.
- **Practical Skills:** Developing practical skills is fundamental in D&T. This includes learning how to use tools, materials, and machines safely and effectively. Students learn skills such as woodworking, sewing, using CAD (Computer-Aided Design) software, and more, depending on the specific focus of the course.
- **Creativity and Innovation:** Encouraging creativity is a key thread in D&T. Students are encouraged to come up with original and innovative ideas for their projects. They learn to think "outside the box" and find unique solutions to design challenges.
- **Understanding Materials:** Students learn about different materials and their properties. They understand how to select the right materials for a given project based on factors like strength, durability, cost, and environmental impact.
- **Environmental Sustainability:** An important aspect of modern D&T is considering the environmental impact of products and designs. Students learn about sustainability, recycling, and how to make choices that reduce harm to the environment.
- **Problem Solving:** D&T teaches problem-solving skills. Students encounter real-world problems and learn how to analyse them, break them down into manageable parts, and find practical solutions. This is a valuable skill for life.
- **Communication:** Effective communication is vital in D&T. Students learn to present their ideas clearly through sketches, technical drawings, written reports, and presentations. They also develop teamwork skills, as many projects involve collaboration.
- **Iterative Design:** This thread emphasises that design is an iterative process. Students learn that it is okay to make mistakes and that these can lead to better solutions. They continually refine and improve their designs based on testing and feedback.
- **Health and Safety:** Safety is a top priority in D&T. Students learn to work safely with tools and equipment and understand the importance of following safety procedures.

- **SMSC Considerations:** Some D&T projects touch on the cultural and social aspects of design. This can involve learning about the impact of technology on society, considering the needs of diverse users, and understanding the cultural context of design choices.

These "Golden Threads" are interwoven throughout the D&T curriculum to ensure that students not only gain practical skills but also develop critical thinking, creativity, and problem-solving abilities that can be applied to a wide range of challenges in their academic and future professional lives.

Overview

Year 10

In Year 10 students will work on component 1 of the AQA 3D Design GCSE course, known as the "Portfolio". They will work on a mini-project, giving them the opportunity to apply skills that they will be learning through the course to a design project. They will work towards creating a sustained project developed in response to a theme, issue, or concept, alongside a selection of further work demonstrating a range of skills. This component focuses on exploring and refining ideas through research, experimentation, and the development of practical skills in various 3D materials and techniques, such as cardboard, timber or plastics. Students are expected to document their creative process and present final outcomes that showcase their understanding of design principles, creativity, and technical proficiency.

Deadlines for Year 10 GCSE 3D Design:

- Wednesday December 18th – portfolio review
- Tuesday March 31st – Mini-project

Year 11

In Year 11, students continue developing their portfolio from Year 10, refining their ideas, research, and experimentation for their sustained project, while exploring a range of 3D materials and techniques. This portfolio work will conclude by the end of Term 2. After Christmas, in Term 3, students begin Component 2, where they receive an externally set assignment with a choice of starting points or themes provided by AQA. They have a preparatory period to research, plan, and develop ideas before undertaking a 10-hour supervised practical exam to create a final piece. Throughout the course, students maintain a sketchbook or journal documenting their creative processes, influences, and evaluations, which are assessed alongside their practical work. Both components are assessed internally and externally moderated, with the portfolio contributing 60% and the externally set assignment 40% of the final grade.

Content

Year 10

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Component 1 <ul style="list-style-type: none"> Course introduction. Development of practical skills in cardboard and timbers. Design sketching skills and Computer Aided Design. Portfolio construction. 	Component 1 <ul style="list-style-type: none"> Development of practical skills in timbers and plastics. Design sketching skills and Computer Aided Design. Portfolio construction. 	Component 1 <ul style="list-style-type: none"> Mini-project: prop design: <ul style="list-style-type: none"> Theme study Design ideas and development Design sketching skills and Computer Aided Design. Portfolio construction. 	Component 1 <ul style="list-style-type: none"> Mini-project: prop design: <ul style="list-style-type: none"> Exploring materials and finishes CAD modelling and prototyping Manufacture of final prototype Design sketching skills and Computer Aided Design. Portfolio construction. 	Component 1 <ul style="list-style-type: none"> Sustained project: desk lamp: <ul style="list-style-type: none"> Theme study Design ideas and development Design sketching skills and Computer Aided Design. Portfolio construction. 	Component 1 <ul style="list-style-type: none"> Sustained project: desk lamp: <ul style="list-style-type: none"> Exploring materials and finishes CAD modelling and prototyping Design sketching skills and Computer Aided Design. Portfolio construction.

Year 11

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Component 1 <ul style="list-style-type: none"> Sustained project: desk lamp: <ul style="list-style-type: none"> Exploring materials and finishes Making of final piece 	Component 1 <ul style="list-style-type: none"> Sustained project: desk lamp: <ul style="list-style-type: none"> Exploring materials and finishes 	Component 2 <p>Exam preparation based upon board released themes (received in January).</p>	Component 2 <p>Exam preparation based upon board released themes (received in January).</p>	Component 2 <p>Exam preparation based upon board released themes (received in January).</p>	

<ul style="list-style-type: none"> • Design sketching skills and Computer Aided Design. • Portfolio construction. 	<ul style="list-style-type: none"> <ul style="list-style-type: none"> ○ Making of final piece • Design sketching skills and Computer Aided Design. • Portfolio construction. 				
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