

Design and Technology

Examination board: AQA (7552 – Product Design)

The AQA A Level Design and Technology course provides a rigorous and engaging curriculum tailored to meet the needs of pupils interested in engineering, product design, architecture, and other creative and technical disciplines. Designed for pupils who enjoy the practical and creative nature of the subject, it fosters innovation, problem-solving and technical competence - qualities that are highly valued by universities and employers.

Why choose this course?

1. Future-ready skills

Design and Technology equips pupils with critical skills for the 21st-century economy, including creativity, analytical thinking and project management. It blends technical expertise with creative design thinking, preparing pupils for both academic and professional success.

2. Pathway to top universities and careers

Design and Technology aligns with the requirements of Russell Group universities, including Oxford and Cambridge, making it ideal for pupils aspiring to study Engineering (general, mechanical, electronic, civil), Architecture, Industrial Design, Product Design and other creative design courses.

3. Cross-disciplinary approach

Design and Technology encourages an interdisciplinary approach, combining knowledge of materials, manufacturing processes, and environmental considerations with advanced practical skills. This prepares pupils for diverse professional contexts where collaboration across fields is essential.

4. Practical learning

Pupils will work in well-equipped designing rooms and workshops using modern computer aided designing software and computer aided manufacturing equipment to develop and create their prototypes for testing. Pupils will become confident and creative designer makers developing a broad understanding of taking an idea from concept stage through to final product.

Content

This Design and Technology course is structured around two key areas:

- 1. Technical principles** - Pupils develop an in-depth understanding of:
 - Material properties and selection
 - Manufacturing processes and technologies
 - Modern and smart materials
 - Sustainable and environmental design
 - The role of emerging technologies in design and manufacturing.
- 2. Design and making principles** - Through practical activities, pupils develop their ability in:
 - Identifying and solving design problems
 - User-centered design and ergonomics
 - Aesthetic, social, and cultural influences on design
 - Prototyping and iterative design processes
 - Design communication, including computer aided design.

A key focus is understanding the integration of theory with real-world applications. Pupils apply their knowledge to practical projects, fostering independent learning and creative exploration.

Assessment requirements

The course assessment is divided into two main components:

- 1. Paper 1: Technical principles (30% of A Level)**
 - Written exam (2 hours 30 minutes)
 - In-depth questions on materials, manufacturing processes, and technical principles
 - 120 marks
 - Mixture of short-answer and extended response.

2. Paper 2: Designing and making principles (20% of A Level)

- Written exam (1 hour 30 minutes)
- Covers design principles, commercial manufacture
- 80 marks
- Product analysis and extended response.

3. Non-Exam Assessment (NEA): Iterative design project (50% of A Level)

- Substantial design and make project
- Pupils independently identify a design problem, develop a brief and create a working prototype whilst understanding the needs of the potential end user
- A comprehensive portfolio demonstrating research, design iterations and a final functioning prototype
- 100 marks
- Pupils demonstrate their research skills, innovation, problem-solving ability, making, project management and technical expertise.

Suitable projects include the design of small electronic devices, lighting design, furniture design, designs to assist the elderly and disabled, educational toys and games, architectural designs etc. The final outcome needs to be a 3D product in prototype form suitable for rigorous user testing and evaluation.