

Key Stage Four Curriculum Overview for DT

Curriculum Intent and Rationale for Exam Boards (for examined subjects)

To be engaging and practical, encouraging creativity and problem solving, with a breadth of study to allow access to a wide range of follow-on course and careers. AQA exam board is the market leader in courses offered for DT at KS4. It is widely considered to be the best structure to develop students' ability in Design knowledge whilst allowing some specialism to suit the students' interests.

How does the KS4 curriculum build on that from KS3?

The GCSE continues the development of technical designing and making principles, building on the knowledge of design processes, materials, techniques, and equipment to achieve greater depth of knowledge and more secure ability to realise designs. Within the course structure there is the opportunity for a student to specialise technical principles in greater depth. The balance of practical to theoretical knowledge continues in a course that is 50% exam and 50% NEA.

Students will have a greater opportunity to develop interest and knowledge in; emerging technologies, material developments and properties, Energy production and storage, mechanical devices (like levers and linkages).

Our course will give students a greater depth of knowledge across all materials types; papers, boards, timbers, metals, polymers and textiles.

We will use timbers and manmade boards for our specialist technical principals which is covered in a much greater depth than we cover at KS3. Looking at specialist techniques, tools, equipment, and processes in industry and how to apply techniques in prototype manufacture.

Alongside this we apply design and making principles throughout.

What do students do with their acquired knowledge and skills?

To become an effective designer or engineer students need a detailed knowledge of the options and limitations that are available to produce a working design that is effective for a market or client. This course encourages both the knowledge and the ability to apply that to design problems, working creatively within the restrictions of reality.

They will apply logic, embrace restriction, and become confident with the application of the iterative design process through the NEA assessment (30 – 35 hours).

Assessment criteria:

- Identifying and investigating design possibilities
- Producing a design brief and specification
- Generating design ideas
- Developing design ideas
- Realising design ideas
- Analysing & evaluating

And their Exam will (and Exam preparation throughout the course) have the following sections:

Section A – Core technical principles- A mixture of multiple choice and short answer questions assessing a breadth of technical knowledge and understanding.

Section B – Specialist technical principles- Several short answer questions and one extended response to assess a more in-depth knowledge of technical principles.

Section C – Designing and making principles - A mixture of short answer and extended response questions.

How does the KS4 curriculum align to and go beyond the National Curriculum?

Pupils have the opportunity to study DT at sufficient depth to allow them to progress to higher levels of study or to a professional career.

Pupils are encouraged to learn methods over a finite skill (where appropriate). This gives a confidence to learn and continue to learn, so that as the world's technology develops they find themselves well placed to adapt and continue to professionally develop in line with the demands of a modern world.

We aim to offer enriching activities that support students in learning at greater depth and offer students to apply learning beyond the classroom.

What new knowledge are students taught?

Term	Year 10	Year 11
Autumn	<p>Section 6: Designing Principles – Investigation for research. (Ergonomics and anthropometrics) analysis and use. Design brief and specifications. Environmental, social, and economic challenges. Design influences.</p> <p>Section 3: Materials and working properties Material Properties (all areas) Natural and Manufactured timbers Papers and boards.</p> <p>Section 7: Material selection CAD Tolerances material management specialist tools</p>	<p>NEA – Students issues design starting point and work on the NEA for 35 hours to create an outcome.</p>
Spring	<p>Section 1: New and emerging technologies Industry and enterprise People, culture, and society Production technologies and systems Informing design decisions</p> <p>Section 2: Energy, materials, and systems Generation Storage</p>	<p>Learning development is dependent on Progress analysis.</p> <p>Likely to focus on sections 2, 4, 7</p>

	Modern materials Smart materials Composite materials Mechanical devices Electronic systems processing Systems approach to designing.	
Summer	Section 4: Common specialist technical principals Forces and stresses Improving functionality Ecological and social footprint The six Rs Scales of production Section 5: Timbers/paper boards Sources origins and properties Working with the materials Commercial manufacturing and surface treatment/ finishes.	Revision

How and where do students build knowledge through KS4?

The sequence provides logical development of knowledge and skills that inform subsequent learning and practical application.

This sequence means the majority of theoretical content can be covered in Year 10 therefore allowing the main focus in year 11 to be on the programming project and revision in year 11, rather than new content