

Design & Technology– Aims/Intent

D&T follow the National Curriculum
www.gov.uk/government/publications/national-curriculum-in-england-design-and-technology-programmes-of-study

Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, students 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. Students 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.

The aims in Design and Technology are that students will be taught:

1. To use research and exploration, such as the study of different designers, to identify and understand user needs. Identify and solve their own design problems and understand how to reformulate problems given to them.
2. To develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations. Use a variety of approaches, such as biomimicry and user-centred design, to generate creative ideas and avoid stereotypical responses.
3. To develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools.
4. To select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture.
5. To select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties.
6. To analyse the work of past and present professionals and others, and to develop and broaden their understanding.
7. To investigate new and emerging technologies.
8. To test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.
9. To understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.
10. To read and develop specific technical and academic vocabulary.
11. All learners (including EAL/SEND and M.A.) to make strong progress.

How cultural capital is enhanced through D & T and Construction:

Personal Development

Careers in design, engineering, marketing, graphics, CAD, trades including woodwork, and building. Further and higher education. Developing confidence through practical skills.

Social Development

Environmental awareness through the study of recycling and raw material product lifecycle. Awareness of market push/pull technological changes, and market research.

Physical Development

Manual dexterity and development of problem solving skills. New skills developed through individual subject areas.

Spiritual Development

Assemblies and collective worship. Studying products and markets that may be of religious significance.

Cultural Development

Study of Islamic art and other designers and movements on product design. Influence of culture on product development.

Moral Development

Understanding of product development and design on the world around us, scarcity of resources, smarter thinking, and looking at products that pose a moral question.

How students' vocabulary is developed through D & T and Construction

- Students demonstrate an understanding of key words and vocabulary through repetition and use through a series of projects. Students are encouraged to use the correct vocabulary through feedback and peer to peer discussion.
- Key vocabulary is encouraged in homework.
- Booklets for projects provide lists of keywords for definition and spelling tests.

<https://www.aqa.org.uk/resources/design-and-technology/gcse/design-and-technology/teach/subject-specific-vocabulary>

Implementation

Key stage 3:

During Years 7 and 8, Design students follow a range of small designs and make projects in different material areas, including wood and textiles. Students will learn about designers of the past and present and apply this knowledge to their own design work. Students are assessed throughout the year, using peer and self-assessment and a set success criteria that is shared with the students in each lesson, based on taught content. Teachers will follow their long term planning to ensure the curriculum is well sequenced and students can build on their KS3 knowledge developing and mastering their skills and understanding.

Key stage 4:

Y9/Y10/Y11 - main areas include modelling in wood acrylic card and foam board. Students work through a range of topics covering skills in using hand tools as well as developing skills in drawing, 2D Design and using the laser cutter. In Year 10 they will begin their coursework; these are specific topics given by the exam board in June. The students are expected to work independently to design and create a product that meets a specific design brief. All work is evidenced in a PowerPoint.

Students are assessed throughout the year, using peer and self-assessment and a set success criteria that is shared with the students in each lesson, based on taught content. Teachers will follow their long term planning to ensure the specification is well sequenced and students can build and expand on their knowledge developing and hone in their skills and understanding in a deep and rich way, reinforcing independent learning.

Impact

Through the study of design and technology our students will demonstrate that they have made good progress from their starting points and become well rounded individuals. Work in students' folders show they can use a range of materials and techniques developing their creative and problem solving skills. In Design, students learn a range of different skills in two specialist areas; these are: construction, and technology design. In all these areas students develop confidence and creativity. With the new reforms, there is a greater emphasis on construction and engineering drawing skills. These skills are implemented early at KS3, so by KS4 students are confident and able to communicate their thoughts and ideas through a variety of different ways. Students learn about sustainability and how the movement of products and product packaging can affect the planet.

Students participate in visits to the Design museum, which allows them to see the design processes through for the initial designs to the finished product. Students are involved in STEM technology opportunities and participate in rotary challenges with other schools, which enables them to work collaboratively and problem solve. There are also various lunch time activities for students to participate in for our more able students but all students are welcome.

This table outlines the key topic areas covered in **Design and Technology** across KS3-4. They are divided into subject area/projects within which the subject content, aims and attainment targets of the national curriculum can be realised. Projects last between 5 and 16 lessons in key stage 3 and approximately 20 weeks in GCSE.

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Curriculum map – subject: Design and Technology

AGE-STAGE	Projects				
Year7	Textiles - Cushion LO: students will demonstrate an understanding of sewing techniques and design.	RM/Wood - Bookend LO: students will evaluate and analyse design features to create a bookend.		Graphics - Sweet Box LO: students will develop problem solving skills through designing and making.	
Year8	Textiles -Pencil Case LO: students will apply knowledge in Y8 to design and make a decorated pencil case.	RM/Plastics - Clock LO: students will learn about the different properties of manmade materials.		RM/Wood - Notepad LO: students will learn how to manipulate wood, and analyse and evaluate the various properties of different kinds of wood.	
GCSE Y9	Mechanical Toy LO: students will look at historical references to toy making and mechanics.	Pencil Holder LO: students will problem solve to design and make a pencil holder.	Earphone Holder LO: students will problem solve in order to create a contemporary piece.	Jewellery LO: students will look at various movements in design to evaluate and make their own piece of jewellery.	Light LO: students will look at how a light is constructed and designed.

GCSE Y10	MP3 Docking Station LO: students apply their knowledge and understanding of making and designing in Y9 to make their own functional docking station.	Furniture Modelling LO: students will develop a deep understanding of furniture through history with a focus on modern pieces.
GCSE Y11	NEA	Revision/Exams

	Graphics
	Textiles
	Resistant Material
	Electronics