

## Design Technology

### Curriculum Principles

**By the end of their secondary education, a student of Design Technology at Dixons Broadgreen will:**

- Have the knowledge, understanding and skill sets required to succeed in one of the many career paths linked to Design Technology.
- Be resourceful and innovative learners, who can apply their subject knowledge and practical skills to overcome obstacles and barriers enabling them to compete in a rapidly developing industry.
- Have a sense of achievement and success making them resilient learners who are equipped to solve real world problems through high quality solutions, systems and products.

**Our unifying 'sentence' is:**

***"The Design Technology department ensured all students; through a curriculum that was engaging, challenging and exciting, achieved to the best of their ability and became resourceful young adults, equipped to solve real life design problems through innovative design and practical application".***

**In order to achieve a true understanding of Design Technology, topics have been intelligently sequence based on the following rationale:**

- At the core of all lessons is knowledge and understanding. Coinciding with this is practical knowledge and application which provides a tangible learning experience which deepens students' understanding and further builds schema.
- The sequence of content delivered in Design and Technology aids progression and allows for the accumulation of sufficient knowledge and skills needed for future learning.
- Following on from the Key Stage 2 programme of study, our schemes of learning are designed to expose students to the relevant subject content and provides opportunities for students to learn above and beyond the prescribed Key Stage 3 programme of study. This is achieved through investigating wider subject contexts via engaging and creative teaching and learning and using real world examples.
- Key Stage 4 builds on the learning from Key Stage 3, delivering the knowledge and understanding and skills sets required for external examinations and Non-Exam Assessment throughout the second year. Schemes of Learning content reflects the subject specifications (including substantial scientific and mathematical content), but also allows students to learn by exploring the content in a diverse manner through a holistic approach.

**The Design Technology curriculum will address social disadvantage by addressing gaps in students' knowledge and skills:**

- The aim of the Design Technology curriculum is to educate all our students so that they receive a wide and varied educational experience, that provokes curiosity and fosters their ambitions. This is achieved through a rich and board Key Stage 3 curriculum and a focussed and rigorous Key Stage 4 and 5 curricula.
- Opportunities are provided for students to learn above and beyond the prescribed programme of studies and develop and enhance schema via extracurricular experiences that utilise local industry providers and external stakeholders.



- Design Technology is accessible for students of all abilities. Curriculums ‘teach to the top’ and scaffold down. All students are exposed to the same content and have the same high expectations of attainment and progress.

**We fully believe Design Technology can contribute to the personal development of students at DBA:**

- Our curriculum encourages students to learn how to take risks when solving design problems. This builds confidence and enables students to become resourceful and innovative learners.
- Students are encouraged to be principled when considering the impact of design and manufacture on the environment and how it impacts on cultures and the wider society
- It is important that our students are reflective when analysing and evaluating their design ideas or making further recommendations on how to improve products, systems or services.

**At KS3, KS4 and KS5, our belief is that homework should be interleaved revision of powerful knowledge that has been modelled and taught in lessons. This knowledge is recalled and applied through a range of low stakes quizzing and practice.**

**Opportunities are built in to make links to the world of work to enhance the careers, advice and guidance that students are exposed to:**

- This is done by working closely with our careers advisors to provide students with opportunities to visit local industry providers and external stakeholders such as Jaguar Land Rover.
- Utilising local and regional educational providers such as ‘All about STEM’ provides opportunities for our students to experience their learning in the context of real-world jobs and careers.
- Working closely with our local universities also provides a wealth of opportunities for our students to expand their experiences of Design and Technology.

**A true love of Design Technology involves learning about various cultural domains. We teach beyond the specification requirements, but do ensure students are well prepared to be successful in GCSE examinations:**

- Across all Key stages, students are assessed using both summative and formative assessment techniques. The frequency is designed to consolidate and embed deep learning and ensures students are continually recalling prior knowledge.
- The Design Technology curriculum has been developed so that students regularly have the opportunity to recall, develop and master new concepts and revisit prior learning and practical application.
- A rigorous and challenging Key Stage 3 underpins students’ knowledge and learning. Students are exposed to key vocabulary from Year 7 ensuring they become familiar with the technical terminology of Design Technology from the outset. Regular examination questions assesses student understanding and exam techniques providing them with the best opportunity to be successful in external exams.

## Year 7 Design Technology Units 1 & 2

### Long Term Plan 2021/2022

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	W/C 06/09	W/C 13/09	W/C 20/09	W/C 27/09	W/C 04/10	W/C 11/10	W/C 18/10	W/C 01/11	W/C 08/11	W/C 15/11	W/C 22/11	W/C 29/11	W/C 06/12
	Term 1								Term 2				Data 1 Planning 1
	Orientation	Unit 1: Health & Safety in Design Technology.	Unit 1: Metals: Ferrous & Non-Ferrous.	Required Practical: Aluminium.	Required Practical: Aluminium.	Unit 1: Timbers: Hardwoods & Softwoods.	Required Practical: Pine.	Required Practical: Pine.	Unit 1: Timbers: Manufactured Boards.	Required Practical: MDF.	Required Practical: MDF.	Unit 1: Polymers: Thermo & Thermosets.	Required Practical: Acrylic.
Cycle 2	W/C 13/12	W/C 20/12	W/C 03/01	W/C 10/01	W/C 17/01	W/C 24/01	W/C 30/01	W/C 07/02	W/C 14/02	W/C 28/02	W/C 07/03	W/C 14/03	W/C 21/03
			Term 3						Term 4				
	Required Practical: Acrylic.	Unit 1: Material Properties.	End of Unit Summative Assessment.	Unit 2: Health & Safety & Drawing Equipment.	Unit 2: 2D Drawing.	Unit 2: 3D Drawing: Oblique.	Unit 2: 3D Drawing: Isometric.	Unit 2: 3D Drawing: Perspective.	Class Rotate to Design Technology Units 3 & 4				
Cycle 3	W/C 28/03	W/C 04/04	W/C 25/04	W/C 02/05	W/C 09/05	W/C 16/05	W/C 23/05	W/C 06/06	W/C 13/06	W/C 20/06	W/C 27/06	W/C 04/07	W/C 11/07
		Term 5						Term 6	Summer Exams Y7-10 / Y12		Data 3 Planning 3		
	Class Rotate to Design Technology Units 3 & 4												

## Year 8 Design Technology Units 1 & 2

### Long Term Plan 2021/2022

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	W/C 06/09	W/C 13/09	W/C 20/09	W/C 27/09	W/C 04/10	W/C 11/10	W/C 18/10	W/C 01/11	W/C 08/11	W/C 15/11	W/C 22/11	W/C 29/11	W/C 06/12
	Term 1								Term 2				Data 1 Planning 1
	Orientation	Unit 1: Health & Safety in Design Technology.	Unit 1: Marking Out & Tool Selection.	Unit 1: Required Practical: Marking Out & Cutting.	Unit 1: Fabrication: Lap Joints.	Required Practical: Lap Joints.	Required Practical: Lap Joints.	Unit 1: Router & Jigs.	Required Practical: Router.	Required Practical: Router.	Unit 1: Adhesives	Required Practical: Wood Adhesives	Unit 1: Drilling & Surface Preparation: Acrylic
Cycle 2	W/C 13/12	W/C 20/12	W/C 03/01	W/C 10/01	W/C 17/01	W/C 24/01	W/C 30/01	W/C 07/02	W/C 14/02	W/C 28/02	W/C 07/03	W/C 14/03	W/C 21/03
			Term 3						Term 4 Data 2 Planning 2				
	Required Practical: Acrylic.	Unit 1: Drilling & Surface Preparation: Mild Steel.	Required Practical: Mild Steel.	Unit 1: Material Finishes: Powder coating.	Required Practical: Powder Coating	Unit 1: Marking out & cutting MDF	Unit 1: Fixtures, Fittings & Assembly	End of Unit Summative Assessment	Class Rotate to Design Technology Units 3 & 4				
Cycle 3	W/C 28/03	W/C 04/04	W/C 25/04	W/C 02/05	W/C 09/05	W/C 16/05	W/C 23/05	W/C 06/06	W/C 13/06	W/C 20/06	W/C 27/06	W/C 04/07	W/C 11/07
		Term 5						Term 6	Summer Exams Y7-10 / Y12		Data 3 Planning 3		
	Class Rotate to Design Technology Units 3 & 4												

## Year 9 Design Technology Units 1 & 2

### Long Term Plan 2021/2022

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	W/C 06/09	W/C 13/09	W/C 20/09	W/C 27/09	W/C 04/10	W/C 11/10	W/C 18/10	W/C 01/11	W/C 08/11	W/C 15/11	W/C 22/11	W/C 29/11	W/C 06/12
	Term 1								Term 2				Data 1 Planning 1
	Orientation	Unit 1: Health & Safety in Design Technology.	Unit 1: Marking Out & Cutting.	Required Practical: Softwood Cutting.	Unit 1: Timbers & Joining Methods.	Required Practical: Lap Joints.	Required Practical: Lap Joints & Drilling.	Unit 1: PCB & Electronic Components.	Required Practical: PCB.	Required Practical: PCB.	Unit 1: Modern & Smart Materials.	Unit 1: Lantern Designs.	Unit 1: Lantern Design Development.
Cycle 2	W/C 13/12	W/C 20/12	W/C 03/01	W/C 10/01	W/C 17/01	W/C 24/01	W/C 30/01	W/C 07/02	W/C 14/02	W/C 28/02	W/C 07/03	W/C 14/03	W/C 21/03
			Term 3						Term 4 Data 2 Planning 2				
	Unit 1: CAD: 2D Design.	Unit 1: CAM: Laser Cutter.	Required Practical: Laser Cutter.	Required Practical: MDF Base.	Required Practical: Aluminium Stand.	Unit 1: Fixtures, Fittings & Assembly.	Unit 1: Final Product Evaluation.	End of Unit Summative Assessment.	Class Rotate to Design Technology Units 3 & 4				
Cycle 3	W/C 28/03	W/C 04/04	W/C 25/04	W/C 02/05	W/C 09/05	W/C 16/05	W/C 23/05	W/C 06/06	W/C 13/06	W/C 20/06	W/C 27/06	W/C 04/07	W/C 11/07
		Term 5						Term 6	Summer Exams Y7-10 / Y12		Data 3 Planning 3		
	Class Rotate to Design Technology Units 3 & 4												

## Year 10 Design Technology

### Long Term Plan 2021/2022

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	W/C 06/09	W/C 13/09	W/C 20/09	W/C 27/09	W/C 04/10	W/C 11/10	W/C 18/10	W/C 01/11	W/C 08/11	W/C 15/11	W/C 22/11	W/C 29/11	W/C 06/12
	Term 1								Term 2				Data 1 Planning 1
	Orientation	New & emerging technologies.	New & emerging technologies.	Materials and their working properties.	Materials and their working properties.	Developments in new materials.	Developments in new materials.	Mechanical devices.	Mechanical devices.	Forces and stresses.	Energy generation and storage.	Sources & origins.	Ecological and social footprint.
Cycle 2	W/C 13/12	W/C 20/12	W/C 03/01	W/C 10/01	W/C 17/01	W/C 24/01	W/C 30/01	W/C 07/02	W/C 14/02	W/C 28/02	W/C 07/03	W/C 14/03	W/C 21/03
			Term 3						Term 4				
	Stock form, types and sizes.	Using and working with materials.	Specialist techniques and processes.	Specialist techniques and processes.	Scales of Production.	Scales of Production.	Surface treatment & finishes.	Selection of materials or components.	Investigation primary & secondary data.	Environmental. Social and economic challenge.	Work of others.	Design Strategies.	Communication of design ideas.
Cycle 3	W/C 28/03	W/C 04/04	W/C 25/04	W/C 02/05	W/C 09/05	W/C 16/05	W/C 23/05	W/C 06/06	W/C 13/06	W/C 20/06	W/C 27/06	W/C 04/07	W/C 11/07
		Term 5						Term 6	Summer Exams Y7-10 / Y12		Data 3 Planning 3		
	Communication of design ideas.	Prototype development.	Tolerances.	Materials Management.	Material Management.	Specialist tools & equipment.	Specialist tools & equipment.	Identifying & investigating design possibilities.	Producing a design brief & specification.	Generating design ideas.	Generating design ideas.	Developing design ideas.	Developing design ideas.

