BROUGHTON
HIGH SCHOOL
Achieving Together

# DESIGN & TECHNOLOGY CURRICULUM STATEMENT

## Intent

Design and Technology (D&T) is an inspiring, rigorous and practical subject which prepares all young people to live and work in the designed and made world. Cultural capital is explored across the key stages by appreciation of the work of others locally, nationally and internationally, each subject identifies and relates SOW to real contextual challenges focusing upon people, communities or businesses.

Design and Technology builds on the skills and knowledge pupils have already learnt at primary school together with base line testing and transition work staff are well informed of the pupils starting point as they commence KS3.

The DT curriculum is collaboratively and coherently planned and sequenced across Years 7-9 to ensure that pupils build on all aspects of prior learning that stretches and challenges regardless of starting point. Retrieval and repetition are features of pupils learning and understanding as each rotation builds upon prior knowledge and expertise as we develop the 4 areas of mastery namely: designing, making, evaluating and technical knowledge. The design technology curriculum covers all aspects of the national curriculum. Design Technology progression builds upon procedural knowledge and skills therefore offering year on year incremental challenge.

As pupils progress through Key Stage 3, they are given the opportunity to focus on specific areas of the subject such as product design, food technology, engineering, electronics & systems, textiles and graphics. Pupils follow a rotation of work in 4 subject disciplines each year from years 7 to 9 looking at different contextual challenges. Pupils work in mixed ability groups in years 7 - 9.

All teachers are aware of any disadvantaged pupils on the DT department tracking sheets and class lists on Synergy, all teachers are reminded of their responsibility to ensure that any obstacles to learning are removed. The department supports the needs of all pupils regardless of any potential barriers as we believe in 'success for all' and are wholly inclusive. Close tracking of all pupil's progress continues to be an intrinsic part of our monitoring and assessment in DT to ensure all pupils progress is regularly reviewed and intervened/supported where appropriate.

All resources for the teaching and learning are updated routinely and presented in a pupil friendly manner on Firefly our VLE. This also ensures all pupils can access this resource anywhere anytime. Our curriculum offer is routinely reviewed and updated to ensure we remain current and ambitious to all pupils.

Reading is promoted in each classroom with an area devoted to subject specific materials, we participate in the whole school reading weeks annually and the VLE allows pupils to investigate subject specific resources. Reading features in all units of work as topical themed news articles raising the profile of the subject whilst developing thinking skills. We also use technology to help motivate and encourage reading widely.

The DT curriculum reflects the local (Preston) context by addressing potential gaps in pupils' knowledge and skills, thereby ensuring they can contribute to requirements at local businesses such as Bae Systems, BNFL and wider partnerships such as T2000 and UCLan. There is high academic/ vocational/technical ambition for all pupils.

Our link Governor works in HE and this is an area for continued development this academic year fostering even greater relationships and opportunities for our pupils with the University of Central Lancashire

## Implementation

The design technology provision at Broughton is delivered over 2 1-hour session per week at KS3. The pupils experience a variety of subjects by rotating around 4 specialist learning environments in order to expose them to a variety of experiences for example, food, textiles, product design and engineering. (See appendix KS3 Curriculum)

The departments schemes of learning are based upon the national curriculum for design technology.

In Years 7-9, all pupils experience four areas of design technology each year, taught by specialist subject qualified teachers. Teachers are enthusiastic and knowledgeable about their subjects and share this passion with all our pupils. As a result, the vast majority enjoy and achieve in design technology and a large proportion of pupils choose to study a design technology related course at KS4. (Over 100 annually)

DT staff use academic language consistently and appropriately in their subject specific teaching and learning. Pupils are encouraged to use tier 2 & 3 language in lessons both verbally and in extended written work for example in evaluations. Spelling lists are shared with all pupils and embedding of these words is reinforced in their portfolios of work. Knowledge organisers for each unit of work reinforce this language and encourage routine application in their e-portfolio.

At the heart of our creative curriculum is the engagement of pupils with practical tasks. These tasks specifically serve identified needs, solve problems - and function, it is considered essential that these learning activities reflect the nature of the subject within a range of contexts. These include the world of work, the development of communities and society, the environment (sustainability impact) and the ways in which technologies or technological solutions address or affect these. Pupils are encouraged to make, share, justify and discuss value judgements with respect to their own design decisions.

Extra-curricular opportunities are varied and offer many opportunities to refine and develop pupils' interests in food, textiles, engineering and GCSE work. These remain extremely popular with pupils and are a regular feature of our celebrations.

At **KS4** pupils opt to choose a design technology subject. Courses are delivered over 5 hours across the keystage; for example, 3 hours per week Y10 and 2 hours per week Y11 or visa-versa.
Each subject will aim to cover a variety of core skills and technical knowledge so that pupils understand the demands of the GCSE's they may choose in the future at KS4 or further Education courses. Pupils make choices during year 9 to study 1 of a variety of pathways that can lead to advanced progression at college in:

- Engineering
- Design Technology- with a chosen specialist opportunity in product design, textiles or graphics
- Food Preparation & Nutrition
- Hospitality and Catering

**Assessment:** Base line assessment of skills and knowledge of all year 7 at the start of the year informs planning and teaching and learning, this establishes individual starting points.

Capability is assessed through the mastery of: knowledge and understanding, designing and making and the development of informed attitudes and opinions. The wide-ranging content naturally lends itself to a variety of assessment strategies which can be used to focus teaching and support on pupil needs and in recognising achievement. Use of such assessment strategies ensures that pupils have experienced a successful and balanced experience in all four areas of mastery. (See appendix assessment framework)

Teachers challenge progress by using up-to-date relevant and pertinent tracking, this enables incremental progress throughout the whole academic experience in DT. Pupils are expected to 'live up to' our high

expectations of all from their own unique starting points.

The subject naturally cultivates several important aspects, particular critical and creative thinking, problem-solving, evaluating and decision making.

Professional Association

The department is a member of the Design Technology Association to ensure we are up to date and continue to innovate with developments in the subject. Additionally, we have hosted regional association meeting at Broughton on behalf of AQA and DATA. DATA have also invited the department to judge the national Awards for the subject for 2023.

## Impact

**By the end of year 9** all pupils will be able to relate Design Technology to the real world, have a growing technical knowledge of Design Technology in a variety of material areas including food, graphics, engineering, textiles and materials. Be able to problem solve a solve real contextualised briefs in a variety of materials. They will also know how to critique and evaluate their own work and the work of others.
Uptake at GCSE continues to be impressive given the wide opportunities on offer. Regularly over 100 pupils choose to study one of the courses on offer in DT. Nationally DT is in decline however at Broughton numbers remain impressive.

The outcomes in Design Technology in design technology **at the end of KS4** indicate the vast majority make at least expected progress and standards are very high when compared nationally. Pupils make excellent progress because teachers' expectations are high of all, all pupils are fully supported, lessons are engaging, active and are highly relevant to a modern technological society.

### 2023 Outcomes

| | | | |
|---|---|---|---|
| GCSE **Design & Technology** | SPI **+0.85** | 9-4 | **90%** |
| GCSE **Food & Nutrition** | SPI **+0.84** | 9-4 | **87%** |
| Technical Award **Engineering** (subject residual) | **+1.35** | 9-4 | **100%** |

We are very proud of our facilities- each of the 4 specialist rooms is modern and very well equipped. Visitors, trainees, parents all confirm that the department offers a modern, high tech outstanding facility that motivates, inspires and offers first class T&L facilities.

All pupils are made aware of all the **pathways** available to local colleges and apprenticeship routes with a variety of DT related careers. Progression into FE and apprenticeship last year demonstrated: Engineering/Technology 18.

The department works closely with our careers staff and celebrate pupils' progression into the world of work, this also promotes a variety of apprenticeships in the local area.

The department has excellent links with our feeder primary schools, we offer a variety of opportunities for pupils to come to Boughton and experience design technology (Food) from year 4 onwards. The department also offers a local pre-school a summer 'teddy bears picnic'. Ongoing feedback suggests this is having a real impact on the pupils at primary school.

The Head (SLE) and Assistant Head of DT support local secondary schools design technology departments with curriculum planning, teacher support, learning walks or any aspect of T&L the school specifically requests. Excellent feedback suggests we have had a positive impact on other schools.

The department celebrates success in the school newsletter and has over 1000 followers on X formerly twitter. We are proud of our pupils' achievements and celebrate their success. Feedback from parents suggests this is very much appreciated.

# KS3 Provision overview

**KS3 Curriculum Overview of the 'Bigger Picture'**

## Year 7 Design Technology 'Inspire' Curriculum

During year 7 pupils will study all 4 areas below through the year. Each unit of work will be for a duration of approximately 9 weeks. Each area studied will allow for incremental challenge and progression and will be taught by subject specialist teachers.

| Textiles Technology | Product Design | Food Technology<br><br>Food and cooking | 3D Materials Technology |
|---|---|---|---|
| Introduction to practical hand sewing<br><br>Using the sewing machine<br><br>Developing a product based upon a template.<br><br>Decorative Techniques Manufacture of drawstring bag.<br><br>Detailed testing and evaluating outcome.<br>End of unit test. | Health and Safety, safe working practice in the workshop<br><br>Shaping and forming materials. Additive and subtractive manufacturing skills using basic tools and equipment.<br><br>Identifying workshop tools and equipment.<br><br>Sources and origins of materials: timber.<br><br>Practical manufacturing with precision to produce a quality product and testing.<br><br>Evaluating outcomes.<br><br>End of unit test. | Develop their knowledge and understanding of ingredients and healthy eating.<br><br>Develop their knowledge food provenance.<br><br>Acquire food preparation and cooking techniques.<br>Acquire and demonstrate principles of food hygiene and safety.<br>Develop knowledge of consumer food and drink choice.<br><br>Apply knowledge to make informed choices.<br><br>Develop the creative, technical and practical expertise to perform everyday tasks confidently.<br><br>Build and apply repertoire of knowledge, understanding and skills to create high quality dishes for a range of people.<br><br>Evaluate and test their ideas and the work of others.<br><br>End of unit test. | Introduction to designing ideas using sketching and iteration.<br><br>Sketching, (CAD) researching and investigation into 3d printing.<br><br>Using 3d software-introduction and development of basic competency<br><br>Designing and manufacturing a unique 3D printed prototype.<br><br>Kow what a 3D printer is and how it used to prototype new ideas in a sustainable way.<br><br>Evaluating outcomes.<br><br>End of unit test. |

## Year 8 Design Technology 'Develop' Curriculum

During year 8 pupils will study all 4 areas below through the year. Each unit of work will be for a duration of approximately 9 weeks. Each area studied will allow for incremental progression and will be taught by specialist teachers.

| **Textiles Technology** | **Electronics & Systems** | **Food Technology**<br><br>**Diet and health** | **Materials Technology CAD/CAM** |
|---|---|---|---|
| Project focus on Sustainability.<br><br>Design and manufacture a wearable garment using a variety of machine and hand skills.<br><br>Develop a variety of techniques and skills to embellish and decorate the finished product with links to 3D Printing and Laser Cutting.<br><br>Testing/Evaluating and improvements.<br><br>End of unit test | Develop a understanding of electronic components, circuits and systems<br><br>Understanding controlled systems Input/Process/ Output<br><br>Manufacture a circuit board-based product with precision and accuracy – including testing/fault finding<br><br>Understand different types of motion in different contexts.<br><br>Understand the importance of ergonomic design and anthropometric data<br><br>Testing and evaluating End of unit test. | Develop their knowledge and understanding of food and nutrition.<br><br>Deepen knowledge on food provenance.<br><br>Further develop food skills and techniques.<br><br>Further develop and demonstrate principles of food hygiene and safety.<br><br>Deepen and apply knowledge of consumer food and drink choice.<br><br>Develop the creative, technical and practical expertise with starch-based ingredients.<br><br>Evaluate and test their ideas and the work of others.<br><br>End of unit test. | Structures Understanding Structures team-based challenge.<br><br>CAD/CAM project night light.<br><br>Using CAD accurately to develop a product. (2D and 3D)<br><br>Product Testing and modifications.<br><br>CAM manufacture and testing.<br><br>Critical evaluation.<br><br>End of unit test. |

## Year 9 Design Technology 'Embed' Curriculum

During year 9 pupils will study all 4 areas below through the year. Each unit of work will be for a duration of approximately 9 weeks. Each area studied will allow for incremental progression and will be taught by specialist teachers.

| Textiles Technology | Engineering | Food Technology<br><br>Making choices | Graphics |
|---|---|---|---|
| Contextual research into existing products.<br><br>Creating pattern templates and construction techniques.<br><br>Developed decorative techniques and application with links to 3D Printing and Laser Cutting.<br><br>Design and manufacture a phone/table/laptop case.<br>Product evaluation.<br>End of unit test. | Focus on precision and accuracy during manufacturing Investigating passive amplifiers.<br><br>Design constraints impact.<br><br>CAD modelling and template Manufacturing using a variety of hand tools and machines.<br><br>Sustainability and types of wood<br><br>Product Testing<br><br>Evaluating and feedback.<br><br>End of unit test | Extend their knowledge and understanding of food, diet and health.<br><br>Extend food preparation and cooking techniques.<br><br>Cooking a variety of dishes with safety and considering dietary needs.<br>Investigating a number of scientific techniques including aeration, gelatinization and shortening.<br>Team based cooking challenges.<br><br>Evaluate and test their ideas and that of others, and make recommendations for improvements.<br>End of unit test. | Understanding a contextual brief.<br><br>Graphical research and modelling<br><br>Using graphical software.<br><br>Investigating the work of other designers.<br>Colour theory, psychology and typography.<br><br>Augmented Reality.<br>CAD designing and developing.<br><br>Laser prototyping.<br>Product manufacture and assembly.<br><br>End of unit test. |