BROUGHTON
HIGH SCHOOL

Design Technology Curriculum

Statement of Intent, Implementation, Impact

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 focussing upon people, communities or businesses.

Design and Technology builds on the skills and knowledge pupils have already learnt at primary school as a result of 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/GCSE to ensure that pupils build on all aspects of prior learning and stretches and challenges all pupils regardless of starting point

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, systems and control, electronics, textiles and graphics. Pupils follow a rotation of work in 4 subject disciplines each year from years 7 to 9. Pupils work in mixed ability groups in year 7 and 8 and are set in year 9.

All teachers are made aware of any disadvantaged pupils on the DT department tracking sheets and class lists, 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'. Close tracking of all pupils continues to be an intrinsic part of our monitoring in DT to ensure all pupils progress is regularly reviewed and intervened/supported where appropriate.

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. There is high academic/ vocational/technical ambition for all pupils.

Implementation

The design technology provision at Broughton is delivered over 2 1 hour session/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 and the related GCSE or Technical Award qualification. KS4 work is evidenced even in year 7 as we instil in all our pupils high academic rigour and challenge from the outset.
In Years 7-9, all pupils experience four areas of design technology each year, taught by specialist subject well qualified teachers. Teachers are enthusiastic 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 choosing to study beyond ks3.

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. 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 curricula opportunities are varied and offer many opportunities to refine and develop pupils' interests in food, textiles, engineering and gcse work. These remain very 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/week y10 and 2 hours/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 materials, 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. This is used in conjunction with whole school data to set challenging targets for all pupils.

Capability is assessed through a 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 learning 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.

Impact of Curriculum

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 demands of the Ebacc, regular 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.

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…data unknown

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 820 followers on twitter. We are proud of our pupils achievements and celebrate their success. Feedback from parents suggests this is very much appreciated.

See Appendix 2.0 **Design Technology learning recovery** for COVID response

Appendix

Key Stage 3 Curriculum

Year 7 Design Technology

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	3D Materials Technology
Introduction to practical hand sewing Using the sewing machine Developing a product based upon a template. Decorative Techniques Manufacture of drawstring bag. Detailed testing and evaluating outcome. End of unit test.	Researching product ideas. Design ideas and development. Health and Safety. Shaping and forming materials. Assembly of chassis and understanding of basic electronics. Practical completion and testing including evaluating outcomes. End of unit test.	Introduction to food preparation and cooking. Food hygiene Safe handling of equipment. Healthy eating. Different food characteristics. Food preparation (variety) including development of practical skills and completion of science investigations. Teamwork/Testing/Evaluating End of unit test.	Introduction to designing. Sketching, (CAD) researching and investigation into 3d printing. Using 2d and 3d software- introduction. Designing and manufacturing a unique 3D printed prototype. Evaluating outcomes. End of unit test.

Year 8 Design Technology

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	Engineering Systems/Control	Food Technology	Materials Technology CAD/CAM
Contextual research into WWF (context) using templates and construction techniques. Decorative techniques and application Design and manufacture a chameleon. Product evaluation. End of unit test.	Understanding systems Input/Output/Process Programming Ethics of Drones Future Forecasting Team work and programming challenge. Disassembly of drones End of unit test.	Nutrition Using Hob/Specialist equipment safely. Starch based foods and preparation. Product investigations around carbohydrates. Pasta/Rice and Bread based challenges. End of unit test.	Structures Understanding Structures team based challenge. CAD/CAM project night light. Using CAD accurately to develop a product. (2D and 3D) Product Testing and modifications. CAM manufacture and testing. Critical evaluation. End of unit test.

Year 9 Design Technology

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	Graphics
Designing a wearable garment using a variety of machine and hand skills. Using a variety of techniques and skills to embellish and decorate the finished product. Testing/Evaluating and improvements. End of unit test	Investigating passive amplifiers. Design constraints impact. CAD modelling and templating. Prototype manufacturing using a variety of hand tools and machines. Product Testing. Evaluating and feedback. End of unit test.	Life stages and dietary impact. Investigating gelatinization. Working with a variety of meat and vegetables and associated sauces. Cooking a variety of dishes with safety and considering dietary needs. Investigating a number of scientific techniques including aeration and shortening. Team based cooking challenges. End of unit test.	Understanding a contextual brief. Graphical research and modelling Using graphical software. Investigating the work of other designers. Colour theory and typography. Augmented Reality. CAD designing and developing. Laser prototyping. Product manufacture and assembly. End of unit test.

Key Stage 4 Curriculum

At KS4, our pupils can choose to study -

KS4 Course	Exam Board	Outline	Award
Design Technology	AQA	50% Exam 50% NEA This qualification focuses on developing practical skills within a particular material area, allowing pupils to manufacture high quality outcomes. They'll learn about commercial processes and careers in related industries, as well as developing core transferable skills, such as collaboration and communication. This new GCSE places greater emphasis on understanding and applying iterative design processes. Pupils will use their creativity and imagination to design and make prototypes that solve real and relevant problems, considering their own and others' needs, wants and values.	GCSE
Engineering	NCFE	40% Exam 60% NEA Throughout this qualification, pupils will gain valuable knowledge of: • engineering disciplines • the science and mathematics that is applied in engineering • how to read engineering drawings • properties and characteristics of engineering materials and know why specific materials are selected for engineering applications • engineering tools, equipment and machines • production planning techniques • processing skills and techniques applied to materials for a manufacturing task equipment.	V-CERT
Food Prep & Nutrition	WJEC	By studying food preparation and nutrition pupils will: • be able to demonstrate effective and safe cooking skills by planning, preparing and cooking a variety of food commodities whilst using different cooking techniques and equipment	GCSE

		• develop knowledge and understanding of the functional properties and chemical characteristics of food as well as a sound knowledge of the nutritional content of food and drinks • understand the relationship between diet, nutrition and health, including the physiological and psychological effects of poor diet and health • understand the economic, environmental, ethical and socio-cultural influences on food availability, production processes, diet and health choices • demonstrate knowledge and understanding of functional and nutritional properties, sensory qualities and microbiological food safety considerations when preparing, processing, storing, cooking and serving food • understand and explore a range of ingredients and processes from different culinary traditions (traditional British and international) to inspire new ideas or modify existing recipes.	
Hospitality & Catering	WJEC	By studying Hospitality & Catering pupils will: • The Hospitality and Catering Industry • Hospitality and Catering in Action	V-CERT

Design Technology at Broughton Keystage 3- Design & Technology Progress Descriptors

7	8	9		Design Skills	Practical Making	Evaluating	Technical Knowledge
			LEVEL 3	o Generate ideas and describe by using words, labelled sketches and models to communicate the details of the ideas	o With help, where needed, use equipment, tools and materials o Produce a suitable finished product.	o Make a simple judgement on the final product/outcome o Make simple suggestions for improvement.	o Identify basic ingredients, equipment, materials, components and techniques
	Year 7 Expected Progress		*LEVEL 4* **Grade 2-3 (E-D)**	o Generate creative design ideas o Make links from research o Cook or create samples of the idea	o Manage short tasks independently (without help from the teacher) o Produce a good quality finished product	o Identify what worked well and what could be improved o Evaluate research	o Identify and describe appropriate ingredients, equipment, materials, components and techniques o Recognise that products/designs have to meet a range of different needs
2		Year 8 Expected Progress	*LEVEL 5* **Grade 4-5 (D-C)**	o Generate detailed design sketches/recipes/drawings/ prototypes o Use research to influence design ideas o Share ideas with other students and give the constructive feedback	o Select & use a range of tools and equipment o Work accurately o Pay attention to the quality of final product o Produce a well-designed product.	o Compare design ideas/final product against the design brief criteria o Suggest improvements for design ideas/product o Gain technical information from examining, describing and evaluating similar products	o Use ICT software to enhance the quality of work o Identify, explain & explore appropriate ingredients, equipment, materials, components and techniques
3			*LEVEL 6* **Grade 6-7 (B-A)**	o Explore different materials, components or ingredients and use technical information to decide if they are suitable for the final product o Model ideas by cooking, 3d models or using ICT design software	o Work from my own detailed plans o Use a range tools and equipment with precision o Carry out a range of specialist techniques (with support) o Produce a high quality, well considered final product	o Explain why materials, ingredients or components have been used o Identify and justify any changes from the final design idea to the final product	o Understand the characteristics of different materials, components, ingredients and processes o Understand a range of advanced/specialist techniques
4		Year 9 Expected Progress	*LEVEL 6+* **Grade 8-9 (*)**	o generate a wide range of well explained and justified ideas o write a specification and explain choices made o explain decisions regarding the choice of materials and manufacturing processes	o Carry out all tasks accurately and with precision o work independently and find solutions to design & practical problems o Carry out a range of specialist techniques independently	o Suggest alternative materials, components or ingredients o Carry out investigations /tests /experiments to evaluate final product	o Have a broad knowledge of different materials, components, ingredients and processes o Independently explore subject specific tasks (extra-curricular/home projects)

Assessment framework

Appendix 2.0 Design Technology learning recovery

Design Technology learning recovery

Year Impact and actions

Year 7 have had on the whole a continuation of the in-school curriculum as much as possible with the exception of practical skills in DT. Continuous testing has aligned to in school schemes of learning and on the whole pupils have made good progress with knowledge.

Action 1 for year 7 is to embed practical experiences into the year 8 schemes of learning that will revisit the practical skills lost and develop these throughout year 8

Action 2- we can help identify pupils who we feel have been affected the most and share this information with SB in looking at whole school strategies when required.

Action 3: in addition to end of unit assessment we will incorporate an additional knowledge check in weeks 4/5 of a typical unit of work

Action 4: new baseline assessment of DT understanding planned and implemented for all pupils in year 7. Planned for delivery after Easter 2021.

Year 8 impact has been considerable. Knowledge has been developed as much as possible however most pupils' skills levels have been adversely affected though both lock down 1 and 2. This needs to be addressed more urgently. Many pupils have missed at least 3 different practical experiences across year 7 and year 8.

Action 1 for y8 is to look at the end of this academic year and give all pupils the opportunity to concentrate on all key skills in all DT areas again. This will have the advantage of starting year 9 in a much stronger position and help all have a flying start to year 9. 8-week programme to be implemented by all DT Team.

Action 2- we can help identify pupils who we feel have been affected the most and share this information with SB in looking at whole school strategies when required.

Action 3: in addition to end of unit assessment we will incorporate an additional knowledge check in weeks 4/5 of a typical unit of work

Action 4: new baseline assessment of DT understanding planned and implemented for all pupils in year 8. Planned for delivery after Easter 2021.

Year 9 have also had 2 academic years impacted in DT- some subjects have not been taught fully and both knowledge and skills impacted upon.

Action 1: based upon pupils who are opting to further study DT will give direction and prioritise support for GCSE. Whole school decisions regarding this will direct next steps for year 9.

Action 2- we can help identify pupils who we feel have been affected the most and share this information with SB in looking at whole school strategies when required.

Action 3: in addition to end of unit assessment we will incorporate an additional knowledge check in weeks 4/5 of a typical unit of work

Year 10 home learning on the whole has been excellent and the mock work undertaken has allowed us to maintain most knowledge and skills.

Action 1: Individuals identified by subject specialists will be given additional tuition to help 'catch up'

Action 2: additional knowledge checks will be made routinely to identify any gaps in learning (max. every 4 weeks).