

GRANVILLE ACADEMY



Curriculum Guide for Design Technology

1. Curriculum Rationale
2. What students will learn in our subject
3. Curriculum Map
4. Assessment Plan
5. Specialist Vocabulary
6. Cultural Capital
7. Homework and independent learning



The de Ferrers Trust



1. Curriculum Rationale

2. What students will learn in Design Technology



The de Ferrers Trust

1. INTENT

Design and Technology at Granville Academy aims to inspire and motivate students through a demanding, stimulating and innovative curriculum. The knowledge and skills gained through the experiences within a wide variety of materials including Food, Product Design, Textiles, Graphics and CAD/CAM embeds the concept that design is all around us and that design is for all. Within the Faculty, through careful mapping, students build core, transferable knowledge and skills which will ultimately prepare them for employment in the 21st century.

The curriculum we offer at Granville reflects the requirements of the National curriculum: Design and Technology is 'an inspiring, rigorous and practical subject'. Students use their imagination and creativity to design and make products that 'solve real and relevant problems' through a variety of contexts. Students consider the needs of others considering values, culture and the well-being of the nation. Students study a broad range of subject knowledge and through this will learn to apply knowledge from other areas such as 'mathematics, science, engineering and computing'. Design and Technology here at the Academy encourages students to take risks, become resourceful, innovative and enterprising members of society. The curriculum, designed by the Design & Technology Faculty, ensures that all learners, particularly the most disadvantaged and those with special educational needs and/or disabilities (SEND) follow a curriculum that gives students the knowledge and cultural capital they need to succeed in life. Within the Faculty, students develop a wealth of transferable skills through an iterative approach to learning.

Aims and Objectives of Design and Technology:

- Develop awareness/ need for Health and Safety.
- Develop an understanding of food hygiene issues.
- Develop problem solving/ thinking skills.
- Develop communication skills.
- Develop social skills (independent and co-operative).
- Extend existing/ new practical skills.
- Learn and use appropriate technological vocabulary.
- To be aware of technology in its wider contexts.
- Develop skills to compliment other curriculum areas (Numeracy, Literacy, etc).
- Develop self worth/ esteem.
- Produce quality outcomes.
- ***To realise learning can be fun!***
- ***To see what they can achieve!***

2. IMPLEMENTATION

The sequence of teaching and assessment is planned to ensure that there is progression. Across all key stages students are taught to develop their analytical, designing, making and evaluative skills. These skills are delivered through 12 week units of work.

At Key Stage 3, students have key assessed pieces to ensure continuity in teaching and learning across all groups. This is detailed for each module and can be found in the Faculty Curriculum folder. Retrieval exercises are built in to the delivery of modules to ensure students re-visit key knowledge and skills at regular intervals thus securing retention of knowledge.

Key Stage 4 subjects continue to extend knowledge and learning with the ultimate goal of equipping students with a plethora of transferable skills that will equip them for their future role in society.

Impact

Students will develop detailed knowledge throughout each Key Stage frequently embracing retrieval activities which ensure students are successful and ready for the next stage of their education, employment or training.

Formal assessment will take place 3 times a year. These grades will be reported to parents through the schools reporting system. It will consist at KS3 with 6 pieces of assessed work covering the key principles of Design Technology; Evaluating, Designing, Making Skills and Technical Knowledge.

KS4:

At Key Stage 4 students follow the AQA specification, with assessment tasks based on Core Technical Principles, and a portfolio and practical based NEA (Non Exam assessment).

GCSE Design and Technology will prepare students to participate confidently and successfully in an increasingly technological world. Students will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise.

COVID

Due to COVID we have had to look at the way some of our lessons are carried out as we link to two other schools which follow the same SOW. When we returned to school following the two lockdowns each school dealt with keeping the infection at bay by keeping their students in one room for all lessons and the teacher moving instead of the student. This caused an issue across DT with the subject not being taught in specialist rooms and not being able to use equipment.



3.



De Ferrers Trust Design and Technology Key Stage 3 Curriculum

Year	Practical Assessment	Non Practical assessment
7	Food – Back to Basics	Food – Fully Equipped -Tools and Equipment
	RM- Flexi Fish	Skill Up – Design- Alese Pencil sharpener
	Textiles – Stand Up	RM- Bug Hut- Flow Chart
8	Food – Back to Basics	Food – Fully Equipped -Tools and Equipment
	RM- Bug Hut- Flow Chart	Graphics -Chocolate Box – Product Analysis
	Textiles – Stand Up	RM- Flexi Fish- Design ideas
9	Graphics – Pop Up Book	Textiles – Shopping Bag/iPad Cover
	Night Light – Make	Food – Nutrients Carbohydrate’s research
	Food – Around the World	CAD- OnShape – Robot

At key Stage 3, students cover 6 units in each year.

Each unit has an assessed piece of work marked out of 25 and a topic knowledge assessment marked out of 25. This is line with our Academy Trust plan.

The specialisms are delivered in sequence within the carousel nature of the curriculum.

Curriculum Map

GROUP	AUT. 1	AUT. 2	SPR. 1	SPR. 2	SUM.1	SUM. 2
YR 10	Half term (AQA Food Preparation and Nutrition AQA Design & Technology) Food, nutrition and health	Food science	Food safety	Food choice	Food provenance	Food preparation and cooking techniques
YR 11	Half term AQA Food Preparation and Nutrition AQA Design & Technology NEA 1 and NEA 2	NEA 1 & NEA 2	NEA 2	Final preparation for examination	Final preparation for examination	

Year 10

Design Technology

Exam board: AQA

Specification code: 8552

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<p>3.1 Core technical principles</p> <p>In order to make effective design choices students will need a breadth of core technical knowledge and understanding that consists of:</p> <ul style="list-style-type: none">• new and emerging technologies• energy generation and storage• developments in new materials• systems approach to designing• mechanical devices• materials and their working properties		<p>3.2 Specialist technical principles</p> <p>In addition to the core technical principles, all students should develop an in-depth knowledge and understanding of the following specialist technical principles:</p> <ul style="list-style-type: none">• selection of materials or components• forces and stresses• ecological and social footprint• sources and origins• using and working with materials• stock forms, types and sizes• scales of production• specialist techniques and processes• surface treatments and finishes. Each specialist technical principle should be delivered through at least one material category or system. <p>Not all of the principles outlined above relate to every material category or system, but all must be taught. The categories through which the principles can be delivered are:</p> <ul style="list-style-type: none">• papers and boards• timber based materials• metal based materials• polymers• textile based materials• electronic and mechanical systems		<p>3.3 Designing and making principles</p> <p>Students should know and understand that all design and technology activities take place within a wide range of contexts. They should also understand how the prototypes they develop must satisfy wants or needs and be fit for their intended use. For example, the home, school, work or leisure.</p> <p>They will need to demonstrate and apply knowledge and understanding of designing and making principles in relation to the following areas:</p> <ul style="list-style-type: none">• investigation, primary and secondary data• environmental, social and economic challenge• the work of others• design strategies• communication of design ideas• prototype development• selection of materials and components• tolerances• material management• specialist tools and equipment• specialist techniques and processes	

Year 11			
Design Technology			
Exam board: AQA		Specification code: 8552	
Term 1	Term 2	Term 3	Term 4
Term 5	Term 6		
<u>Coursework Component 2 NEA</u> Development of design ideas. Identifying improvements. CAD CAD Modelling. Final design	<u>Coursework Component 2 NEA</u> Development of design ideas. Identifying improvements. CAD Making Final product Mock Exam Revision	<u>Coursework Component 2 NEA</u> Development of final design Identifying improvements. Making final product Evaluation	<u>Coursework</u> Revision
		<u>Theory Revision</u> Exam preparation.	



3. Assessment Plan



KS3

Key Stage 3 students will be assessed formally each half term using a cross-Trust standardised assessment. These assessments are timetabled across the Trust, with the relevant dates referenced on the Curriculum Map. The assessments will then be moderated either internally or cross-Trust, and directly influence students' progress rank.

Alongside the formal assessments, Whole Class Marking tasks will be completed to embed the necessary skills and knowledge covered in the formal assessments. Students will reflect on tasks responding to Next Step targets in designated RICE time sessions. Formative assessment will take place to ensure students are acquiring and developing the skills required.

KS4

KS4 students will complete one formal cross-Trust key assessment task per unit of their GCSE course. These tasks are drawn from previous examination papers and therefore will be marked according to the GCSE mark schemes.

Formative Whole Class/Live marking assessments will take place alongside key assessments in order to embed, develop and consolidate the skills and knowledge required for GCSE success.

The Design Technology department will utilise Live Marking within lessons across both key stages to ensure students are given regular feedback, to which they can respond and make progress. Students will be expected to record any Live Next Step targets in red pen in their books, before acting upon the advice given. Often Live Marking will be in the form of verbal feedback so misconceptions are addressed at the point of learning.



4. Specialist Vocabulary



The de Ferrers Trust

	Yr 7	Yr8	Yr9	Yr10	Yr11
1	Design	Design	Isometric	Adhesive	Photo Chromic
2	Specification	Specification	Orthographic	Aesthetics	Nanotechnology
3	Annotation	Development Net	Project	Alloy	Polymorph
4	Evaluate	Vacuum Forming	Dimensions	Analyse	Thermochromic
5	Computer Aided Design	Computer Aided Design	Elevation	Ergonomics	Reduce
6	Computer Aided Manufacture	Computer Aided Manufacture	Finishes	Innovate	Rethink
7	Analysis	Analysis	Quality	Lithography	Refuse
10	Acrylic	Acrylic	Tolerance	Manufacture	Life Cycle Analysis
11	Medium Density Fibreboard	Medium Density Fibreboard	Soldering	Sustainability	Planned Obsolescence
12	Tenon saw	Tenon saw	Joint	Finite	Specification
13	Coping Saw	High Impact Polystyrene	Pine	Infinite	Evaluation
14	Steel ruler	Steel ruler	Sustainability	Anthropometrics	
15	Try Square	Try Square	Recycle	Just In Time (JIT)	

Key Words are emphasised at the start of the lesson in the Do Now and Review Now.

Understanding of keys words is reinforced by recaps of previous learning.

Students are encouraged to use the words in the annotation of their work and evaluations

It is the ambition of the faculty to use social media to share key words and concepts. The faculty Instagram has been well received by students. Opportunity for digital leaders/most able in Year 9 and 10 to produce content on the iPads using Clips/Movie maker.

Knowledge organisers can be found here: <http://www.deferrerstrust.com/knowledgeorganisers>



5. Cultural Capital



The de Ferrers Trust

Cultural Capital is embedded in the Design Technology Curriculum at both KS3 and KS4. The issue of Sustainability is a key principle at the core of the curriculum. The potential impact that products have on the environment and the design principles that are considered in the manufacture of a products and materials is thoroughly explored. The needs and requirements of the users also means that different cultures and environments are explored throughout the curriculum.

The school has developed many links with outside providers that enable us the opportunity to offer students the opportunities to visit local Universities. These are links we will look to re-establish after the COVID restrictions.



6. Homework and independent learning



The de Ferrers Trust

Homework and the regularity there of at KS3 is dependent on the topic, but often it will consist of students gathering sources of information in order to further the design process, or exploring the world of design by analysing the work of others or existing trends.

By getting the students to invest in their learning outside of school enable them to have a more developed understanding of the projects

In food technology often Homework is ensuring that ingredients are purchased and correctly measured and weighed.

Recommended websites

<http://www.technologystudent.com/>

<https://www.bbc.com/bitesize/subjects/zvg4d2p>

<http://www.mr-dt.com/>

Seneca learning assignments

Afterschool sessions of lunchtime catch ups are always available

There are many opportunities for students to extend their experiences by attending regular extra-curricular activities.

Textiles Club

CAD Club

Beyond the Classroom

How Parents Can Help

Each year at KS3 a voluntary contribution is requested to pay for materials and some of the consumables. This is communicated via the schools newsletter.

Students are expected to provide some ingredients/materials themselves in order to make quality products from their own designs. Parents can provide important support by encouraging students to select and obtain materials/ingredients promptly to avoid any unnecessary delay.

Spare materials are welcomed by the various departments. Items such as wood, paper, fabric, threads, recipe books, etc. would be gratefully received.

Liaison with parents is valued. Please contact subject staff by telephone, e-mail or a note in the pupil planner to discuss any issues which may arise.

Securing Success

Students are offered guidance and practical help within the classroom. They are both supported and challenged to extend their performance. A combination of individual, pair, small groups and whole class arrangements are planned and the learning opportunities are varied: practical's; demonstrations; discussions; written tasks, video clips. It is important that students develop confidence and independence in their approach over time.