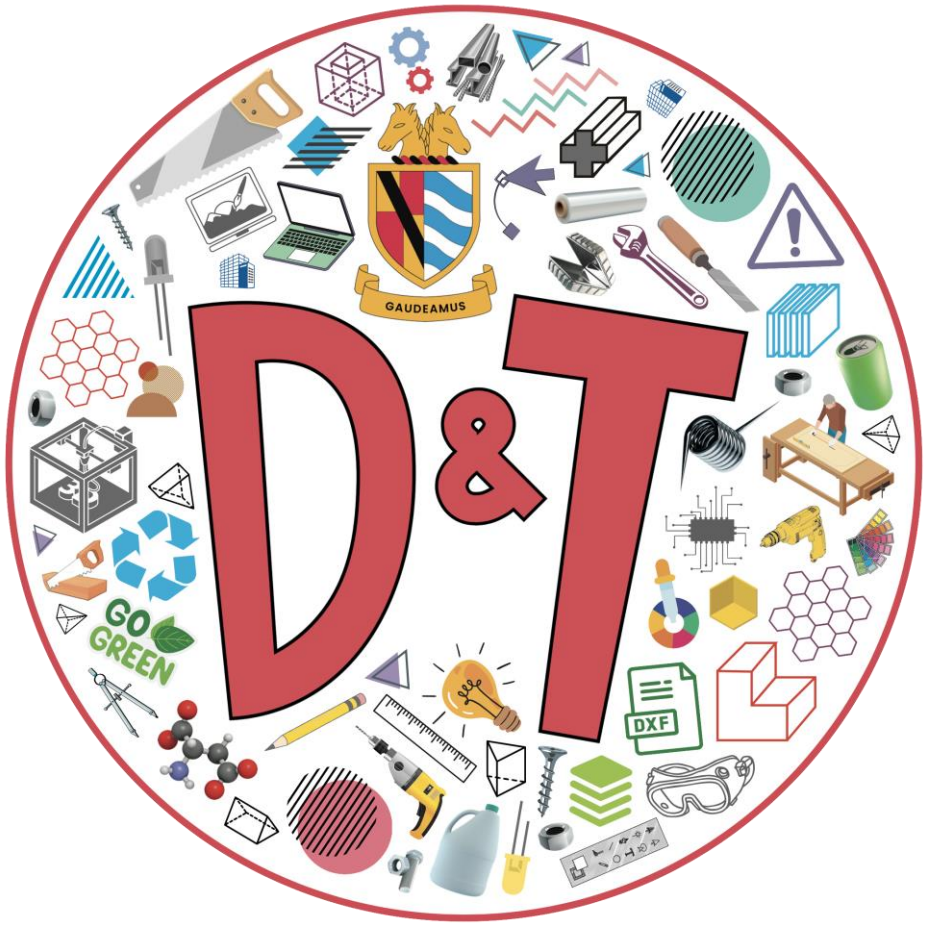
GAUDEAMUS
D&T
GO GREEN
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Y8
GAUDEAMUS


KNOWLEDGE
HEAD
PERSONAL DEVELOPMENT
HEART
SKILLS
HAND
CURRICULUM
GAUDEAMUS

Year 8

Topics

	Element	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Term 1	**Theory**	H&S	Timbers	Past and present designers	Past and present designers	Stuctures/forcces	Knowledge assessment
	Practical	Clock	Clock	Clock	Clock	Clock	Clock
	Home learning (booklet provided)	Key terms	Reading- Materials		Structures and forces	Revision	
Term 2	**Theory**	Life-cycle and the environment	6 R's	Automation			Clock self-assessment
	Practical	Clock	Clock	Clock	Clock	Clock	Clock
	Home learning	Environment		Case study		Case study	
Term 3	**Theory**	Specifications	Metals	Metal properties	CAD/CAM	Knowledge assessment- EOY exam	Casting
	Practical	Key Fob	Key Fob	Key Fob	Key Fob	Key Fob	Key Fob
	Home learning		Case study		Case study		

Year 8 D&T

What are you going to learn and do this year?

Current

HEAD - *Knowledge*

Year 8 Design and Technology Curriculum

This year in Design and Technology, you'll build upon your skills and explore more complex design challenges. Here's a glimpse of the fascinating topics you'll delve into:

1. Practical Projects:

Clock: Put your creativity and problem-solving skills to the test as you design and build a functional clock. You'll explore mechanisms and timekeeping principles.

Metal Key Fob or CAD Project: Choose your path!

- **Metal Key Fob:** Design and create a stylish and functional key fob using metalworking techniques. You'll learn about different metals and safe handling practices.
- **CAD Project:** Embrace the digital world! Learn how to use Computer Aided Design (CAD) software to create 3D models of your designs.

2. Safety First:

H&S (Health and Safety): Sharpen your safety awareness as you explore more advanced tools and equipment. You'll learn about new potential hazards and how to mitigate risks in the workshop.

3. The Mighty Timber:

Timbers: Delve deeper into the world of wood! Learn about different types of timber, their properties, and how to select the right wood for your project. You'll also explore advanced joinery techniques.

4. Design Inspiration:

Past and Present Designers: Discover the work of inspiring designers throughout history and the present day. Learn how they approach design challenges and gain inspiration for your own creations.

5. Understanding Structures:

Structures/Forces: Learn about the principles of structures and forces that act upon them. You'll explore how to design strong and stable products.

6. Considering the Bigger Picture:

Life-cycle and the Environment: Expand your understanding of sustainability. Learn about the environmental impact of design choices and explore ways to minimize your projects' ecological footprint.

7. The Future of Making:

Automation: Explore how automation is changing the manufacturing landscape. Learn about robots, CNC machines, and how they are used in production.

8. Mastering Metals:

Metals and their properties: Discover the vast world of metals. Learn about different types of metals, their properties, and how to work with them safely and effectively.

9. Design in the Digital Age:

CAD/CAM (Computer Aided Design/Computer Aided Manufacturing): This exciting unit (choose one or explore both based on your project):

- **CAD:** If you choose the CAD project, you'll gain in-depth knowledge of CAD software, allowing you to create intricate and precise 3D models.
- **CAM (covered if relevant to your project):** Learn how CAD models can be used to control machines for Computer Aided Manufacturing (CAM), a glimpse into modern production techniques.

This year promises to be a thrilling journey where you'll refine your practical skills, delve into design theory, and explore the exciting possibilities of technology in Design and Technology!

HEART - *Personal Development*

This D&T curriculum fosters personal development in several ways:

Confidence and Self-Belief: Successfully completing projects and mastering new skills builds confidence and a sense of accomplishment.

Resilience and Problem-Solving: Overcoming challenges during the design process and troubleshooting technical issues develops resilience and problem-solving skills.

Year 8 D&T

What are you going to learn and do this year?

Current

HEART - *Personal Development (continued)*

Independence and Initiative: Students learn to take ownership of their projects, manage their time effectively, and work independently.
Teamwork and Collaboration: Working with others on projects encourages teamwork, communication, and the ability to collaborate effectively.
Critical Thinking and Creativity: The design process fosters critical thinking as students analyze problems, develop solutions, and evaluate their work.
By nurturing these skills, D&T helps students build a strong foundation for personal growth and success not just in school, but also in their future endeavors.

HAND - *Skills*

Year 8 Design and Technology will equip students with a valuable blend of practical skills, design thinking, and technological awareness. Here's a breakdown of the key skills they'll develop:
Practical Skills:
Advanced Woodworking: Students will refine their woodworking skills by learning new joinery techniques and working with different types of timber to produce a clock.
Metalwork: The metal key fob project (to be confirmed) introduces them to safe metalworking practices and techniques for casting metal.
Project Management: Through their projects, students will develop skills in planning, organizing, and completing tasks within set deadlines.
Advanced Tool and Equipment Use: They'll learn how to use more advanced tools and equipment safely and effectively in the workshop, expanding their creative potential.
Design Thinking:
Research and Inspiration: Students will learn how to research and draw inspiration from past and present designers, informing their own design choices.
Problem-solving: The projects will challenge them to think creatively and solve problems to achieve their design goals.
Refined Design Process: They'll build upon their understanding of the design process, iterating and refining their ideas to create well-considered designs.
Technical Drawing Skills: Students will further develop their technical drawing skills, essential for communicating design ideas clearly.
Technological Awareness:
Understanding of Structures: By exploring structures and forces, students will gain a deeper understanding of how to design strong and stable products.
Introduction to Automation: They'll be exposed to the concept of automation and how it's changing manufacturing, sparking curiosity about future technologies.
CAD Skills (to be confirmed): The CAD project allows students to develop their skills in using Computer Aided Design software, which is a valuable tool for creating detailed 3D models.
By the end of year 8, students will be well-equipped with a broader skillset that allows them to tackle more complex design challenges with confidence!

H&S

Y8/T1/W1

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge	Current	Future
Pupils should have: - •Understanding of Risks/Hazards •General Workshop Safety	**HEAD -** *Knowledge*  - To strengthen understand what a hazard and risk is within a workshop and that there are workshop rules in place - To know some methods of reducing H&S risks in D&T - To understand what a risk assessment is **HEART -** *Personal Development*  - H&S: Safety awareness and responsibility - Explanation: You will learn to identify and avoid hazards in the workshop, use safety equipment correctly, and follow safe working practices. This skill is crucial for preventing accidents and ensuring a safe learning environment. **HAND -** *Skills*  - To be to explain how to stay safe in a workshop	**Pupils should go on to:** - Demonstrate H&S within the school workshop when manufacturing a clock

Materials- Timbers

Y8/T1/W2

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge

Pupils should have:

- An understanding of where timber come from

Current

HEAD - *Knowledge*

- Timbers (including Description, Advantages and Disadvantages, Applications):
- Hardwoods; Oak, Mahogany, Beech and Balsa
- Softwoods; Pine and Cedar
- Manufactured Boards; Plywood, MDF
- Properties; Hardness, Toughness, Durability

HEART - *Personal Development*

Timbers: Practical skills and problem-solving
Explanation: You will develop skills in using woodworking tools and techniques, such as sawing, drilling, and joining. You will also learn to solve problems related to timber selection, measurement, and construction.

HAND - *Skills*

- I can explain what timbers are and where they come from
- I can list a few examples of hardwoods, softwoods and manufactured boards
- I can give at least 1 example product of each

Future

Pupils should go on to:

- To understand the properties and uses of a number of timbers

The work of others - Past and Present Designers

Y8/T1/W3,4

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge	Current	Future
Pupils should have: - Understand the term designer and have a brief understanding of 1 deign movement	**HEAD -** *Knowledge*  - Understand how investigating the work of other designers can inform designing **HEART -** *Personal Development*  **Past and present designers: Research and historical understanding** **Explanation:** You will research the work of famous designers and historical design movements. This will help you understand the evolution of design and develop an appreciation for different design styles and approaches. **HAND -** *Skills*  - I can list and explain a couple of designers and their styles - I can analyse a product using ACCESS FM from a specific designer	**Pupils should go on to:** - Choose a design movement or designer to base the design of their mood lamp on

Structures and Forces

Y8/T1/W5

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge

Pupils should have:

- To understand the term gravity

Current

HEAD - *Knowledge*

- To know the 4 different types of movement (linear, rotary, reciprocal, oscillating).
- To know 5 different forces including, tension, compression, torsion, shear and bending forces

HEART - *Personal Development*

Structures/forces: Critical thinking and analysis
Explanation: You will learn about the principles of structural design, including the properties of materials, forces acting on structures, and stability. You will develop critical thinking skills to analyze the strength and stability of different structures.

HAND - *Skills*

- I can briefly explain the 6 different forces
- I can identify the 4 types of movement.

Future

Pupils should go on to:

- Be able to recognise and characterise tension, compression, binding, torsion and shear forces and stresses

Understand the impact of different forces and stresses on materials

Environment and the 6 R's

Y8/T2/W2, 3

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge

Pupils should have:

- To understand the term recycling and understand why it is important
- To have some understanding of the term global warming

Current

HEAD - *Knowledge*

- To strengthen understanding of the 6 R's
- To understand how some companies are using the 6 R's to make themselves more sustainable

HEART - *Personal Development*

Life-cycle and the environment: Environmental awareness and sustainability
Explanation: You will explore the environmental impact of products throughout their life cycle, from extraction of raw materials to disposal. You will learn about sustainable design practices and the importance of reducing waste and conserving resources.

HAND - *Skills*

- I can name all 6 of the 6 R's and explain them all in some detail
- I can analyse a product and suggest ways to make it more environmentally friendly, using the 6R's.

Future

Pupils should go on to:

- To understand how to apply the 6 r's to redesign a product to make it better for the environment

Automation

Y8/T2/W3

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge

Pupils should have:

- To understand that robots are a big part of manufacture
- To know an advantage of using robots in manufacturing

Current

HEAD - *Knowledge*

- To know what CAD and CAM stand for and what they are
- To know a few advantages of CAD and CAM in manufacturing.

HEART - *Personal Development*

Automation Specifications: Technical understanding and digital literacy
Explanation: You will learn about the role of automation in manufacturing processes, including the use of computer-controlled machines. You will develop technical understanding of automation systems and gain digital literacy skills to work with automation software.

HAND - *Skills*

- I can explain what computer aided control and computer aided manufacture is
- I can list some advantages and disadvantages of each

Future

Pupils should go on to:

- To be able to use the laser cutter to manufacture a product

Workshop Tools- Clock

Y8/T2/W4, 5

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge	Current	Future
Pupils should have: - To understand a number of tools within the workshop from year 7	**HEAD -** *Knowledge*  - To strengthen understanding of workshop tools and machinery **HEART -** *Personal Development*  - Practical skills and development **HAND -** *Skills*  - adapt their methods of manufacture to changing circumstances - recognise when it is necessary to develop a new skill or technique	**Pupils should go on to:** - Demonstrate practical skills by using a range of tools and machinery to manufacture their clock accurately

Evaluations

Y8/T2/W6

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge

Pupils should have:

- evaluate their products against their original specification and identify ways of improving them
- actively involve others in the testing of their products

Current

HEAD - *Knowledge*

- Understand a number of different evaluation techniques to fully evaluate a project

HEART - *Personal Development*

- Organisation

HAND - *Skills*

- select appropriate methods to evaluate their products in use and modify them to improve performance
- produce short reports, making suggestions for improvements
- *test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups*

Future

Pupils should go on to:

- To write a detailed evaluation for a project that they have completed

Specifications

Y8/T3/W1

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge	Current	Future
Pupils should have: - An understanding of what a brief and specification is and some experience of writing a spec	**HEAD -** *Knowledge*  - To understand that many issues effect a specification - To understand how to layout a specification **HEART -** *Personal Development*  - Initiative **HAND -** *Skills*  - I can develop a design specifications that include a wider range of requirements such as environmental, aesthetic, cost, maintenance, quality and safety	**Pupils should go on to:** - Create a specification with justifications at GCSE

Metals (Pewter Casting) or CAD project Y8/T3/W2, 3, 4

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge

Pupils should have:

- • Metals – ferrous, non-ferrous, alloys

Current

HEAD - *Knowledge*

- • Recap basic metals – ferrous, non-ferrous and alloys; ductile and malleable
- how materials can be cast in moulds

Key terms- Ferrous, Non-ferrous, Alloy. Ductile, Malleable, Pewter, Durable, Casting, Mould Pattern

HEART - *Personal Development*

Metals: Practical skills and problem-solving
Explanation: You will develop skills in working with metals, such as cutting, shaping, and joining. You will also learn to solve problems related to metal selection, measurement, and construction.

HAND - *Skills*

- I can explain the different material classifications of metals
- I can list a few examples of materials for each classifications
- I can explain some proeprties for a number of metals

Future

Pupils should go on to:

- To have a deep understanding of ferrous, non ferrous and alloys
- To be able to name a number of examples of each and give examples of uses
- To be able to explain why specific metals are chosen

CAD/CAM (Pewter Casting) or CAD project

Y8/T3/W4, 5, 6

At Malbank we will develop Technologists who are creative, skilful and confident practically, socially and intellectually giving students the opportunity to impress leaders of industry so that they can make a smooth transition from education into the workplace.

Prior Knowledge	Current	Future
Pupils should have: - Understand the term automation and how robots benefit manufacturing	**HEAD -** *Knowledge*  - To understand the terms CAD/CAM - To understand the H&S of the laser cutter **HEART -** *Personal Development*  - **Explanation:** You will learn about the role of automation in manufacturing processes, including the use of computer-controlled machines. You will develop technical understanding of automation systems and gain digital literacy skills to work with automation software. **HAND -** *Skills*  - use 2D and begin to use 3D CAD packages to model their ideas - produce models of their ideas using CAM to create a pewter casting mould	**Pupils should go on to:** - Complete their pewter casting project