



Year 10 Design Technology

Curriculum Leader: Mr Steve Finch

Exam Board: Pearson EDEXCEL

Through the study of Design Technology, we believe that the development of the best solutions to problems result from a mix of applied knowledge, experimentation and the use of practical skills. It is within these principles that students can immerse themselves into the world of product design where outcomes take into account the needs of individuals, material limitations and social and environmental considerations. The study of the problem solving provides a template that can be applied to numerous situations in life and is the backbone of careers in engineering and design.

Topics to be covered in Year 10

	Term 1	Term 2	Term 3
Topics to be covered	<ul style="list-style-type: none"> Design strategies & Systems approach to designing Communication of design ideas Prototype development. Selection of materials and components Specialist techniques and processes (wood) Production techniques and systems Skills Project – design and make activity Mock NEA 		<ul style="list-style-type: none"> Mechanical devices Different types of movement Material categories and properties The sources, origins, physical and working properties of each natural and manufactured timber Surface treatments and finishes NEA – Theme set by the exam board at the start of June.
Key vocabulary	Iterative design Computer aided design (CAD) Computer aided manufacture (CAM) Automation Computer aided design (CAD) Computer aided manufacture (CAM) Flexible manufacturing systems (FMS) Just in time (JIT)		Lean manufacturing. Planned obsolescence Ecological and social footprint Quality control Renewable energy First, second and third order levers Linkages
Skills to be developed	<ul style="list-style-type: none"> How different strategies can be applied during the research and design development. Communication and development of ideas using: sketching, modelling, testing, evaluation of work to improve outcomes. Development of understanding and application of materials selection skills to include functional need, cost and availability. Select and use specialist techniques and processes to shape, fabricate and construct a high-quality prototype, including techniques such as wastage, addition, deforming and reforming. Understanding of CAD/CAM production techniques and how industry use them to automate the design and manufacture of products. Understand how energy is generated and stored and how this is used as the basis for the selection of products and power systems. 		<ul style="list-style-type: none"> Understand and consider: planned obsolescence, design for maintenance, ethics and the environment when designing products. Apply the design process for research, developing, planning, manufacture and evaluation of a product. Identify and understand the function of the input, process and output subsystems in an electrical product. Identify and understand the working principles of mechanical devices: levers, linkages and rotary systems. Identify and understand the main categories and types of metals and textiles. Design and product development: <ol style="list-style-type: none"> Identifying and investigating design possibilities Producing a design brief and specification Generating design ideas Developing design ideas Realising design ideas Analysing and evaluating
Opportunities for revisiting previous learning	Y9 – revisiting the learning but adding more depth the knowledge.		
When will formal assessment of progress take place?	September: Summative assessment 1 January: Summative assessment 2 May: End of Year exams		

Year 10 Useful Resources

Websites

www.bitesize.co.uk

Marking, Assessment and Feedback

Over the course of an academic year students will complete a number of formal assessments, these will be used to assess where students are in their learning journey.

Information from these assessments could be used when making decisions regarding setting of students, reporting progress home and predicting outcome. Regular verbal feedback is used in lessons to inform students of their progress and areas they can improve. Teachers will continue to provide planned written feedback on selected pieces of work.

Homework

Homework will be set using the online platform Go 4 Schools.

Homework tasks are designed to prepare students for future learning or consolidate work completed in the classroom. It will be clear what should be handed in, when it should be handed in and how it should be handed in.

Contact Information:

If you would like to contact the Design and Technology Department please email: design@gilberd.com.

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