

D&T Department

Year 10

Topic: Unit 2: Energy, materials, systems and devices

Learning Journey

Prior learning:

New topics as part of GCSE Design & Technology course. Students will have prior knowledge of topics from previous KS3 theory lessons and cross curricular (Geography and Science)

Learning sequence – topic title							Endpoint
Main learning steps	Energy generation and energy storage <u>Explore</u> the differences renewable and non-renewable energy sources and understand the arguments for and against the selection of fossil fuels, renewable energy and nuclear power.	Modern materials Smart materials <u>Recognise</u> a range of smart and modern materials and their working properties. Be able to describe how these materials can alter the	Composite materials and technical textiles <u>Recognise</u> a range of composite materials and their working properties and understand how material properties can be enhanced by combining or manipulating	Systems approach to designing Understand the principles of electronic systems and the use of systems diagrams and flowcharts to analyse and solve a given problem	Electronic systems processing <u>Understanding</u> the use of microcontrollers and how they are programmed for decision making to provide functionality to products and processes.	Mechanical devices <u>Recognise</u> and identify a range of movements and understand the functions of mechanical devices to produce linear, rotary, reciprocating and oscillating movements in	Set of completed worksheets and homework sheets with accompanying notes.

	Review the types of energy (mechanical and chemical) and the transferal and storage.	function of a product.	two or more materials/ fibres			products and devices.	
Assessment	HW sheet – Hand in on teams for feedback. Also self check	HW sheet – Hand in on teams for feedback. Also self check	HW sheet – Hand in on teams for feedback. Also self check	HW sheet – Hand in on teams for feedback. Also self check	HW sheet – Hand in on teams for feedback. Also self check	HW sheet – Hand in on teams for feedback. Also self check	Unit Test

Where will we use these ideas again:

Resources needed at home – internet access, basic drawing equipment including colouring pencils

Parental support:

- **Ensure students are regularly checking TEAMS and are on top of their work. If a lesson is missed it is the student's responsibility to catch up on the lesson missed.**
- **Purchase of Clear Revise PG Online Design and Technology Book**
- **Visit the Design Museum, British Museum, V&A, Science Museum**

Where will we use these ideas again:

This area will be assessed in both the final exam at the end of KS4 and within the NEA self-study project.

Resources to use at home:

Online resources

- [THE NEW DESIGN AND TECHNOLOGY GCSE \(technologystudent.com\)](http://technologystudent.com)

- [GCSE Design and Technology - AQA - BBC Bitesize](#)

Video Resources:

- [DTtoolbox - YouTube](#)
- [GCSE Design and Technology: Core principles - YouTube](#)