



Subject: Design
Technology

Lead Teacher: R Williams

Year: 10

Curriculum organisation

Students are taught in mixed groups of 25 for **two** hours per week. They are not grouped by ability.

Overview of Topics & Key Information					How will your child be learning?
Term	Unit(s) of Work	Key Enquiry Questions	Key Content/ Terminology	Skills developed	
Autumn Term	Unit 1- new and emerging technologies. Written exam preparation focus whilst increasing skills, knowledge and understanding of a broad range of materials and processes.	<ul style="list-style-type: none"> • How has the increase in technology changed job roles? • How have products changed over time? • What are the implications of new technology on product design? • What factors should be considered by responsible designers? 	<ul style="list-style-type: none"> • Sustainability and the environment • 6 R's • Modelling and construction • Design Brief and requirements • Ecological and social footprint • Planned Obsolescence • Design for disassembly • Life cycle Assessment 	<ul style="list-style-type: none"> • Examination Technique • Research Skills • Presentation Skills • Problem solving • Demonstrate how innovation can drive product development • Understand how types of manufacturing contribute to manufacturing efficiencies 	<ul style="list-style-type: none"> • Whole class discussion • Pair work • Practical activities • Problem-solving tasks • Watching short video clips • Research tasks • Individual focus Practical Tasks and activities (building blocks) • Investigation and Research activities.
Spring Term	Unit 3- materials and their properties Unit 4- common specialist technical principles	<ul style="list-style-type: none"> • What creative solutions can be generated and developed, reflecting on analysis and client interaction? • How will you model, test, analyse, manufacture and evaluate a commercially viable product that meets the brief? 	<ul style="list-style-type: none"> • Polymers • Polymers forming • Laser cutting (accuracy) • Timber and Board based materials • Physical and Mechanical Properties • Batch Production • CNC and Industry Systems • Industrial processes • Quality control 	<ul style="list-style-type: none"> • Examination Technique • Portfolio of Evidence 2d and 3d outcome • Problem solving • Understanding the environmental impact of design on the world 	<ul style="list-style-type: none"> • Demonstration activities • Health and Safety discussions • Use of whole school Rosenshine's principles of instruction-strategies for student
Summer Term	Unit 4- common specialist technical principles Unit 2- energy, materials, systems and devices	<ul style="list-style-type: none"> • What specific techniques can be used to strengthen products made from differing materials? • What manufacturing processes are suitable to create a commercial product through shaping, fabricating, constructing and assembling? • How can designers influence and minimise the need for deforestation, mining, drilling and farming? 	<ul style="list-style-type: none"> • Examination Techniques • Ergonomics and Anthropometrics • Mathematical data • Tessellations and nesting • Electronic systems, materials and components • Lighting circuit • Mechanical Devices Forces and stresses • Energy Storage • Energy generation 	<ul style="list-style-type: none"> • Evaluate the use of a range of modern, smart and composite materials for given situations • Analyse movement and mechanisms to use in a given scenario to perform a specific task • Demonstrate an understanding in simple systems 	<ul style="list-style-type: none"> • autonomy with student led projects and design work, effective and meaningful feedback to increase progress.

Equipment needed for lessons	How will learning and progress be assessed?
<ul style="list-style-type: none"> • Standard school stationery • Exercise book • Calculator • Colouring pencils 	<ul style="list-style-type: none"> • End of unit tests (subject knowledge focus) • Formal assessment week (May) • Peer and self assessment • Homework tasks (often research or project based) • Retrieval practice activities • Tutorials small group or one to ones. • Questioning (What, Why, How) and recall of information • Examination question responses
Extension & Enrichment opportunities	What can you do to support your child?
<ul style="list-style-type: none"> • Arkwright Scholarship Trust Application support to appropriate students • Communication of Small Piece Trust short courses • Communication of local/National Competitions • STEM workshop activities • Opportunity to lead a club for the lower years 	<ul style="list-style-type: none"> • Utilise student 'in' and 'out' and Teams folders for additional support materials set up by your teacher • http://www.technologystudent.com/ for supportive revision tasks and flash cards • Animations of manufacturing processes accessed online can be supportive in gaining a clear understanding in each material area, this is encouraged from year 9 • How's it made (selection of videos to support visual learning) • AQA GCSE (9-1) Design and Technology Text book • Parental support is always helpful, taking an active interest in design briefs, students work and time management of independent non-exam assessment.
Inclusion	Inclusion within Design Technology
<ul style="list-style-type: none"> • Teachers follow student passports to ensure that the needs of all students with SEND are met. • Work is enlarged to the necessary size for visually impaired students. • Teachers will ensure that classrooms are quiet learning environments where possible and will dim lights to support students with sensory needs. • Students have the use of laptop if they have a SEND need whereby use of a laptop supports them. • Hearing impaired students are supported through use a radio aid and teachers ensure that students can lip read at all times during lessons. • Dyslexic students are encouraged to use coloured overlays when they are required to read long passages. • Use of dyslexic friendly fonts and coloured backgrounds used in PowerPoints/resources. • Students with ADHD are given movement breaks, fidget toys and lessons are 'chunked' to aid concentration. • Students are seated according to their needs, students work with the SENDCo to decide upon this. 	<ul style="list-style-type: none"> • Within projects students learn about a range of designers with a full range of backgrounds. • Students are supported practically by the teacher or TA if a student requires this. • Equipment I adapted where necessary to accommodate the needs of the students with SEND. • Where necessary students are given frequent one to one tutorials and demonstrations to revisit previous techniques and processes taught to support their understanding. • Students are encouraged during designing to think about their own experiences and how these interact with the material/ project they encounter. • Dyslexic students are provided with knowledge organisers for each topic in order to have reference to key terminology and definitions. • Use of visual and audio cues to support processing of written text. • Keywords/ subject specific vocabulary displayed on walls to aid memory. • All teachers employ inclusive pedagogy so not just what they teach but how they teach is inclusive through a variety of delivery techniques (step-by step guides, mind-maps, multiple choice questions, placemats/ written task instructions) and assessment design which contributes to the achievement of all pupils (use of model examples, scaffolder responses)

If you have any questions about this Learning Overview, please contact the named Teacher above.