

Year 10 GCSE OCR ~ Curriculum Map for Design and Technology (dept.)

What are the intended aims for this year's curriculum? To ensure students are fully prepped for the GCSE OCR Exam and NEA tasks set in June.

	Term 1 Theory with flat pack house	Term 2 Theory with modelling	Term 3 Theory with modelling skills	Term 4 Theory with prototype skills	Term 5 Theory with design development skills	Term 6 NEA research
	<p>Topic(s): Risk assessments Materials testing Papers and boards Natural & manufactured timbers Ferrous and non-ferrous Thermoplastics & thermosetting plastics Smart materials Modern materials Composite materials Textile fibres and fabrics Technical textiles</p>	<p>Topic(s): Context and design solutions Social, moral, cultural Environment Ergonomics Anthropometrics Inclusive design Existing products New technologies Planned obsolescence Energy storage systems Fossil fuels Shaping Styrofoam</p>	<p>Topic(s): Nuclear power Renewable energy Environmental issues Problem solving Design communication Controlled movement – levers and motions Electronic systems Programmable components Disruptive technologies Modelling skills</p>	<p>Topic(s): Getting ready for NEA Model making Design development 2D Design 3D CAD solid works Selecting materials and stock sizes</p>	<p>Topic(s): Sources of materials raw extraction Materials – ecological, social and ethical issues Forces and stresses Measuring and marking out Cutting Shaping Scales of production Quality control Commercial processes and surface finishes</p>	<p>Topic(s): Analysis Evaluations Primary user needs Stakeholder needs Existing products Technical requirements Importance of Planning</p>
	Aim of A&R	Aim of A&R	Aim of A&R	Aim of A&R	Aim of A&R	Aim of A&R
'Big idea(s)' / fundamental concepts	To be able to identify many types of materials, be able to state their working characteristics and uses.	To be able to understand the big picture of how using the materials effect the living environment around us.	<i>To be able to think of alternative ways we could do the same designs but without using up the planet's resources.</i>	<i>To be able to understand all aspects of the NEA and practice all skills needed.</i>	<i>To be able to understand why we have chosen the materials we have and what would be the best way to go about creating ideas with them.</i>	To start NEA strand 1. To have a real primary user and stakeholder to carry through the project.
Knowledge to be learnt	<i>To have a basic knowledge of all materials but in-depth knowledge of papers and boards for their OCR exam</i>	To be able to design with humans and the planet in mind. To create ergonomics grips.	To build knowledge on show to create products with electrical components.	To gain confidence using CAD software 2D design, and solid works.	To understand that materials all have a breaking point and to design accordingly. To be able to modelling and develop design in the workshop.	To create designs for others and not just for yourselves, to communicate and liaise with a primary user.
Key vocabulary	accuracy, Softwoods, hardwoods, manufactured boards, alloys, composites, metals, plastics, polymorph, SMA, glass reinforce plastic, carbon fibre.	6Rs of recycling, comfortable, durable, safe, futuristic, raw materials.	Solar power, kinetic energy, hydropower, remote control, wireless, touch control, voice activated, technologies that have disrupted the simple.	CAD, CAM, CNC, machines, accuracy, tolerances, measurements. Laser cutting, 3D printing.	Ores, crude oil, forests, caliper, steel rule, marking gauge, coping saw, tenon saw, file, sand belt, tolerances, varnish, wax, spray finish.	Bar charts, pie charts, www, ebi, target market, client, market research, joining methods, job sheets, gphant charts,
The role of reading and comprehension	<i>Written instructions Identifications of keywords. SMHW quiz</i>	<i>Written instructions Identifications of keywords. SMHW quiz</i>	<i>Written instructions Identifications of keywords. SMHW quiz</i>	<i>Written instructions Identifications of keywords. SMHW quiz</i>	<i>Written instructions Identifications of keywords. SMHW quiz</i>	<i>Written instructions Identifications of keywords. SMHW quiz</i>
The role of independent extended writing	<i>Guided writing frames Exam questions in the summative assessments</i>	<i>Guided writing frames Exam questions in the summative assessments</i>	<i>Guided writing frames Exam questions in the summative assessments</i>	<i>Guided writing frames Exam questions in the summative assessments</i>	<i>Guided writing frames Exam questions in the summative assessments</i>	<i>Guided writing frames Exam questions in the summative assessments</i>
The role of maths/ numeracy	<i>Accuracy, measuring to tolerance, shapes and symmetry.</i>	<i>Accuracy, measuring to tolerance, shapes and symmetry.</i>	<i>CAD Accuracy, measuring to tolerance, shapes and symmetry.</i>	<i>Accuracy, measuring to tolerance, shapes and symmetry.</i>	<i>Accuracy, measuring to tolerance, shapes and symmetry.</i>	<i>Accuracy, measuring to tolerance, shapes and symmetry.</i>
Links to careers/ aspirations	<i>Car designer, fashion designer, Architecture, engineer, designer</i>	<i>Car designer, fashion designer, Architecture, engineer, designer</i>	<i>Car designer, fashion designer, Architecture, engineer, designer</i>	<i>Car designer, fashion designer, Architecture, engineer, designer</i>	<i>Car designer, fashion designer, Architecture, engineer, designer</i>	<i>Car designer, fashion designer, Architecture, engineer, designer</i>
Core skills	To be able to use: Identify materials Key characteristics Uses	To be able to: Break down a design brief Discuss environmental issues Understand that products are invented with a short life span.	To be able to: Knowing the difference between renewable and non-renewable and how to make our plant cleaner and safer by the materials we use.	To be able to: Software packages used in industry Stocking resources to improve profit margins.	To be able to: Accuracy Tolerances Model making	To be able to: Laser cutting Designing Teamwork Marketing
Dept. enrichment activities	Catch up club Tuesday after school 3:30 – 4:15	Catch up club Tuesday after school 3:30 – 4:15	Catch up club Tuesday after school 3:30 – 4:15	Catch up club Tuesday after school 3:30 – 4:15	Catch up club Tuesday after school 3:30 – 4:15	Catch up club Tuesday after school 3:30 – 4:15
Home learning opportunities	https://www.youtube.com/watch?v=2PAuYQUtg9M	https://www.youtube.com/watch?v=LAKlmdMHpdE	https://www.youtube.com/watch?v=JKXnQnaiql8	https://www.youtube.com/watch?v=lpUFjrLPN9k	https://www.youtube.com/watch?v=fxBlgbRT8fw	https://www.youtube.com/watch?v=JXXHqM6RzZQ

Aim of EoY exam