

Year 10 Curriculum Map : Design and Technology

	Autumn	Spring	Summer
Assessment Objectives	AO1 - Core Technical Principles Materials and their working properties AO2 - Specialist Technical Principles Selection of materials or components, specialist techniques and processes, surface treatments and finishes. AO3 - Design & Making Principles investigating the work of others design strategies tools and equipment		
Unit Length	20 lessons	20 lessons	20 lessons
Key Learning Outcomes	<p>AO1 - Core Technical Principles Materials and their working properties</p> <p>AO2 - Specialist Technical Principles Selection of materials or components, specialist techniques and processes, surface treatments and finishes.</p> <p>Students will learn how to materials are purchased in his raw form and purchased from stores to order and different types of surface treatments and finishes – magazine rack from all 2 materials – wood and metal</p> <ol style="list-style-type: none"> 1. Designers 2. Social, cultural and economic impacts 3. STEM lesson - Life cycle assessment 4. STEM lesson - Renewable energy 5. Progress check - Knowledge audit – renewable energy 6. Feedback, reteach and D.I.R.T lesson 7. Manufacturing processes for wood 8. Manufacturing processes for metal 9. Progress check - Knowledge audit – metal 10. Feedback, reteach and D.I.R.T lesson 11. Joining materials 12. Wood joints 13. STEM – lesson – Pythagoras trigonometry 14. Progress check – knowledge audit – sustainability – 15. Feedback, reteach and D.I.R.T lesson 16. Making the wooden sides of magazine rack 17. Making the metal sides of the magazine racks 18. Joining the metals and wood 19. Joining the metals and wood 20. Progress practical assessment – magazine rack 	<p>AO1 – Core Technical Principles Materials and their working properties</p> <p>AO3 – Design & Making Principles investigating the work of others design strategies tools and equipment</p> <p>Students will learn about mechanisms and mechanical devices and create a product that uses a mechanical device.</p> <ol style="list-style-type: none"> 1. Movement 2. Levers 3. Linkages 4. Pulleys 5. Cams 6. Gears 7. STEM lesson – mechanical advantage 8. progress check – Knowledge audit – mechanisms 9. Feedback, reteach and D.I.R.T lessons 10. Drawing techniques: 1pt, 2pt and isometric 11. Design ideas 12. Progress check assessment on design ideas 13. STEM lesson – percentage waste 14. Wood joints for mechanical toy 15. Making of mechanism; 16. Assembly of mechanism 17. Making the topper 18. Assembly of the mechanical toy 19. Manufacturing log; quality control 20. Progress check – practical assessment – mechanical toy 	<p>AO2 - Specialist Technical Principles Selection of materials or components, specialist techniques and processes, surface treatments and finishes.</p> <p>AO3 - Design & Making Principles investigating the work of others design strategies tools and equipment</p> <p>Students will produce a mock piece of coursework understanding all the elements that are required to go into their coursework which is 50% GCSE grade.</p> <ol style="list-style-type: none"> 1. Feedback, reteach and D.I.R.T lesson 2. Investigating the contextual design challenge 3. Research analysis 4. Client profile 5. Product analysis 6. Social, cultural and economic impacts; Designer research 7. Progress Check - Knowledge audit – investigation 8. Feedback, reteach and D.I.R.T lessons 9. Product placement 10. Summary of research 11. Design brief 12. Design specification 13. Materials and properties 14. Iterative design 15. Modelling 16. Progress check - Knowledge audit – human factors 17. Final design idea 18. Manufacture of the product 19. Test and evaluate against specification, Client feedback 20. Progress check – practical assessment – pizza cutter
Prior knowledge	KS3:		

	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]		
CEIAG Specific careers links	Link to careers routes: product designers, carpenters, interior design, jewellery Topics to be delivered by employers: employers from building merchants Link to personal skills: problem solving		
RRSA	Article 12: respect for the views of the child Article 13: freedom of expression Article 14: Freedom of thought, belief and religion	Article 3: best interests of the child Article 28: Right to education Article 29: Goals of education	Article 23: children with a disability Article 29: Goal of an education Article 42: knowledge of rights
Cross curricular links	Maths – trigonometry; percentage waste Science – life cycle assessment; mechanical advantage Geography – life cycle assessment; renewable energy Literacy links in evaluation writing.		
Useful websites/videos	https://www.technologystudent.com/	http://mr-dt.com/	https://www.bbc.co.uk/bitesize/topics/zxhhvcw
Wider Reading	Identifying key words that are associated with research such a product analysis, anthropometric, ergonomics, design criteria, etc. Encourage students to books on design such as the design of everyday things by Don Norman		
Literacy Programme	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies 	<ul style="list-style-type: none"> • Review it now • Guided practice/model answers • Sentence Starters • Writing strategies 	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent Learning Tasks	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice Questions.	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice Questions.	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice Questions.