Academic Year **<u>Year 7</u>**	**Content.** **Unit title and brief outline of content.**	**Skills taught in each unit.**	**Assessment – what knowledge and skills will be assessed and how?**
Autumn A /Spring B	**Key Fob** Introduction to Health and Safety in a Design and Technology Workshop. Personal H&S Legal requirements and personal responsibility. Design layout, use of colour and typography. Working in laminated thermoplastic (acrylic) and wire to produce a key fob.	• How to identify personal hazards and what precautions to take. (PPE) • Hand graphic skills: Use of guidelines, typographical design and layout, selection of colour. • Use of hand tools to cut and finish acrylic. • Identification of common synthetic polymers by name and code.	**EMB** based upon GCSE style questions Personal Health and Safety Workshop tools/equipment-identification and safe usage Typography Skills Common Plastics and their uses
Autumn B / Summer A	Key Fob continued Working in laminated acrylic and wire to produce a key fob. Use of thermoforming and plastic memory to produce a raised image in the key fob. Use of card, MDF former and PVC to make blister packaging to promote product. Oracy task to present research into the impact of plastics on the environment and effective recycling.	• How to cut and form steel wire • Use thermoforming techniques to understand plastic memory and forming plastics. • Safe use of pillar drill • Research • Presentation • CAD drawing • Evaluation	**EMB** based upon GCSE style questions Practical Health and Safety Manufacturing Processes Use of CAD - symbols and designs Plastics symbols and recycling (9 mark) **Oracy** presentation
Spring A / Summer A	**Robot Designs** Independent design and make activity. Use of wood, components and CAD/CAM acrylic decoration.	• Use of hand tools to cut and finish wood. • Use of CAD/CAM • Sketching and annotation	**EMB** End of Year Exam paper based upon GCSE format with a range of 1 – 9 mark questions.

Academic Year **<u>Year 8</u>**	**Content.** **Unit title and brief outline of content.**	**Skills taught in each unit.**	**Assessment – what knowledge and skills will be assessed and how?**
Autumn A / Spring B	**Automata – Theme of Culture** Revision of Health & Safety Personal H&S Legal requirements and identification and control of Hazards in the workshop. Design and make a wooden moving toy. Make- measuring, marking out, cutting and making frame to given working drawing. Design – using hand sketching to produce moving component. Different types of movement Theory of natural and manufactured timber. Research into existing product designers/architects or engineers. Produce an information poster.	• How to control hazards and what precautions to take to keep others safe in the workshop. • Independent use of hand tools and equipment to cut and finish wood. • Use of hand tools to cut and finish acrylic. • Identification of common natural and manufactured timber. • Developed annotated sketching • Independent research skills • Use of ICT and graphical layout and presentation. • Careers – investigating the work of current designers	**EMB** based upon GCSE style questions Workshop Health and Safety Workshop tools/equipment- identification and safe usage Types of movement Types of timber
Autumn B / Summer A	Evaluate design ideas and use CAD/CAM to produce the moving component for the Automata. Oracy Source and production of natural timber and manufactured board. Consideration of its environmental impact. Mechanisms Use of mechanism to convert direction of movement.	• Use of CAD to produce scaled products. • Integrating standardised components onto their designs • Evaluate theirs and others designs and completed sections. • Independent research skills • Discuss their findings	**EMB** based upon GCSE style questions Production and uses of natural and manufactured timber. Manufacturing Processes Use of CAD - symbols and designs Use of CAMs to convert direction of movement. Oracy presentation

Spring A / Summer B	Construct and test Automata Photograph and evaluate final product Automate the automata by driving the camshaft with a battery powered motor. Manufacturing Flow diagrams – including feedback loops, Health and safety and timings. Isometric and orthographic presentation drawings.	• Isometric section drawing • Orthographic drawings with dimensions • Sequencing using flow diagrams • Evaluation of final product	**EMB** End of Year Exam paper based upon GCSE format with a range of 1 – 9 mark questions.
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Academic Year **<u>Year 9</u>**	**Content.** **Unit title and brief outline of content.**	**Skills taught in each unit.**	**Assessment – what knowledge and skills will be assessed and how?**
Autumn A / Spring B	**Light Up Clock** Use standard components, electronics and incorporate recycled materials to produce a clock based on a researched design movement/designer. **Oracy** Research and present findings as an A4 poster and PPT presentation to the class. Design and develop a range of design ideas for a clock suitable to be sold by a mail order company. 3D models should include hand-made prototypes and CAD development. Electonics and component theory. Materials revision	• Independent research and presentation of ideas • **Oracy** – design movements • 3D modelling including CAD/CAM • Independent iterative design.	EMB based upon GCSE format with a range of 1 – 9 mark questions plus including maths. Oracy task – researching design movement.
Autumn B / Summer A	Sequence making activity Make clock – hand and CAM Prepare catalogue/webpage advert for product. Cost Product Produce a Life Cycle Analysis (LCA) of product.	• Independent sequencing of tasks. • ICT based layout for presentation of product. • Undertaking and LCA • Soldering • CAD/CAM • Evaluation	EMB based upon GCSE format with a range of 1 – 9 mark questions plus including maths.
Spring A / Summer B	**Design a Board Game – Inclusive Design** Digital programmable Components	• Using circuit boards and programmable components to make a die.	EMB

	Team design activity In teams of 4/5 design and model a race and chase style board game. The game should utilise a digital die. The design should incorporate ideas to make it inclusive. Eg. Teams of • different ages • specific learning differences • Alzheimer's • Visually impaired • Hearing impaired	• Team work to produce a positive outcome. • Use of different design strategies to prevent design fixation.	Exam paper based upon GCSE format with a range of 1 – 9 mark questions plus 15% maths based questions