Year 9- Design and Technology

Topic	Rationale	Knowledge acquisition	Key vocabulary	Skills and enrichment
Electronic Systems LED USB Lamp	*The National Curriculum suggests that students should be taught how more advanced electrical and electronic systems can be powered and used in their products.* *It also suggests that they learn to apply computing and use electronics to embed intelligence in products that respond to inputs, and control outputs using programmable components.* *This project builds upon knowledge of components and basic electrical principles taught in years seven and eight by introducing a programmable component in the form of a PIC chip.*	Writing a Brief	Client, needs, suitability,	• **Problem solving**- use a schematic diagram to put electronic components in the correct place. Use circuit wizard to construct a working circuit using learned theory of components. • **Evaluation**- Evaluate initial models and final prototype by carrying out tests, assessing the product against a criteria and gathering third party feedback. • **Literacy**-Students will be given a number of low stakes quizzes to test spelling and understanding of subject specific vocabulary. These quizzes will be set as homework tasks via the VLE. The project will culminate in a written evaluation which will be marked for literacy. • **Numeracy**- work out the value of resistors using a formula. Measure and mark out timber to manufacture a frame. **Subject Specific Skills:** • Using CAD software to design and test circuits. • Prepare and populate a PCB board. • Soldering. • Creating product prototypes.
		Isometric Drawing, Presentation skills, Advanced rendering skill	Isometric, triangle, render, thick thin, shade, colour, tone	
		Designing from a pre-defined starting point	Isometric, triangle, render, thick thin, shade, colour, tone, development, peer feedback	
		The modelling process as a part of iterative design	Sustainable modelling, Card, recycling, Cutting, shaping, adhesives	
		CAD circuit wizard and Electronics theory	PIC, Resistor, Tracks, PCB, Simulation, Flowchart, Program	
		PCB Assembly, Testing, Fault Finding and programming	Solder, Soldering Iron, Soldering, Components, PCB Drill, PCB, Resistor, PTM, Slide Switch, Wires, LED	
		Assembly of case and final assembly of product.	Finishing, Abrasives, Adhesives, cutting, shaping, hand tool, belt sander, pillar drill	
		Evaluation	Evaluate, Summarise, Reflect, Third party, Feedback, Modifications.	

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Architecture Designing a community space	*The intention of this project is to make students aware of the importance of community spaces for both social and environmental reasons.* *Students will be presented with a live brief and map of a local area which will give context. They will be expected to develop their team working skills to produce a suitable and functional design solution.* *This module is intended to reflect the process carried out be designers in industry.*	Learning about transforming the use of spaces for social and environmental benefits.	New York High Line, social, environmental, rejuvenation, community and green space.	• *Problem solving-* Use ordnance survey maps and clients briefs to produce a suitable and functional design solution. • *Evaluation-* Evaluate suitability of designs against client specifications. • *Oracy-*Produce a presentation to be delivered to a client. • *Numeracy-* working out areas and dimensions. **Subject Specific Skills:** • Using CAD/ CAM to produce models. • Creating proposal drawings to present to clients.
		Producing proposal drawings.	Design brief, specification, plan view, elevations, key and dimensions.	
		Producing architectural models.	Scale, prototype, foam core board and corrugated card.	
		Presentation of proposal to client.	Client, brief, presentation and pitch.	