

## DESIGN ENGINEERING PATHWAY

### YEAR 9 INDEPENDENT DESIGN LP

<b>DECLARATIVE KNOWLEDGE</b> <b>I know</b>			<b>PROCEDURAL KNOWLEDGE</b> <b>I can do</b>		
K1	I should develop multiple ideas to solve a problem to prevent design fixation.		C1	Independently generate multiple design ideas to solve the contextual challenges, illustrating the avoidance of design fixation.	
K2	The following SolidWorks tools: Corner rectangle Circle Smart Dimension Trim entities Boss extrude Mate		C2	Independently use SolidWorks to fully develop a design idea from an initial drawing to a full assembled, completed design, ready for CAM.	
K3	The following DIYLc tools: Veroboard LED Resistor Hookup wires Shape		C3	Independently use DIYLc to fully develop a stripboard design idea, ready to support the making of the product.	
K4	Identify the following variable resistors: LED Resistor Vero board Toggle switch 9V Battery snap		C4	Independently solder together a neat working stripboard circuit, using the identified components.	
K5	Identify the following file types: .dxf for laser cutting .stl for 3D printing		C5	Independently use the laser cutter to manufacture a CAD designed product.	
K6	Identify the correct adhesive for the product: PVA glue (wood glue) Tensol (plastic glue – solvent cement) Epoxy (all-purpose)		C6	Independently combine the housing and the circuit into a fully realised neat and working design.	
K7	Evaluations will help to improve on future developments of contextual challenges.		C7	Independently use progression over time, independently evaluate the quality of the product, related research and design tasks.	
K8			C8	Independently identify targets for improvement in future products.	