

DESIGN ENGINEERING PATHWAYS

YEAR 8 555 PIANO LP

DECLARATIVE KNOWLEDGE I know		PROCEDURAL KNOWLEDGE I can do	
K1	<p>The following electronic components and tools:</p> <p>Components: 555 Timer IC, 556 timer, resistors, Diode, 8-Pin chip carrier, the term astable and monostable, potentiometer, battery snap and speaker</p> <p>Tools: Soldering iron, side cutter, wire stripper, solder station, long nose plier and safety goggles.</p>	C1	<p>With minimal help and support, I know how to place and solder the following components on a PCB (which way around they should be placed):</p> <p>555 Timer IC, resistors, Diode, 8-Pin chip carrier, Potentiometer, speaker, battery snap and PTM switches.</p>
K2	The resistor colour code	C2	<p>With minimal help and support use Circuit Wizard to design the basic circuit and PCB for the components needed.</p>
K3	Identify how frequencies are produced.	C3	<p>With minimal help and support use SolidWorks to fully develop a design idea from an initial drawing to a full assembled, completed design, ready for CAM.</p>
K4	How a loudspeaker uses the produced frequency to make a sound.	C4	<p>With minimal help and support, read the values of fixed resistors using the colour code</p>
K5	<p>The following SolidWorks tools:</p> <ul style="list-style-type: none"> Corner rectangle Circle Smart Dimension Trim entities Boss extrude Mate 	C5	<p>With minimal help and support, use the appropriate tools to construct the housing for the piano project.</p>
K6	<p>The following TechSoft 2D Designs tools:</p> <ul style="list-style-type: none"> Layout Paste image Zoom in and out Bitmap vectorising Cutting pathway colours Text tool Importing .dxf files 	C6	<p>With minimal help and support, calculate the frequency of the 555 timer in the astable configuration.</p>
K7	<p>The following Circuit Wizard tools:</p> <p>Drag and place, rotate left and right, play and stop, add track, add pad, normal – real world – artwork – current views and the circuit – PCB tabs</p>	C7	<p>With minimal help and support, use progression over time, independently evaluate the quality of the product, related research and design tasks.</p>

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K8	Identify the following materials and tools: 3mm Plywood Long nose pliers PVA glue Masking tape		C8	With minimal help and support, identify targets for improvement in future products.	
K9	Reflecting on work completing will help improve future learning		C9	Identify the following materials and tools: 3mm Plywood Long nose pliers PVA glue Masking tape	