DESIGN ENGINEERING PATHWAYS
YEAR 8 DIGITIAL DIE LP

DECLARATIVE KNOWLEDGE I know			PROCEDURAL KNOWLEDGE I can do		
K1	The difference between random and pseudorandom and how PICs generate random numbers	☐	C1	With minimal help and support, I know how to include in a flowchart program a random block which will cause a microcontroller to generate a random number	☐
K2	How to identify a pull-down resistor	☐	C2	With minimal help and support, use a pull-down resistor in a microcontroller circuit to prevent a floating pin.	☐
K3	Microcontrollers can be reconfigured to change input and output pins.	☐	C3	With minimal help and support I can reconfigure the input and output pins in Circuit Wizard for a Genie 08 microcontroller.	☐
K4	The following electronic components: 78L05 voltage regulator 78L05 voltage regulator, resistors, Diode, 8-Pin chip carrier, LEDs, Download socket.	☐	C4	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): 78L05 voltage regulator, resistors, Diode, 8-Pin chip carrier, LEDs, Download socket.	☐
K5	The resistor colour code	☐	C5	With minimal help and support, read the values of fixed resistors using the colour code	☐
K6	The following flowchart symbols: Start Digital Decision Analogue Decision Outputs Wait Stop	☐	C6	With minimal help and support, write basic microcontroller program which generates a random number and displays this using multiple LEDs using flowchart symbols	☐
K7	Identify how to connect a microcontroller to a PC	☐	C7	With minimal help and support, download a flowchart program to a microcontroller circuit.	☐
K8	Identify the following materials and tools: 3mm Acylic M3x25 countersunk screws M3 nuts Long nose pliers Screwdriver	☐	C8	With minimal help and support, use the appropriate tools and pre-cut Acrylic parts to manufacture a Digital Die project.	☐

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	The following Circuit Wizard tools: Drag and place, rotate left and right, play and stop, add track, add pad, normal – real world – artwork – current views, run live, debug live and the circuit – PCB – flowchart tabs	☐			
K9	Reflecting on work completing will help improve future learning	☐	C9	With minimal help and support, identify targets for improvement in future products.	☐