

## DESIGN ENGINEERING PATHWAYS

### YEAR 9 ARDUINO LP

DECLARATIVE KNOWLEDGE I know		PROCEDURAL KNOWLEDGE I can do	
K1	The 3 different sections in the Arduino software (IDE – Independent Development Environment): 1. Variable declaration sections 2. Setup section 3. Loop section	C1	Independently use the Arduino IDE to write a program to control an output to run a timing program and download it to the microcontroller. Testing in on a breadboard circuit.
K2	The flowing Arduino instructions: Int Wait pinMode if, else digitalWrite digitalRead analogWrite analogRead serial.println	C2	Independently use the Arduino IDE to write a program to control multiple outputs to run a timing program and download it to the microcontroller. Testing in on a breadboard circuit.
K3	How to setup and download a program to an Arduino PCB using the IDE software.	C3	Independently use the Arduino IDE to write a program to monitor a digital input and control an output and download it to the microcontroller. Testing in on a breadboard circuit.
K4	The breadboard connection patterns.	C4	Independently use the Arduino IDE to write a program to monitor an analog input and control an output and serial print the value and download it to the microcontroller. Testing in on a breadboard circuit.
K5	The term PWM – (Pulse Width Modulation)	C5	Independently use the Arduino IDE to write a program to monitor an analog input and control an PWM (Pulse Width Modulation) output and download it to the microcontroller. Testing in on a breadboard circuit.
K6	The Arduino libraries can be used to support program writing.	C6	Independently use an Arduino library to support program writing and use it in a program to download to the microcontroller. Testing in on a breadboard circuit.
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.