A blue circuit board with a black cord

AI-generated content may be incorrect.

LED: anode connected to pin 9

LED: cathode connected to resistor(1Ω)

Resistor: connected to ground pin

1. Complete the circuit and explain why resistor is needed.

A resistor limits the amount of current flowing through It. This help prevent components being damaged due to excessive current (e.g. Popping a capacitor), in this case it helps prevents the LED and Arduino from being damaged. The resistor is typically (220Ω,330Ω,1Ω), and in my design its 1Ω.

1. Describe how to adjust the brightness of the LED.

By using pulse width modulation (PWM) we can turn the LED on and off in cycles. The Arduino can do PWM on pins that have a ~ , for example (PIN 9).

analogWrite(pin, value) controls brightness

analogWrite(9, 0); LED OFF

analogWrite(9, 127); 50% brightness

analogWrite(9, 255); full brightness

C)