Arduino LED Blink Lab Manual

Printable pinout, wiring, code, build steps, expected results, and troubleshooting for every Arduino tutorial on the WolfieWeb Arduino page.

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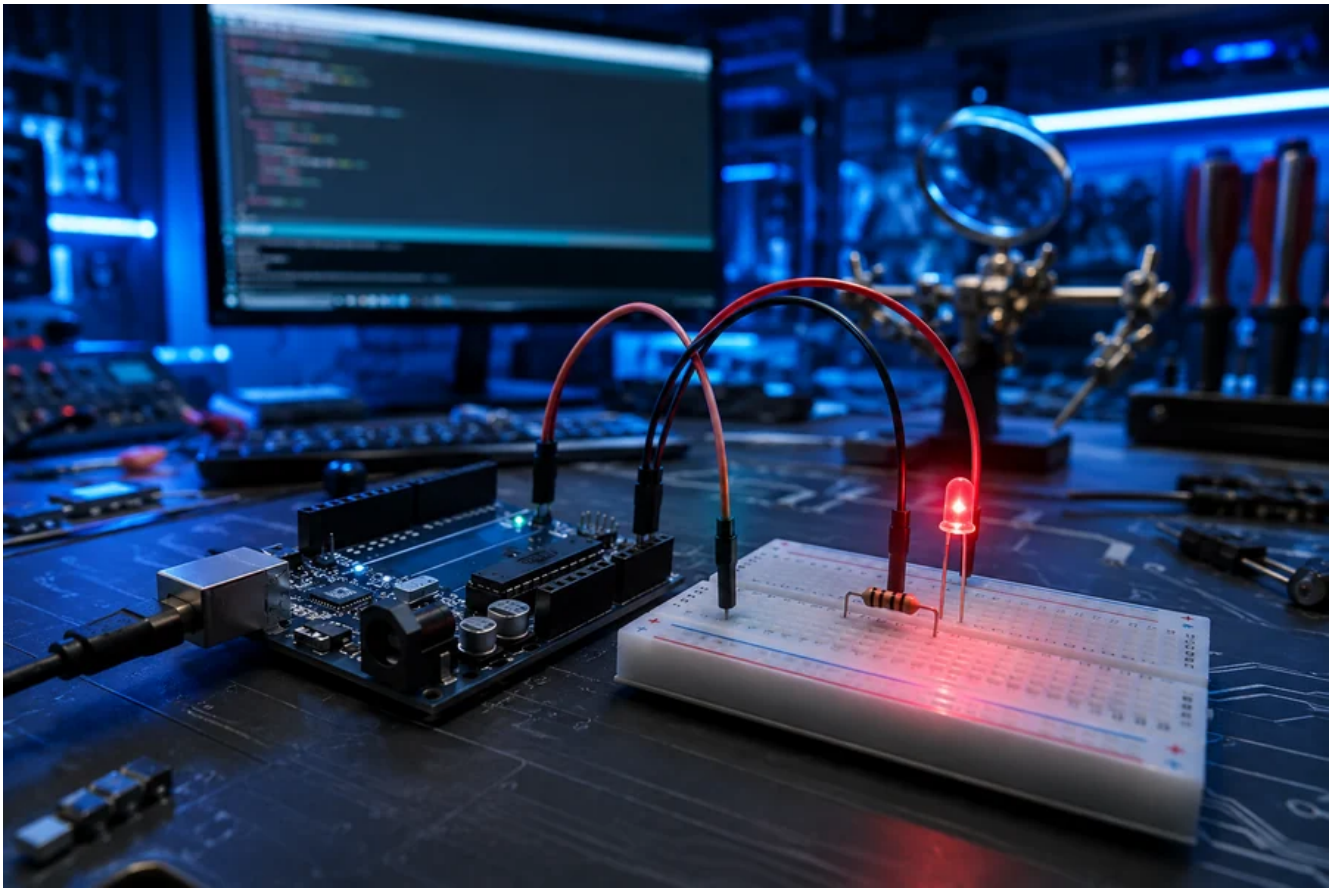

Goal: Learn digital output, LED polarity, current limiting, and timing.

Pin Codes and Wiring Map

Part / Lead	Arduino Pin / Connection	Purpose
Arduino 5V	Breadboard + rail	Optional rail power
Arduino GND	Breadboard - rail	Common ground
D13 or D8	220 ohm resistor -> LED anode	Output control
LED cathode	GND rail	Return path

Step-by-Step Build Instructions

Step 1: Place the LED across two separate breadboard rows. The longer leg is the anode/positive side.

Step 2: Put the 220 ohm resistor in series with the LED. Do not skip it; the resistor limits current.

Step 3: Connect D13 to the resistor side feeding the LED anode. Connect the LED cathode to GND.

Step 4: Select the correct board and COM port in Arduino IDE. Upload the blink sketch.

Step 5: Change delay(500) to delay(100) and delay(1000) to prove the code controls timing.

Expected Result

The LED turns on and off repeatedly. If it stays dark, flip the LED, check the resistor path, and confirm the selected COM port.

Troubleshooting

Problem	What to check
Upload fails	Board/port is wrong, USB cable is charge-only, or another serial monitor is open.
LED always on	Output pin may be connected directly to 5V instead of a controlled pin.
LED never lights	LED reversed, resistor not in series, or no ground return.

Arduino Code

```
void setup() {
pinMode(13, OUTPUT);
}

void loop() {
digitalWrite(13, HIGH);
delay(500);
digitalWrite(13, LOW);
delay(500);
}
```

Scan the QR code on the package README or visit www.wolfieweb.com/works01.html for the live tutorial page.