**Level 4: Add External LED**

Useful resources in the “Arduino” folder on the class repository:

* + Getting started guide.pdf
  + Public\_materials🡪Ebook🡪Arduino book.pdf
  + Lessons🡪Lesson1-LED blink

1. Add a second external LED (using components on the prototype board) and make it blink in sync with the on-board LED.

void setup() {

  pinMode(LED\_BUILTIN, OUTPUT);

  pinMode(13, OUTPUT)

}

void loop() {

  digitalWrite(LED\_BUILTIN, HIGH);

  digitalWrite(13, HIGH)

  delay(200);

  digitalWrite(LED\_BUILTIN, LOW);

  digitalWrite(13, LOW)

  delay(200);

  digitalWrite(LED\_BUILTIN, HIGH);

  digitalWrite(13, HIGH)

  delay(200);

  digitalWrite(LED\_BUILTIN, LOW);

  digitalWrite(13, LOW)

  delay(200);

  digitalWrite(LED\_BUILTIN, HIGH);

  digitalWrite(13, HIGH)

  delay(1000);

  digitalWrite(LED\_BUILTIN, LOW);

  digitalWrite(13, LOW)

  delay(200);

}

1. Modify your program so that the external LED blinks following a different pattern than your on-board LED.

void setup() {

  pinMode(LED\_BUILTIN, OUTPUT);

  pinMode(12, OUTPUT);

}

void loop()

{

  digitalWrite(LED\_BUILTIN, HIGH);

  delay(200);

  digitalWrite(12, HIGH);

  digitalWrite(LED\_BUILTIN, LOW);

  delay(100);

  digitalWrite(12, LOW);

  digitalWrite(LED\_BUILTIN, HIGH);

  delay(200);

  digitalWrite(LED\_BUILTIN, LOW);

  digitalWrite(12, HIGH);

  delay(200);

  digitalWrite(LED\_BUILTIN, HIGH);

  digitalWrite(12, LOW);

  delay(1000);

  digitalWrite(LED\_BUILTIN, LOW);

  delay(200);

}

uninstall

1. Upload and run the External LED Blink sketch code on the Arduino board and show it to your teacher.