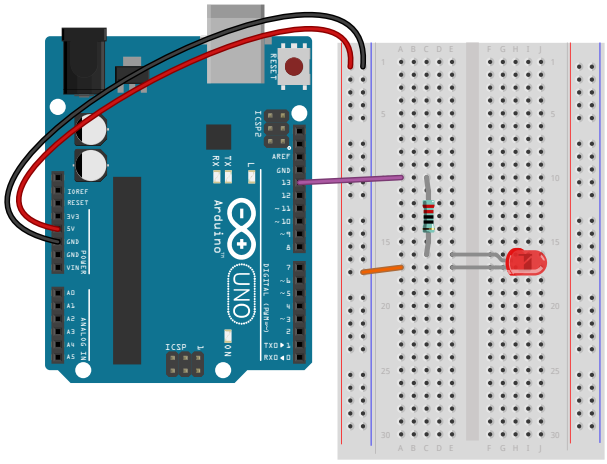
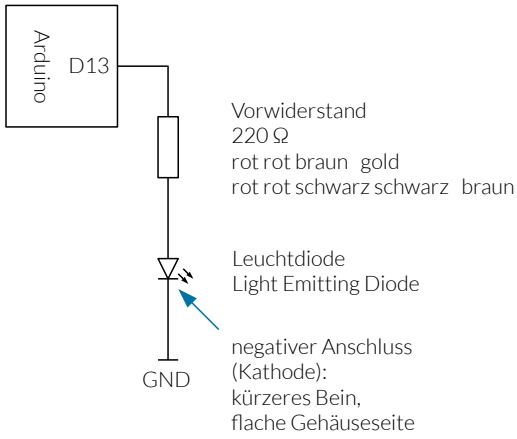
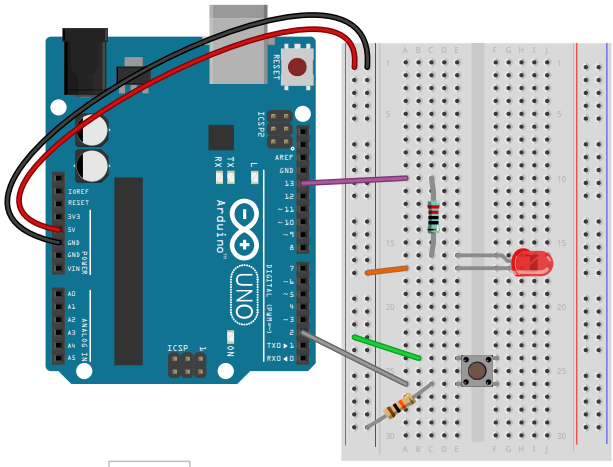
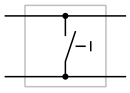
Blink mit externer LED: Digitaler Output





Digitaler Input



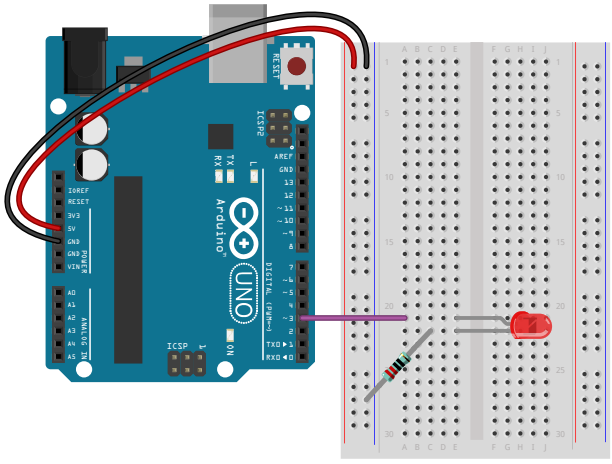


braun schwarz orange gold (10 kΩ)
braun schwarz schwarz rot braun

```
void setup() {
  pinMode(2, INPUT);
  pinMode(13, OUTPUT);
}

void loop() {
  int switchState = digitalRead(2);
  if (switchState == HIGH) {
    digitalWrite(13, HIGH);
    delay(200);
    digitalWrite(13, LOW);
    delay(200);
  }
  else {
    digitalWrite(13, LOW);
  }
}
```

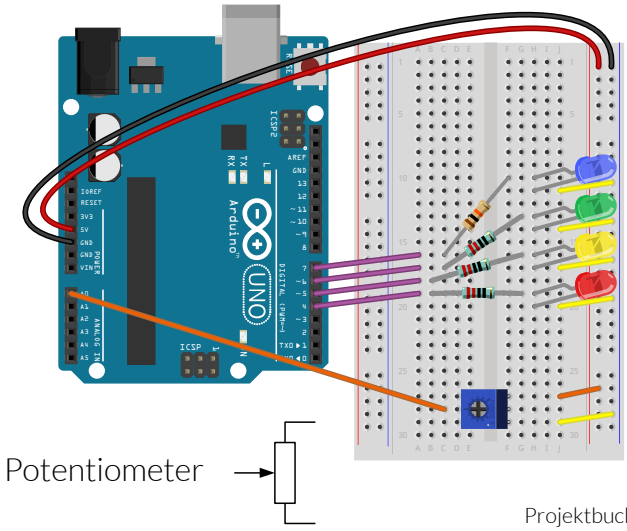
PWM-Output



```
void setup() {
  pinMode(3, OUTPUT);
}

void loop() {
  int brightness = 0;
  while (brightness < 255) {
    brightness += 51;
    analogWrite(3, brightness);
    delay(200);
  }
  while (brightness > 0) {
    brightness -= 51;
    analogWrite(3, brightness);
    delay(200);
  }
}
```

Analoger Input



Projektbuch S. 43, 65

```
void setup() {
  pinMode(A0, INPUT);
  pinMode(4, OUTPUT);
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
}

void loop() {
  int value = analogRead(A0);
  digitalWrite(4, value > 200);
  digitalWrite(5, value > 400);
  digitalWrite(6, value > 600);
  digitalWrite(7, value > 800);
}
```

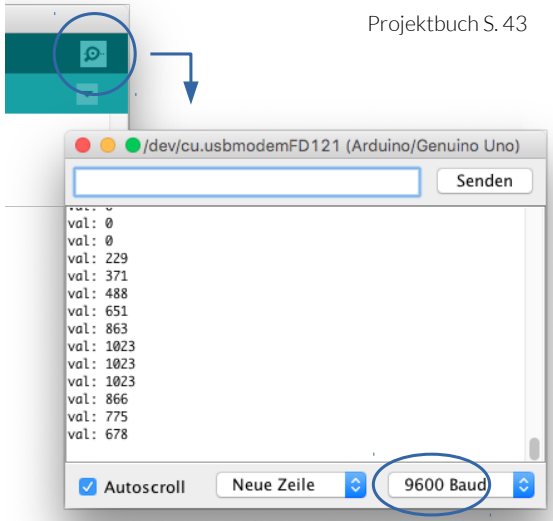
value = 0 ... 1023
0 V 5 V

FAB LAB WINTI

Serieller Monitor

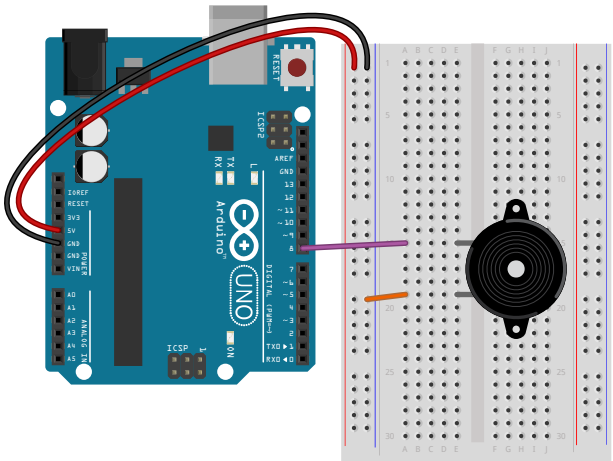
```
void setup() {
  pinMode(A0, INPUT);
  pinMode(4, OUTPUT);
  pinMode(5, OUTPUT);
  pinMode(6, OUTPUT);
  pinMode(7, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  int value = analogRead(A0);
  Serial.print("val: ");
  Serial.println(value);
  digitalWrite(4, value > 200);
  digitalWrite(5, value > 400);
  digitalWrite(6, value > 600);
  digitalWrite(7, value > 800);
  delay(200);
}
```



Projektbuch S. 43

Töne erzeugen



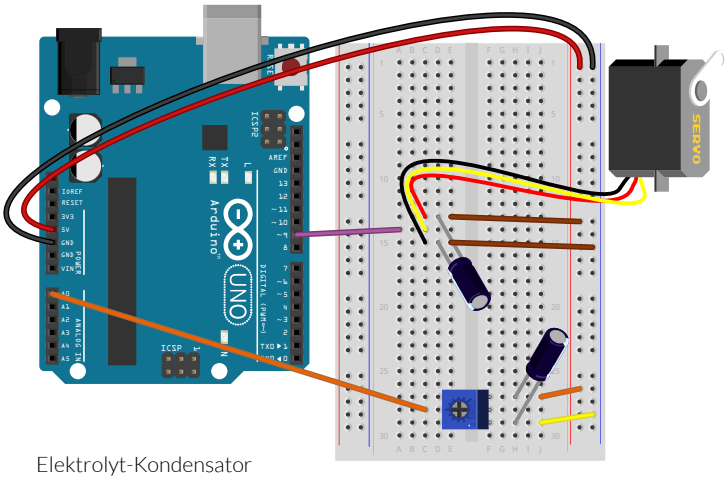
```
void setup() {
}

void loop() {
  tone(8, 440, 200);
  delay(200);
  tone(8, 550, 100);
  delay(100);
  tone(8, 587, 100);
  delay(100);
  tone(8, 660, 100);
  delay(1600);
}
```

`tone(pin, frequency, [duration])`

https://www.arduino.cc/reference/en/language/functions/advanced-io/tone/
Projektbuch S. 71, 79

Servo ansteuern (Buch Projekt 05)



Elektrolyt-Kondensator
richtig herum anschliessen!
Minus-Markierung beachten.

Projektbuch S. 64–67

Programm:

Datei ▸ Beispiele
▸ 10.StarterKit_BasicKit
▸ p05_ServoMoodIndicator

Präsentationsfolien:

https://github.com/fablabwinti/workshop-arduino-1/blob/master/ArduinoI.pdf