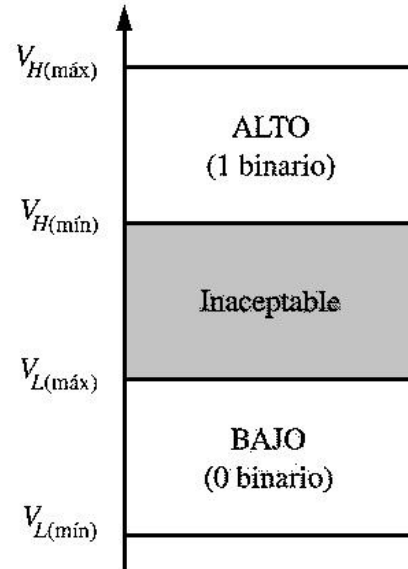


# Open Hardware

## Sesión 2



# Niveles Lógicos y bits



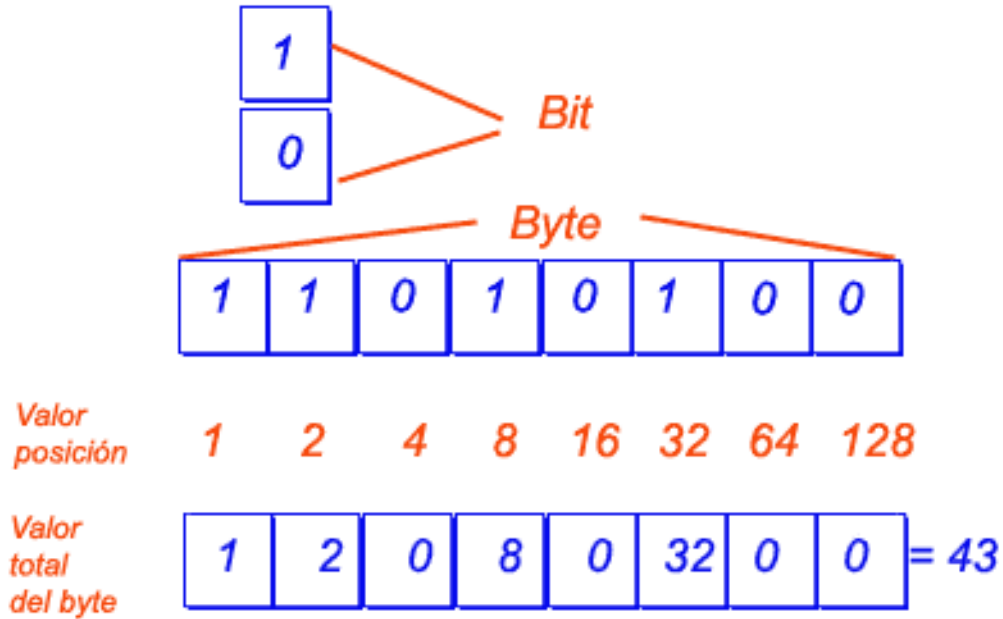
# Contar con bits (1/2)

| Decimal | Binario          | Hexadecimal |
|---------|------------------|-------------|
| 0       | 0 (1 bit)        | 0x0         |
| 1       | 1 (1 bit)        | 0x1         |
| 2       | 1 0 (2 bits)     | 0x2         |
| 3       | 1 1 (2 bits)     | 0x3         |
| 4       | 1 0 0 (3 bits)   | 0x4         |
| 5       | 1 0 1 (3 bits)   | 0x5         |
| 6       | 1 1 0 (3 bits)   | 0x6         |
| 7       | 1 1 1 (3 bits)   | 0x7         |
| 8       | 1 0 0 0 (4 bits) | 0x8         |
| 9       | 1 0 0 1 (4 bits) | 0x9         |
| 10      | 1 0 1 0 (4 bits) | 0xA         |
| 11      | 1 0 1 1 (4 bits) | 0xB         |

# Contar con bits (2/2)

| Decimal | Binario            | Hexadecimal |
|---------|--------------------|-------------|
| 12      | 1 1 0 0 (4 bits)   | 0xC         |
| 13      | 1 1 0 1 (4 bits)   | 0xD         |
| 14      | 1 1 1 0 (4 bits)   | 0xE         |
| 15      | 1 1 1 1 (4 bits)   | 0xF         |
| 16      | 1 0 0 0 0 (5 bits) | 0x10        |
| 17      | 1 0 0 0 1 (5 bits) | 0x11        |
| 18      | 1 0 0 1 0 (5 bits) | 0x12        |
| 19      | 1 0 0 1 1 (5 bits) | 0x13        |
| 20      | 1 0 1 0 0 (5 bits) | 0x14        |
| 21      | 1 0 1 0 1 (5 bits) | 0x15        |
| 22      | 1 0 1 1 0 (5 bits) | 0x16        |
| 23      | 1 0 1 1 1 (5 bits) | 0x17        |

# Qué es un bit, byte



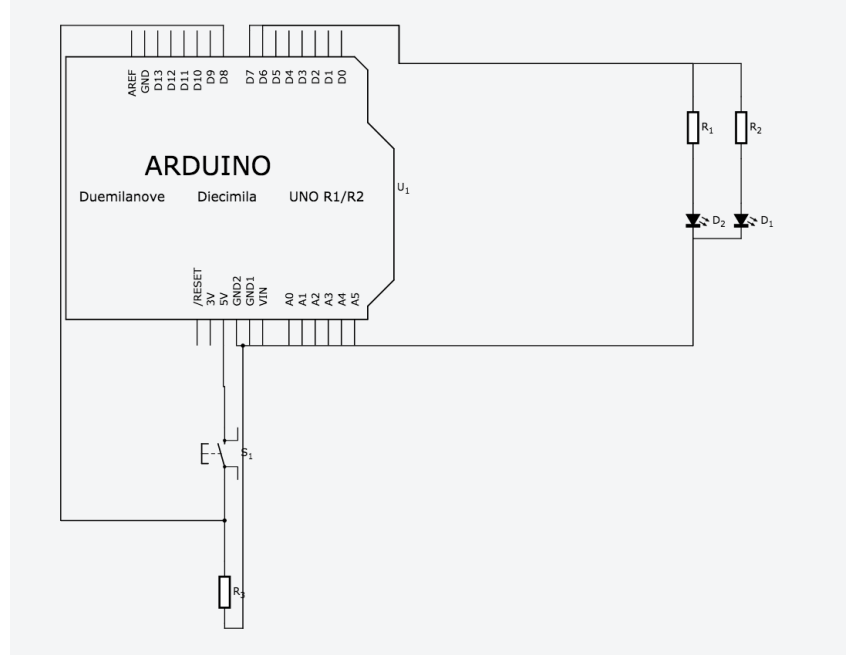
# Práctica

Contar del 0 al 3

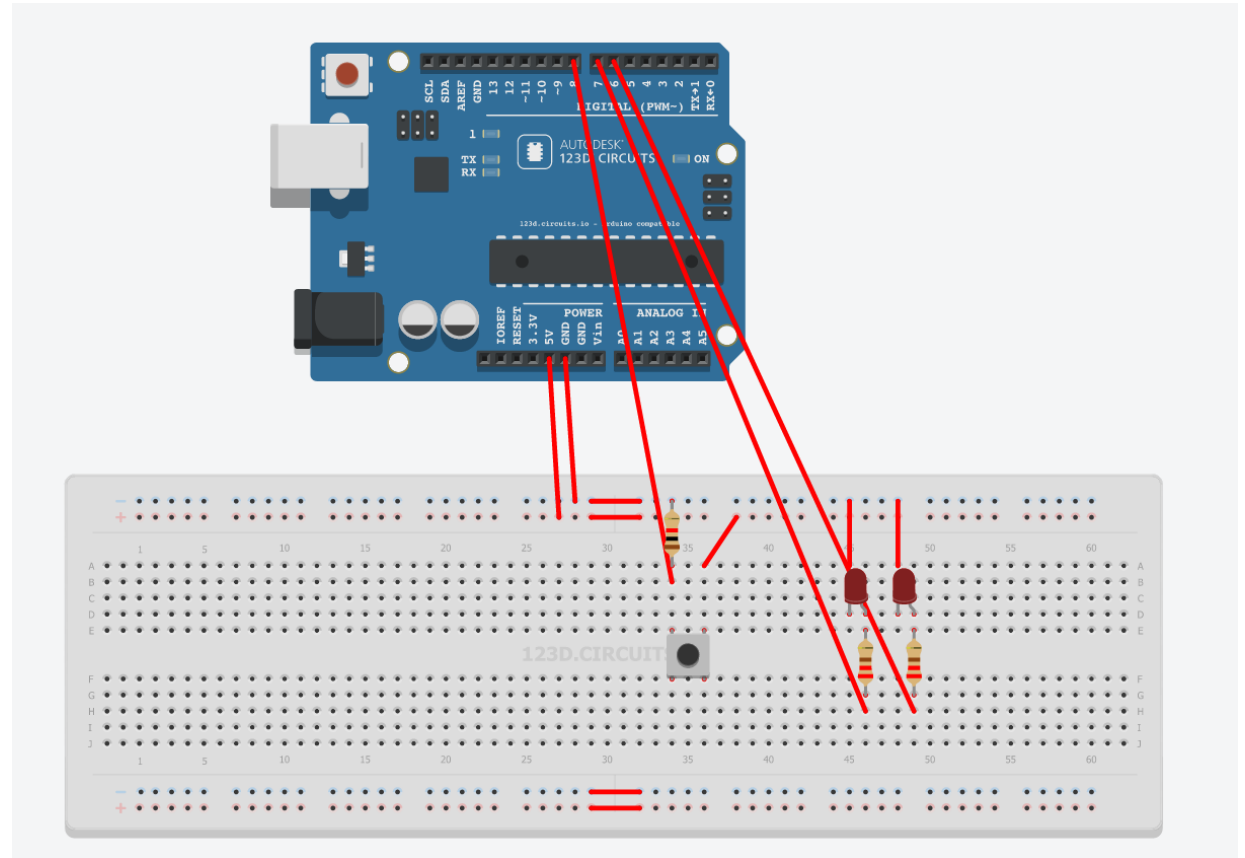
¿Cuántos bits necesito?

¿Cómo se representan los bits?

# Práctica



# Práctica





# Práctica

```
int bit0 = 7;  
int bit1 = 6;  
int pushButton = 8;  
int countValue = 0;  
int pushButtonValue;
```

```
void setup() {  
  pinMode(bit0, OUTPUT);  
  pinMode(bit1, OUTPUT);  
  pinMode(pushButton, INPUT);  
}
```

```
void loop() {  
  pushButtonValue = digitalRead(pushButton);  
  if (pushButtonValue == HIGH) {  
    delay(1000);  
    if (countValue == 3)  
      countValue = -1;  
    countValue = countValue + 1;  
    digitalWrite(bit0, countValue & 1);  
    digitalWrite(bit1, countValue & 2);  
  }  
}
```