

**ELCHK Lutheran Secondary School**

**Form Two Computer Literacy**

# Arduino Programming



Name : \_\_\_\_\_

Class : \_\_\_\_\_ (     )



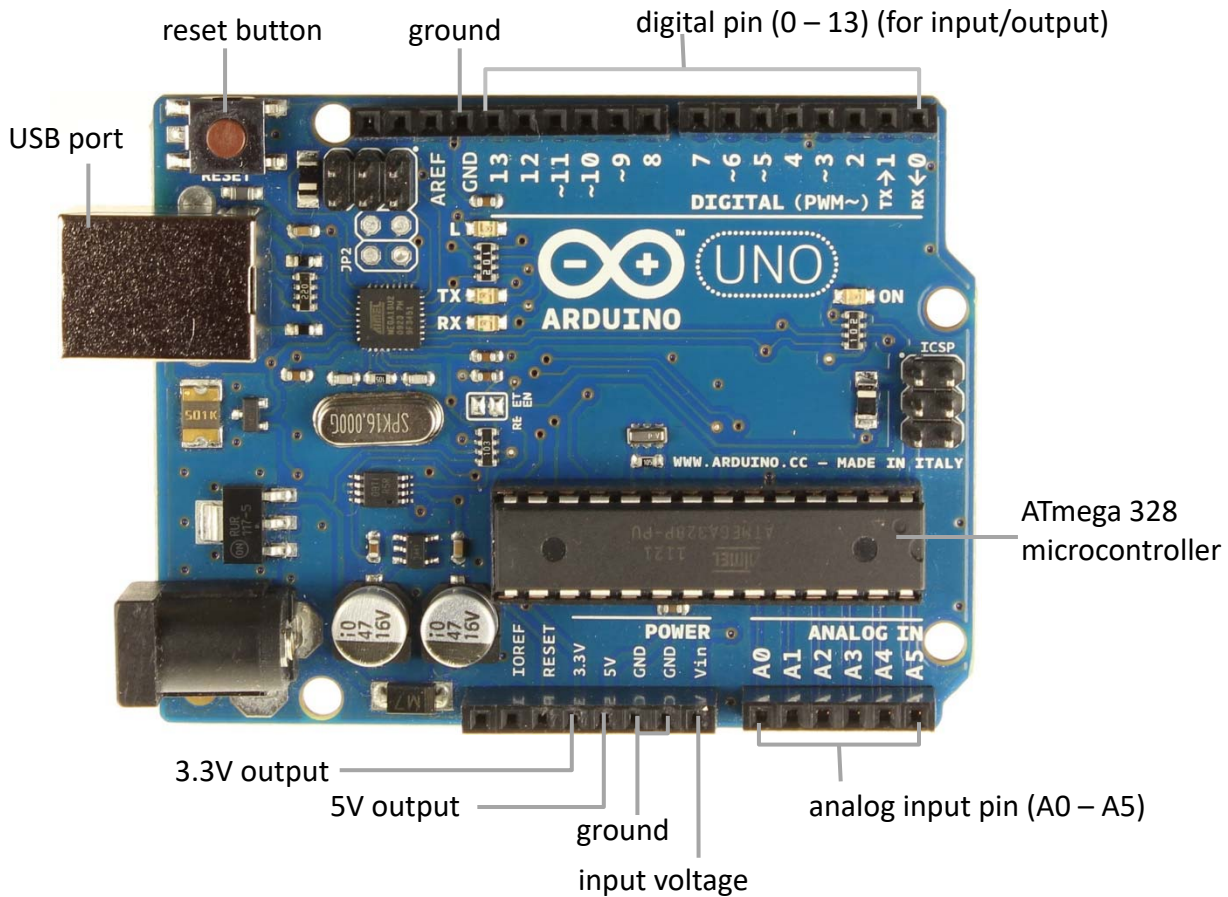
# Chapter 1

## Light up a LED

### 1.1 Introduction to Arduino

Arduino is an open-source electronics platform that you can write a program to control an device made with a Arduino board.

#### Structure of Arduino Board



Arduino board connects input/output devices with two types of pin: digital pin and agalog input pin.

#### Classwork

1. These are examples of input/output devices for digital pin. Write the names and their uses.




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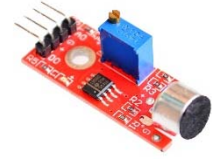


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2. These are examples of input devices for analog input pins. Write the names and their uses.



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## 1.2 Your first Arduino circuit

### Program description

In this Arduino program, you are asked to create a circuit that make a blinking LED.

Component (Write down the name of components.)



\_\_\_\_\_

\_\_\_\_\_ (1KΩ)

\_\_\_\_\_

\_\_\_\_\_ X 2

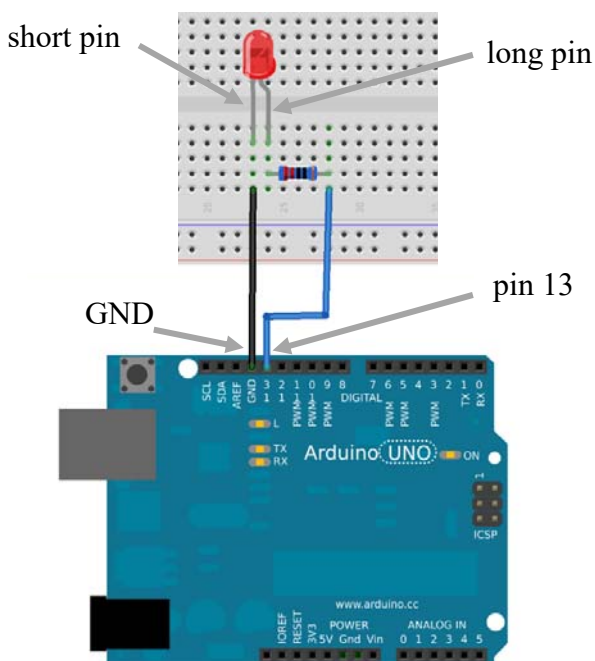
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and one USB cable

Follow the three steps to create your first Arduino circuit and program.

### 1. Connect circuit

Create a circuit as below.



### 2. Write Program

Run Arduino software and input the program below.

```
void setup() {
    pinMode(13, OUTPUT);
}
void loop() {
    digitalWrite( 13 , HIGH);
    delay( 2000 );
    digitalWrite( 13 , LOW );
    delay( 1000 );
}
```

Remark :

Arduino commands are case-sensitive. please type exactly as shown above.

Be careful: pinMode digitalWrite , HIGH ....

### 3. Upload and run program

1. Connect the Arduino with your computer with a USB cable.
2. Click “Verify” button and then “upload” button to load the program to Arduino board.

#### Question

1. What happen to the LED? \_\_\_\_\_

2. Explain the following Arduino instructions

(a) `pinMode(13, OUTPUT)`

\_\_\_\_\_

(b) `digitalWrite(13, HIGH)`

\_\_\_\_\_

(c) `delay(1000)`

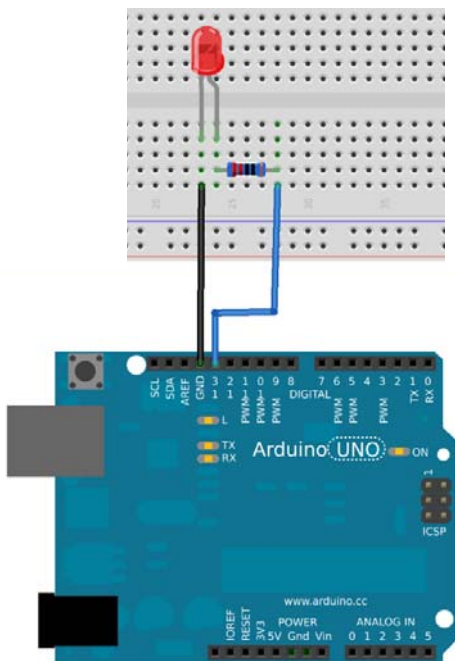
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#### Challenging Task

Modify the circuit and the program so that there are one green LED and one red LED blinking alternatively. (i.e. when green LED is on, red LED is off and vice versa.)

#### Questions

1. Complete the circuit.



2. Write your program in the space provided.

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

```
}
```

```
void loop() {  
    digitalWrite( 13 , HIGH);
```

```
    delay( _____ );
```

```
    digitalWrite( 13, LOW );
```

```
}
```