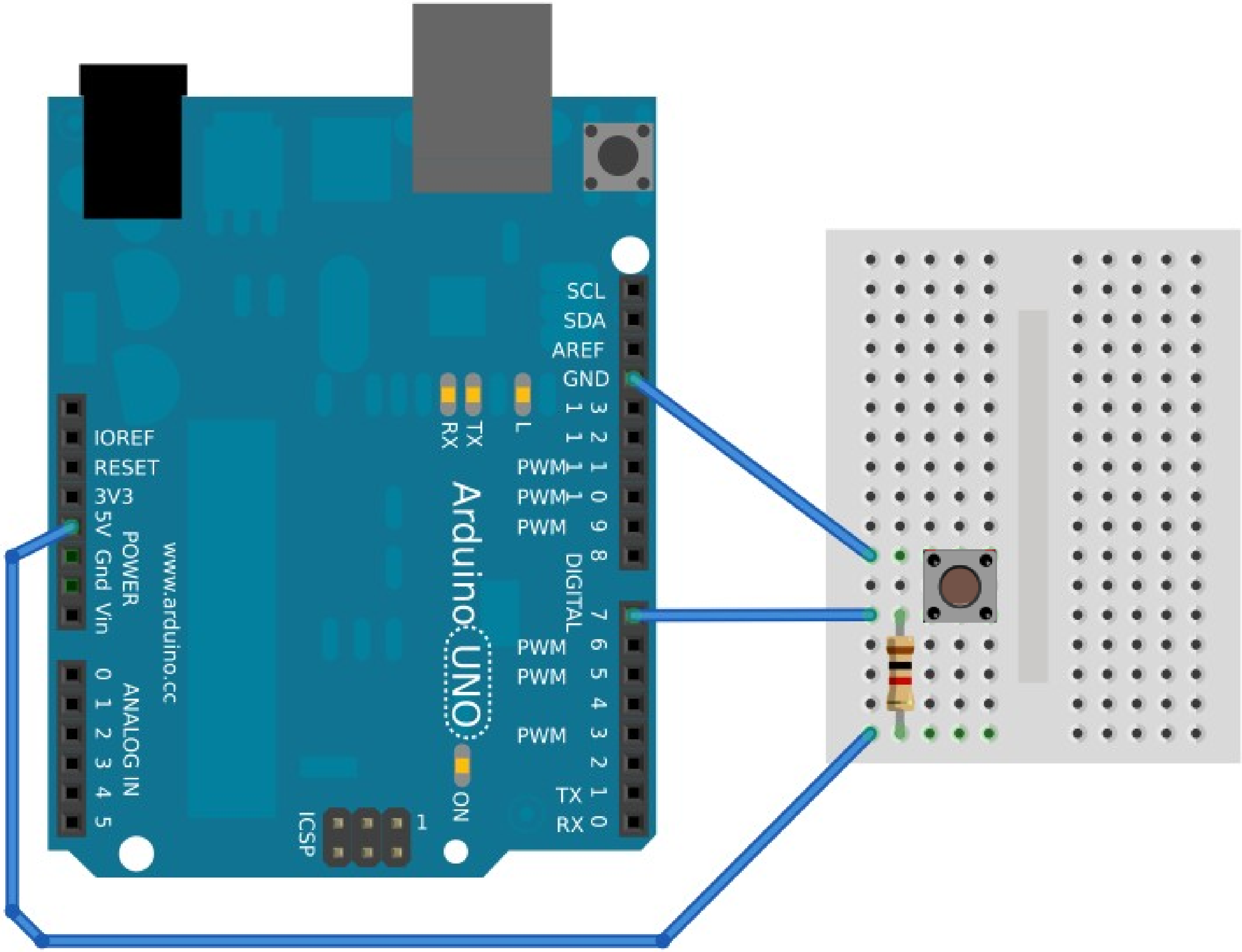
Switch

- use a breadboard for connecting it to your Arduino
- note: there is an additional “ground” pin on the digital pin side of the board, used in this schematic. There is no difference to the other two “ground” pins.

Try both programs shown below with your Arduino and learn about momentary and permanent switching, and debouncing.



Sample Code: push-on-only

```
/* Basic Digital Read
 * ------------------
 *
 * turns on and off a light emitting diode(LED) connected to digital
 * pin 13, when pressing a pushbutton attached to pin 7. It illustrates the
 * concept of Active-Low, which consists in connecting buttons using a
 * 1K to 10K pull-up resistor.
 *
 * Created 1 December 2005
 * copyleft 2005 DojoDave <http://www.0j0.org>
 * http://arduino.berlios.de
 *
 */

int ledPin = 13;                    // choose the pin for the LED
int inPin = 7;                      // choose the input pin (for a pushbutton)
int val = 0;                        // variable for reading the pin status

void setup() {
  pinMode(ledPin, OUTPUT);          // declare LED as output
  pinMode(inPin, INPUT);            // declare pushbutton as input
}

void loop(){
  val = digitalRead(inPin);         // read input value
  if (val == HIGH) {                // check if the input is HIGH (button released)
    digitalWrite(ledPin, LOW);      // turn LED OFF
  } else {
    digitalWrite(ledPin, HIGH);     // turn LED ON
  }
}
```

Source:

http://www.arduino.cc/en/Tutorial/Pushbutton

Sample Code: stay-on, stay-off

When using this type of switch for this kind of application, it needs to be debounced. Debouncing is important to understand in-depth: read up about it HERE.

```
/* switch
 *
 * Each time the input pin goes from LOW to HIGH (e.g. because of a push-button
 * press), the output pin is toggled from LOW to HIGH or HIGH to LOW.  There's
 * a minimum delay between toggles to debounce the circuit (i.e. to ignore
 * noise).
 *
 * David A. Mellis
 * 21 November 2006
 */

int inPin = 7;                      // the number of the input pin
int outPin = 13;                    // the number of the output pin

int state = HIGH;                   // the current state of the output pin
int reading;                        // the current reading from the input pin
int previous = LOW;                 // the previous reading from the input pin

                                    // the follow variables are long's because the time, measured in miliseconds,
                                    // will quickly become a bigger number than can be stored in an int.
long time = 0;                      // the last time the output pin was toggled
long debounce = 200;                // the debounce time, increase if the output flickers

void setup()
{
  pinMode(inPin, INPUT);
  pinMode(outPin, OUTPUT);
}

void loop()
{
  reading = digitalRead(inPin);

                                    // if the input just went from LOW and HIGH and we've waited long enough
                                    // to ignore any noise on the circuit, toggle the output pin and remember
                                    // the time
  if (reading == HIGH && previous == LOW && millis() - time > debounce) {
    if (state == HIGH)
      state = LOW;
    else
      state = HIGH;

    time = millis();
  }

  digitalWrite(outPin, state);

  previous = reading;
}
```

Source:
http://www.arduino.cc/en/Tutorial/Switch