

Arduino Quick Reference

CONSTANTS: predefined values

Pin Mode

INPUT for reading from a pin
OUTPUT for writing to a pin

Pin Status

HIGH pin is "on" or "closed"
LOW pin is "off" or "open"

Boolean

true yes
false no

VARIABLE: containers to hold values of data elements: each ends with semi-colon - ";"

```
int counter; // declares a variable  
int counter = 0; // declares a variable and sets its initial value
```

STATEMENT: single command that gets executed: each ends with semi-colon - ";"

```
digitalWrite(13, HIGH); // turns pin 13 "on"  
counter = 10; // sets a variable to the value 10  
counter = counter + 1; // adds 1 to a variable (increments it by 1)
```

BLOCK: a group of commands that get executed: surrounded by braces - "{" and "}"

```
{  
digitalWrite(10, LOW); // turns pin 10 "off"  
digitalWrite(11, HIGH); // turns pin 11 "on"  
}
```

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OPERATORS: _____ for expressions

Assignment

= replaces left-side with evaluation of right side (e.g. `counter = 0;`)

Arithmetic

+ addition
- subtraction
* multiplication
/ division
% modulo (remainder after division)

Comparison

== equal to
!= not equal to
< less than
> greater than
<= less than or equal to
>= greater than or equal to

Logical

&& and (boolean both)
|| or (boolean either)
! not (boolean opposite)

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CONDITIONAL: if / then / else statements

```
if (counter == 1) {                // simple if
    // do something
}

if (counter == 1) {                // simple if / else
    // do something
} else {
    // do something different
}

if (counter == 1) {                // compound if / else
    // do something
} else if (counter == 2){
    // do something different
} else if (counter == 3) {
    // do another thing
} else {
    // do this if none of the above is true
}
```

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FOR LOOP: repeats a group of statements a number of times

```
for (int i = 1; i <= 10; i++) { // repeats the block that follows 10 times
  digitalWrite(10, HIGH);      //
  delay(500);                  // these 4 statements in here are repeated
  digitalWrite(10, LOW);      // because they are inside the block braces
  delay(500);                  //
}
```

WHILE LOOP: repeats a group of statements conditionally

```
counter = 0;
while (counter < 10) {
  counter = counter + 1;      // these 2 statements in here are repeated
  delay(500);                 // as long as counter is less than 10
}
```