

# Lesson 6: Colour (RGB)

## Lesson aim:

To improve our ability to use colour. Now we're comfortable adjusting one colour (white) to make 255 colours (black, loads of different greys, and white), we will use three (red, green and blue) to make over 16 million different colours!

## Why:

Nearly every program (game/site/app/etc) uses colour, so we need to learn how to do this as well.

## Refresh questions:

We have covered the `fill()` function with one parameter (one number in the brackets). What does it do?

Ans: \_\_\_\_\_

What are the biggest and smallest numbers that you can use in the `fill()` function?

Ans: \_\_\_\_\_

Use processing to discover what colours the following `fill()` commands will be.

`fill(0);` \_\_\_\_\_

`fill(255);` \_\_\_\_\_

`fill(175);` \_\_\_\_\_

Use **two words** to describe the colour the following `fill()` commands will create:

`fill(200);` \_\_\_\_\_

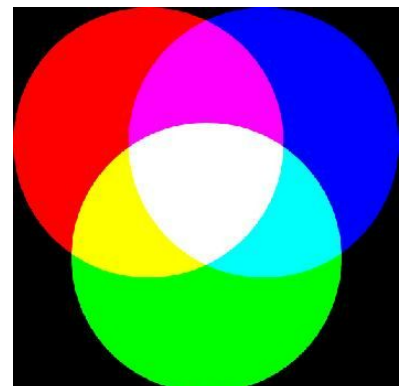
`fill(50);` \_\_\_\_\_

## Fill using colour Red, Green and Blue (RGB)

We can also use `fill()` with three numbers. Each number tells processing how much **red** (the first number), **green** (the second number) and **blue** (the third number) to add.

Using a combination of red, green and blue we can get every colour. See right for an example.

**Note:** as you can see from the picture, if you give the maximum for each number (255) you get white. If you give the minimum on each (0) you get black.



The amounts for red, green and blue go from **nothing (0)** to as **much as possible (255)**, the same way that white did when we were doing greyscale colour.

### Example

```
size(400,300);
fill(0,255,0); //← no red, full green, no blue
rect(50,50,300,200);
```

What colour is the rectangle in the above example? \_\_\_\_\_

Why? \_\_\_\_\_

### Tasks:

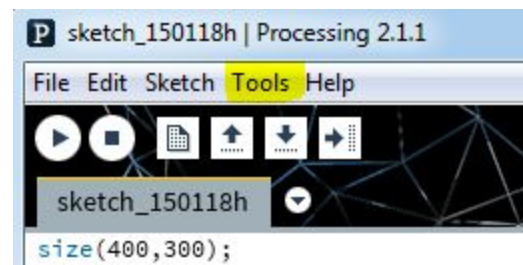
1. Save the example in a new program with a name starting with **“Lesson6”**.
2. Change the example code to make the rectangle:
  - a. red
  - b. blue
  - c. black
  - d. white
3. Yellow is a combination of red and green. Make the rectangle yellow.
4. Pink is red and blue. Try to make this colour.
5. Cyan, is 50% green and 50% blue. See what it looks like.

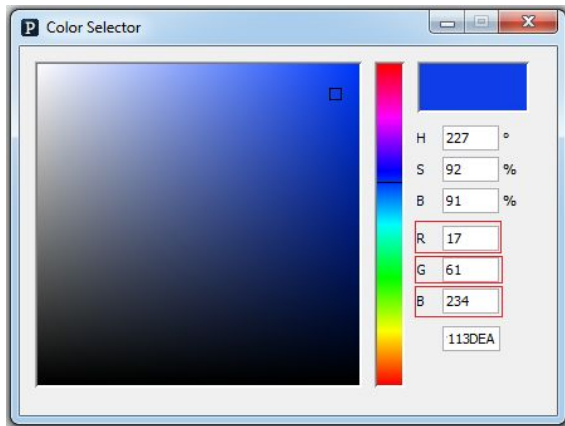
### The colour picker:

Processing helps us out here, it gives a way to get the Red, Green and Blue values for all colours.

Its called the colour picker, here's how to get to it:

- Go to the toolbar (at the top of the processing app).
- Select “Tools” (see right).
- Then select “Color Selector”.
- This is the colour selector, click on the colour you want and copy the R,G and B values (shown in a box below) and copy them into the `fill()` function.



**Task:**

Using all of you've learned so far, make a new project, starting the file name with "**Lesson6**" and **draw a robot**.

Let your imagination run wild!

Make sure you use at least one:

- ellipse
- rect
- greyscale fill command (one parameter)
- colour fill command (three parameters)

