Introduction to Writing Processing Programs

With Processing, I have bad news, and I have good news.

The bad news is that you have to write a program. This will involve some learning.

The good news is that you get to write a program. You will end up being ever-so-more knowledgeable than you started out, and, once you get the hang of this, there is nothing you won’t be able to do with it!

Coordinate Systems for Processing Programs

(X=0, Y=0) (X=width - 1, Y=0)

(X=100, Y=200) ΔX=150

ΔY=50

(X=0, Y=height - 1) (X=width - 1, Y=height - 1)

Colors for Processing Programs

Colors are formed with combinations of red, green, and blue.

The smallest number you can use is 0

The largest number you can use is 255

Black 0 0 0

White 255 255 255

Red 255 0 0

Orange 255 128 0

Yellow 255 255 0

Green 0 255 0

Cyan 0 255 255

Blue 0 0 255

Magenta 255 0 255

Use the Color Selector from the Tools menu to pick your own color numbers.

The Tools Menu

Interactively select and edit a color

Cyan = Green + Blue

Magenta = Red + Blue

Yellow = Red + Green

White = Red + Green + Blue

This is referred to as “Additive Color”
The Color Selector from the Tools Menu

- The color in Hue-Saturation-Brightness measurements.
- The color in Red-Green-Blue measurements.
- The color in RGB hexadecimal (base 16). (You care about this if you are doing web development.)

```
colorMode(RGB);
fill(152, 101, 101);
colorMode(HSB);
fill(0, 33, 59);
```

Hue-Saturation-Brightness (HSB) -- Another way to specify additive color

- Hue
- Saturation
- Brightness

```
0 ≤ h, s, b ≤ 255
0 ≤ r, g, b ≤ 255
```

Writing Processing Programs

```java
void setup()
{
  size(800, 600);
  colorMode(RGB);
  background(200, 200, 255);
}

void draw()
{
  stroke(0, 0, 0);
  fill(255, 50, 50);
  rect(100, 200, 150, 50);
}
```

You must add code to the `setup()` function. Processing calls this once when your program starts.
You must add code to the `draw()` function. Processing calls this every time it wants to re-draw the scene.

Typing in Processing Programs

Running Your Processing Programs

Click here to run your program.

Enjoying the Output of Your Processing Programs
Other Functions to use when Writing Processing Programs

- background(g, b, r): Set the background color to g, b, r.
- color(r, g, b): Set the current color to r, g, b in RGB space.
- colorMode(mode): Set the color specification mode to RGB or CMYK.
- draw(): The function that gets called once and over to draw your scene.
- fill(c): Fill using the color c.
- height(): Return the height of your sketch.
- line(x1, y1, x2, y2): Draw a line.
- text(x, y): Draw text at position x, y.
- textMode(mode): Set the automatic scaling of text.
- width(w): Return the width of your sketch.
- drawImage(img, x, y): Draw an image at x, y.
- keyPressed(): The function that gets called when a key is pressed.
- mousePressed(): The function that gets called when the mouse is pressed.

What if You Mis-type Something?

Processing will underline your mistake in red.

What if You Try to Run it Anyway?

Processing gets a little nastier.