

Programming In Processing

Class #3: 2/20/08

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Last Week:

```
void setup() {
  size(width, height);
  color colorName = color(redValue, greenValue, blueValue);
  background(colorName);
}
void draw() {
  color colorName2 = color(redValue2, greenValue2, blueValue2);
  fill(colorName2);
  stroke(redValue3, greenValue3, blueValue3);
  strokeWeight(lineThickness);

  rect(xStart, yStart, width, height);
  ellipse(xStart, yStart, width, height);
  triangle(x1, y1, x2, y2, x3, y3);

  beginShape();
  vertex(x1, y1);
  vertex(x2, y2);
  vertex(x3, y3); // put as many vertices as you want here
  endShape(); // try replacing this with endShape(CLOSE)
}
```

How do you hold pieces of information?

You can use 'variables' to hold pieces of information. Variables should be named the same way as our colors: starting with a letter and having no spaces.

Some types of information you can have are:

int, which is an 'integer', like -3, -2, 1, 0, 1, 2, 3...

float, which is a number with a decimal point, like 4.3, 2.3, 4859.0, 3333.33

We create variables the same way we created colors. They don't have to go inside a method.

```
int boo = 5;
int foo = 8;
int bar = 20;

float fee = 403.42;
float bee = 322.22;
```

How do you animate using variables?

We can use our variables for ANIMATION. This works because each variable points to a piece of information. We can change this piece of information (for instance, by saying "boo++" – meaning, boo is whatever it was before, plus one.)

Here, the rectangle will move toward the bottom right each time draw() runs.

```
int boo = 8;

void draw(){...
    rect(boo, boo, 10, 10);    // xStart, yStart, width, height
    boo++;                    // means boo = boo+1
...}
```

How do you change the speed of your program?

The frameRate command tells you how many times the draw() method will run per second. You can give a bigger number to make your program run faster or a smaller one to make it run slower.

frameRate should be called in the setup() method.

```
void setup(){...
    frameRate(framesPerSecond);
...}
```

How do you make your colors semi-opaque?

An opaque thing cannot be seen through. For instance, a thick piece of paper would be opaque. However, a piece of tissue paper would be semi-transparent, meaning that it would be less opaque than the thick piece of paper and that some light would make it through.

Sometimes we want to make our shapes semi-opaque, so that we can see what's under them. All shapes have an automatic opacity of 255 (meaning totally opaque.) To change the opacity, we give a 4th argument to color when we are making the fill or stroke color for a shape.

```
void draw(){

    fill(255, 0, 0); // this will be totally opaque red
    rect(50, 50, 20, 20);

    fill(255, 0, 0, 255); // this will be opaque red (same as before)
    rect(50, 100, 20, 20);

    fill(255, 0, 0, 50); // this will be a semi-opaque red
    rect(50, 150, 20, 20);

    fill(255, 0, 0, 0); // this will be totally transparent
    rect(50, 200, 20, 20);

}
```