Programming Basics for Processing - Functions

What is a function?

Functions package up a set of code statements. This allows you to separate discrete sections of code for re-use or readability.

Processing has some built in functions, or you can define your own. Some useful functions built into Processing are:

```
rect(x,y,w,h)
rect(30, 40, 150, 100);
```

Draws a rectangle with the top left corner at (x,y) with a width of w and height of h.

```
ellipse(x,y,w,h)
ellipse(30, 40, 150, 100);
```

Draws an ellipse centred at (x,y) with a width of w and height of h.

```
arc(x,y,w,h,start,end,mode)
arc(50, 60, 100, 200, 0, HALF_PI, OPEN);
```

Draws an arc centred at (x,y) with a width of w and height of h. Arc angle begins at start and ends at end. Angles measured in radians. Valid modes are: PIE, OPEN and CHORD.

```
line(x1,y1,x2,y2)
line(10, 10, 30, 30);
```

Draws a line from (x1,y1) to (x2,y2).

```
fill(grey)
fill(r,g,b)
fill(r,g,b,a)
fill(128); // grey
fill(0, 160, 174, 128) // turqoise, 50% opacity
```

Sets the fill colour. Colour mode depends on number of parameters. One parameter specifies greyscale between 0 (black) - 255 (white). Three parameters specifies red, green and blue between 0 - 255. Four parameters specify red, green, blue and alpha between 0 - 255.

```
noFill();
```

Removes fill colour.

```
stroke(grey)
stroke(r,g,b)
stroke(r,g,b,a)
stroke(255); // white
stroke(204, 20, 20, 128) // red, 50% opacity
```

Sets the stroke colour. Parameters are the same as those for fill().

```
noStroke();
```

Removes stroke colour.

```
strokeWeight(width)
stroke(5);
```

Sets the width of the stroke used on lines, points and the borders around shapes.

```
background(grey)
background(r,g,b)
background(r,g,b,a)
background(0); // black
background(255, 0, 255) // magenta
```

Sets the background colour. Uses same parameters as fill(). When used in the draw() function, background() is used to clear the display window at the beginning of each frame.

```
println(msg)
println(“Hello World!”);
```

Outputs the value of msg to the console, followed by a line break. Generally used for debugging purposes.

```
random(n)
random(365);
```

Returns a floating point number (decimal) between 0 and n.

```
size(w,h)
size(600, 400);
```

Sets the size of the display window. After setting the size of the display window, the dimensions can be accessed through the system variables: width and height.

```
text(string,x,y)
text(“Hello World!”, 10, 10);
```

Writes the string as text, displayed at (x,y).

```
textSize(size)
textSize(32);
```

Sets the size of text that is used with the text() function. Text size is measured in pixels.