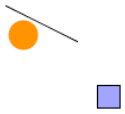
Processing	Variables!	RHSCompSci!

Lab Goal : To get some practice with variables.

Lab Description : **Part 1**

Using variables, draw the diagram you see here. The sketch window is 150 by 150 with a white background. Save the sketch with the name variable1.

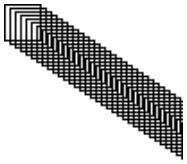
- A circle of diameter 25, drawn at coordinates (50, 70). You may make this circle any color you wish. It should not have a stroke color. The center point and diameter of the circle must be variables. (You will use three variables). Do *not* use width and height to calculate the value of these variables.
- A line starting at (35, 45) that goes to (95, 75). You must use variables for the starting point of the line. Do *not* use width and height to calculate the value of these variables. Use addition to get the ending point. You must use different variables to draw the line than you used for the circle.
- A rectangle whose upper left horizontal coordinate is $^{3}/_{4}$ the width of the sketch window and whose upper left vertical coordinate is $^{3}/_{4}$ the height of the window. The width is $^{1}/_{8}$ of the width of the window, and the height is $^{1}/_{8}$ of the height of the window. Use the built-in width and height variables. Do *not* pre-calculate the values for the coordinates! If I decide later to change the window size to 200 by 200, your program should continue to work without having to rewrite any other part.



The circle and line must each use their own set of variables. Thus, the variables for the starting point of the line must be separate from the variables used for the center of the circle.
You *must* use the width andheight variables only when drawing the square.

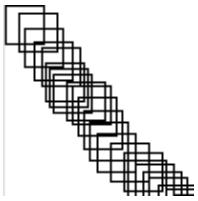
Part 2

In a sketch window that is 100 by 100 pixels with a white background, draw a square 20 pixels on a side whose initial location is (0,0). Use variables to store the location of the upper left corner of the square. In your setup() function, use frameRate(5); to set the frame rate to 5 frames per second so you can see the result more clearly.



In your draw() function, add 3 to the square's *x* coordinate and 2 to its *y* coordinate. Do not fill the square. You may use any color you like for its stroke color.
Save the sketch with the name variable2.

Part 3



The "staggering square." This is the same as part 2, except that you add a random number between 2 and 8 to each of the *x* and *y* coordinates of the square so that it staggers around instead of walking normally.
Save the sketch with the name variable3.

Part 4

Set up your sketch window to be 200 by 200, with a white background, and a frameRate(15); If the frame rate is too fast, the result is very annoying. Set noStroke() in your setup function.
In the draw() function, randomly assign a number between 10 and 50 to a variable named diameter. Draw a circle with that diameter, centered at the current mouse position. The circle's red, green, and blue values must be randomly assigned and must have a transparency value of 192. You do not need to use variables for the random color, but you may do so if you wish.
Erase the sketch in the setup() function. Do not erase the sketch unless the user clicks the mouse button. Use the mousePressed() function to do this. Save the sketch with the name variable4.

When You Finish

Create a new folder called variable and put all four sketch folders into that new folder. Zip up the "big folder" into a zip file named variable.zip and upload that to Moodle.