Arrays & For Loops

A useful way of entering values into our *arrays* is by using a for loop. This means instead of having to code the values for the *array* multiple times, we can just use a *for loop* to input the values for us. This is very helpful when we're using a very large *array* that has a lot of very simple information in it.

Here's an example of a *for loop* being used to input values into an *array*. The *for loop* also allows us to prints the values of the *array*.

```
int[] x = new int [20]; // makes the array
for (int i = 0; i < x.length; i++) {
  x[i] = i;              // sets the value of the variable
  println(x[i]); // prints the varaible in the console
}
```

NOTE: The x.length refers to the length of the array that you are using in the loop.

Challenge:

1. Using a *for loop*, make an *array* of ints that has the same value, aka 1. The length of the *array* should be 20.

2. Adapt that previous *for loop*, so that the value of the variable equals the position of the variable in the *array*. For example, the variable x[4] should have the value of 4.

3. Use text() to print out the elements of the *array* on the size, going from left to right. You should use a *for loop* to do this and it should look something like this.

```
0  1  2  3  4  5  6  7  8  9  10 11 12 13 14 15 16 17 18 19
```

For the Early Finisher:

Task: Try to make the Fibonacci sequence to the 20th place in the *array*.   If you

don't know what the Fibonacci sequence is, read the paragraph below.

1. Make a new *array* that has the size of 20.

2. Set the value of your first two elements of the *array* to one. This means that
   we can start the sequence. Print these values at the top of screen as shown.

3. Inside a *for loop*, add the previous two places in your array to set the next
   variable in the array. For example, add x[0] and x[1] to get x[2] .

4. In your void draw, print the value of the elements onto the screen using the
   text() function.Try to get them to go in descending order as shown. You will
   need to use a for loop in order to get them to print.

```
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584
4181
6765
```

What is the Fibonacci Sequence:

The Fibonaccis sequences is a series of numbers. Each number is found by adding the two

previous numbers in the sequence together. For example, the first two numbers of Fibonacci are

1, so the third number is 1 + 1 = 2, the fourth number is 1 + 2 = 3, and so on.   This sequences of

numbers is found in lots of things, from the curve of a sea shell to the shape of galaxies!