while loops in ArtLab

```java
1. int counter;
2. g2.setPaint( green );
3. width = 100;
4. height = 100;
5. counter = 0;
6. while (counter < 10)
7. {
8.    newShape();
9.    x = 200;
10.   y = 20 + counter * 30;
11.   g2.drawOval( x, y, width, height );
12.   counter = counter + 1;
13. }
```

exercises

what would happen if:

- line 6 were changed to: `while (counter < 8)`
- line 5 were changed to: `counter = 5;`

ifs and whiles combined

Here is what happens if line 11 is replaced with:

```java
11a. if (counter%2==0)
11b. { g2.setPaint(cyan); }
11c. else
11d. { g2.setPaint(magenta); }
11e. g2.drawOval( x, y, width, height );
```

more exercises

how might you:

- arrange the circles in a horizontal line?
- arrange the circles along a diagonal line?
- arrange the circles to be nested in each other?
sample code (top right picture)

counter = 0;
while (counter < 30)
{
    newShape();
    x = 300 – counter * 5 ;
    y = 280 – counter * 5;
    width = counter * 3;
    height = counter * 10;
    g2.drawOval(x, y, width, height);
    counter = counter + 1;
}

sample code (top right picture)

counter = -100;
while (counter < 100)
{
    newShape();
    x = 150 + counter;
    y = (int) Math.sqrt(10000 - (x-150)*(x-150));
    width = 100;
    height = 100;
    if ( (counter % 2) == 0 ) { g2.setPaint (yellow); }
    else { g2.setPaint (black); }
    g2.drawRect(x, 120 + y, width, height);
    g2.drawRect(x, 120 - y, width, height);
    counter = counter + 3;
}

resources

- cs015 web page at Brown University
  - click on "lectures" to see course slides and draft of book by Kate Sanders and Andries van Dam

- java.sun.com
  - java compilers (free) and tutorials
  - 2D graphics tutorial at [http://java.sun.com/docs/books/tutorial/2d/](http://java.sun.com/docs/books/tutorial/2d/)
more resources

- note from class at Dartmouth on art and math:
  http://www.dartmouth.edu/~matc/math5.pattern/syllabus.html

- simple lessons on geometry in Islamic art:
  http://www.askasia.org/frclasm/lessplan/1000030.htm

project idea

Using tools of the java ArtLab, figure out how to generate traditional geometric designs; explain your goals and approach.

resources

- programming environment designed by the MIT media lab for artists: http://processing.org/

- article about René Jodoin:
  http://www.awn.com/mag/issue5.07/5.07pages/robinsonjodoin.php3