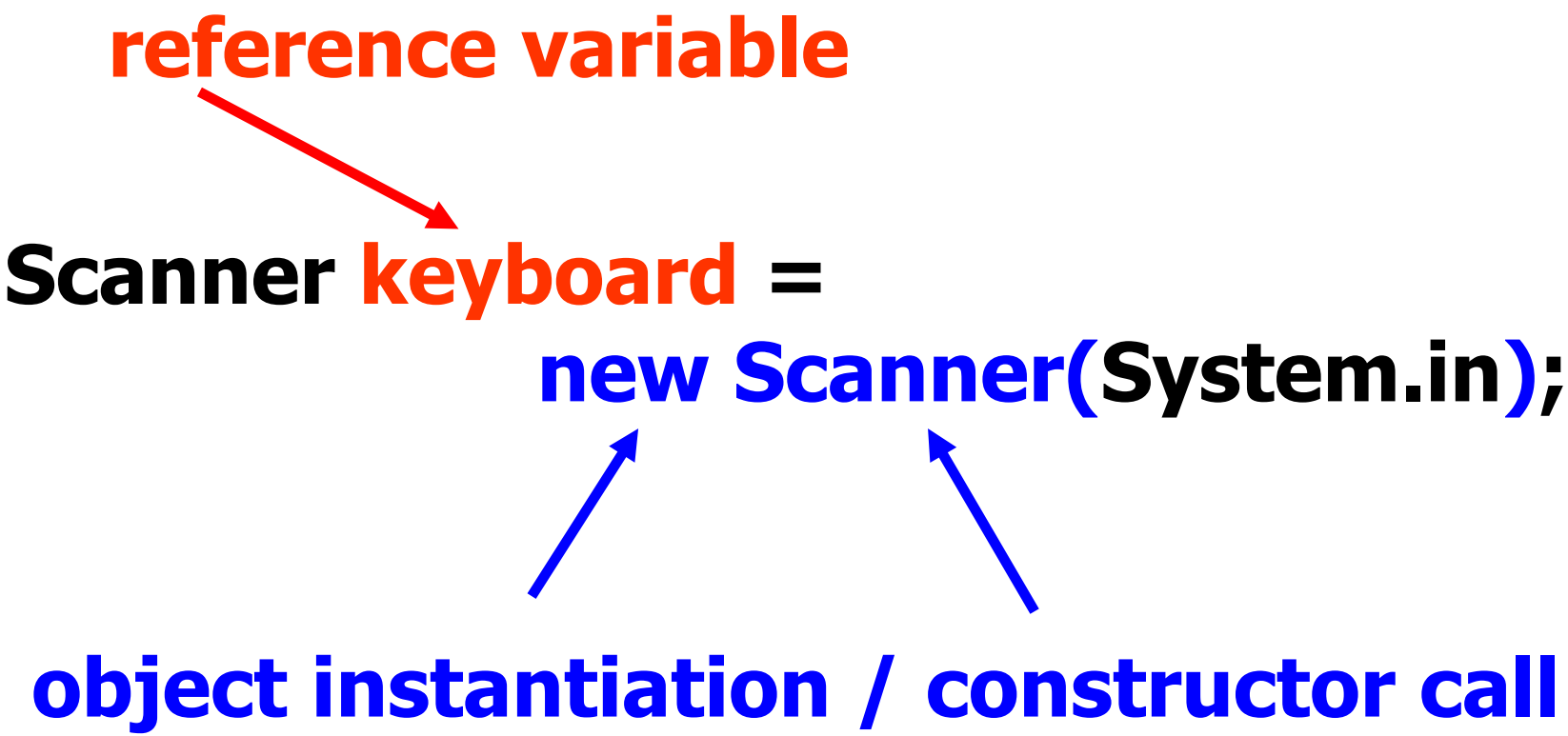
Graphics

Constructors

Constructors always have the same name as the class.

```
GraphOne test = new GraphOne();

Monster rob = new Monster();
```

Constructors



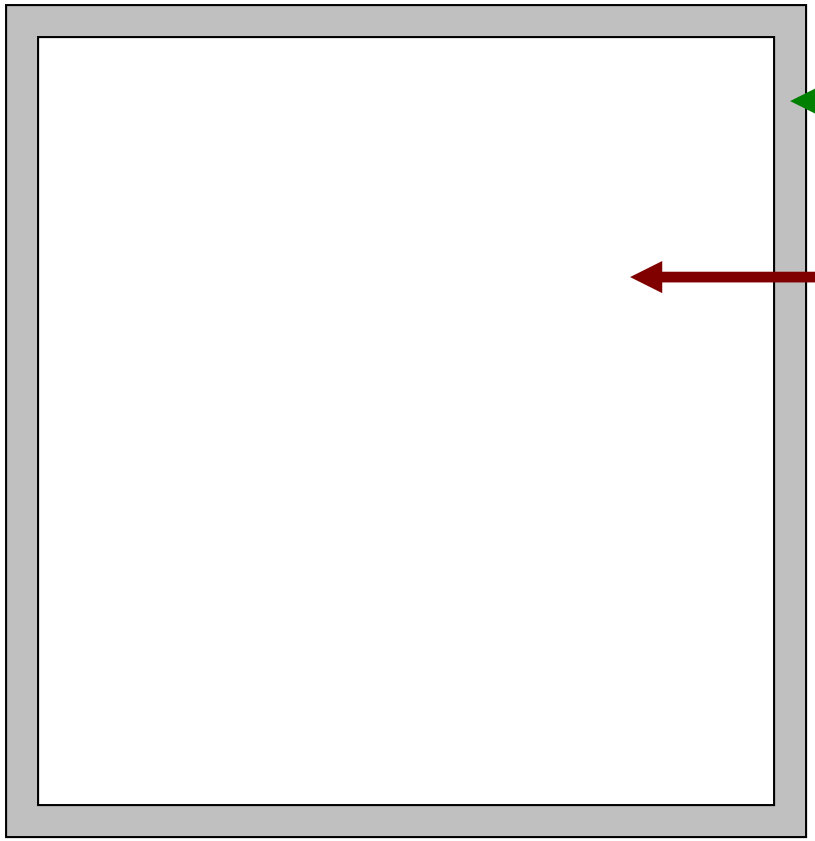
Constructors

```
public class GraphicsRunner extends JFrame
{
  private static final int WIDTH = 640;
  private static final int HEIGHT = 480;

  public GraphicsRunner()
  {
    setSize(WIDTH,HEIGHT);
    getContentPane().add(  new Circles()  );
    setVisible(true);
  }

  public static void main( String args[] )
  {
    GraphicsRunner run = new GraphicsRunner();
  }
}
```

the constructor

constructor call

Frame



Frame / JFrame

Canvas / JPanel

The Frame is used to hold up / display a Canvas or Panel.

paint()

```
public class Circles extends Canvas
{

  //constructors

  public void paint( Graphics window )
  {
    window.setColor(Color.BLACK);
    window.drawString("Circles", 50, 50);

    window.setColor(Color.BLUE);
    window.drawOval(500,300,40,40);
  }

  //other methods

}
```

paint() is called automatically when you instantiate the class containing the paint method.

When an event is triggered that requires a redraw, paint is called again.

To call paint() without a Graphics parameter, you can use the repaint() method.

Open graphicsrunner.java

circles.java

Parameters and Graphics methods

Graphics

frequently used methods

Name	Use
setColor(x)	sets the current drawing color to x
drawString(s,x,y)	draws String s at spot x,y
drawOval(x,y,w,h)	draws an unfilled oval at spot x,y that is w wide and h tall
fillOval(x,y,w,h)	draws a filled oval at spot x,y that is w wide and h tall

```
import java.awt.Graphics;
import java.awt.Color;
import javax.swing.JFrame;
```

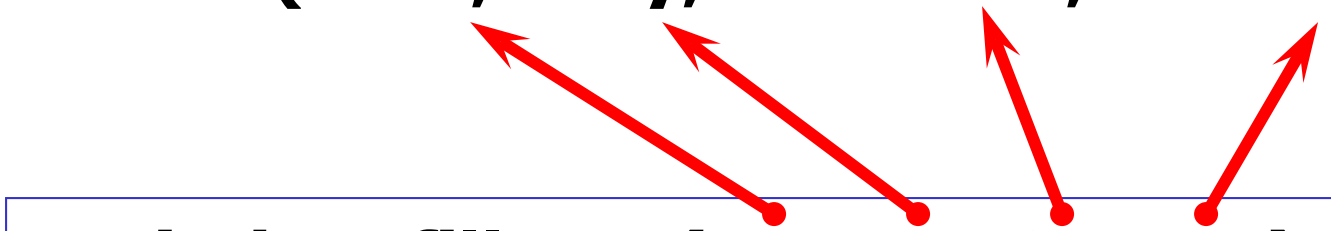
passing parameters

A parameter/argument is a channel used to pass information to a method. setColor() is a method of the Graphics class the receives a Color.

void setColor(Color theColor)

passing parameters

void fillRect (int x, int y, int width, int height)

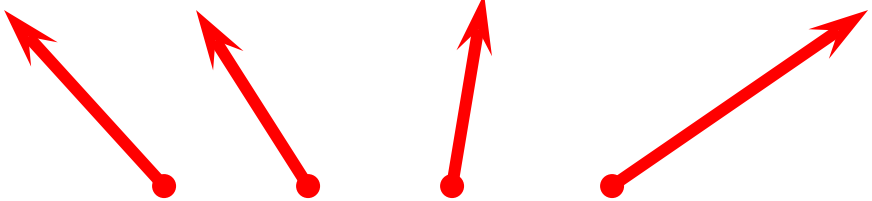


window.fillRect(10, 50, 30, 70);

method call with parameters

passing parameters

```
void fillRect(int x, int y, int width, int height)
```



```
window.fillRect( 10, 50, 30, 70 );
```

The call to fillRect would draw a rectangle at position 10,50 with a width of 30 and a height of 70.

Graphics

frequently used methods

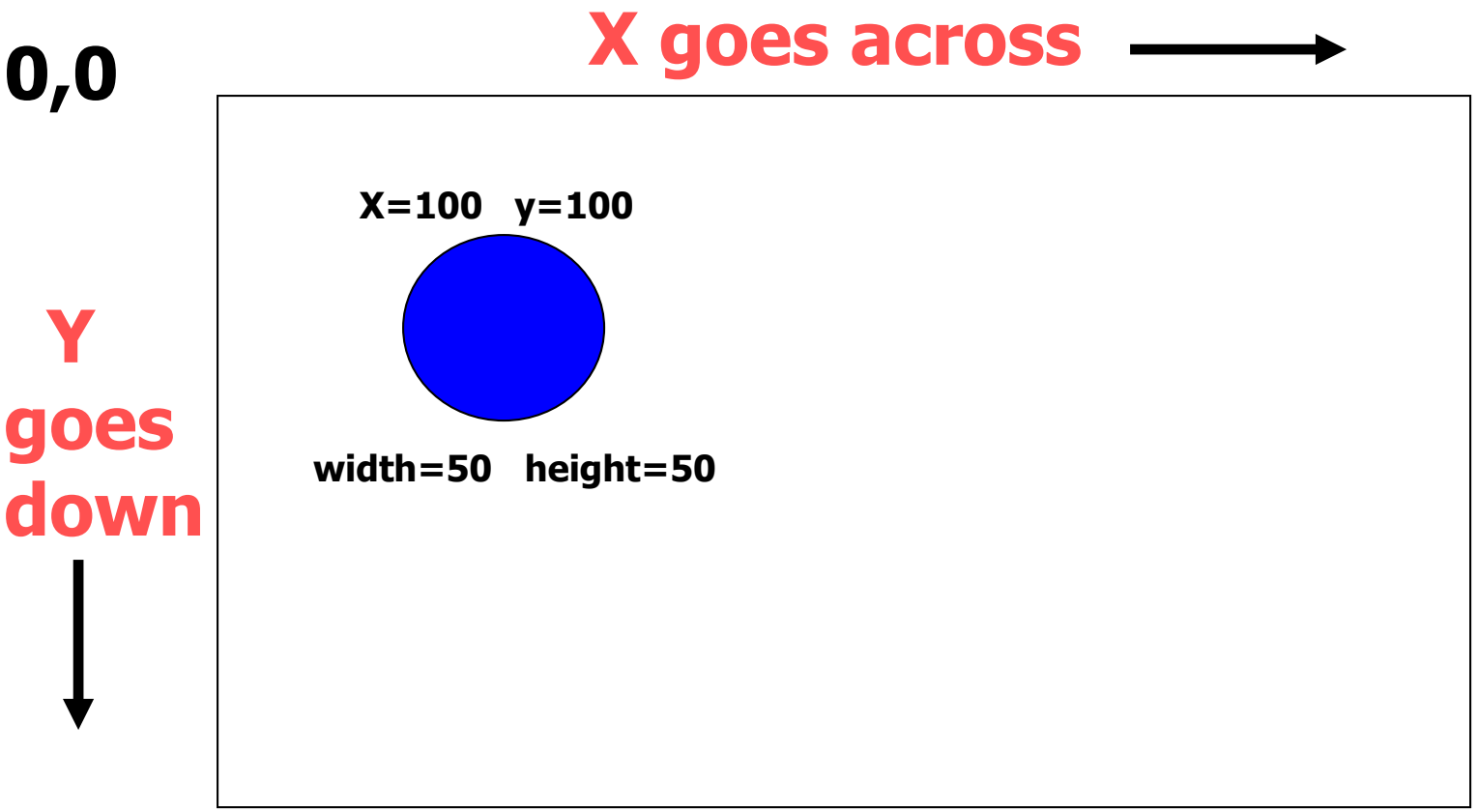
Name	Use
drawLine(a,b,c,d)	draws a line starting at point a,b and going to point c,d
drawRect(x,y,w,h)	draws an unfilled rectangle at spot x,y that is w wide and h tall
fillRect(x,y,w,h)	draws a filled rectangle at spot x,y that is w wide and h tall

```
import java.awt.Graphics;
import java.awt.Color;
import javax.swing.JFrame;
```

The Graphics Screen


```
window.fillRect( 10, 50, 30, 70 );
```

The Graphics Screen




```
window.fillOval( 100, 100, 50, 50 );
```

Rectangles

```
public void paint( Graphics window )
 {
   window.setColor(Color.BLUE);
   window.fillRect(150, 300, 100, 20 );
   window.setColor(Color.GRAY);
   window.drawRect(200,80,50,50);
 }
```

Open rectangles.java

Open lines.java

Graphics

frequently used methods

Name	Use
drawArc(x,y,w,h,startAngle,arcAngle)	draws an arc at spot x,y that is w wide and h tall
fillArc(x,y,w,h,startAngle,arcAngle)	draws a filled arc at spot x,y that is w wide and h tall
startAngle specifies the start of the arc arcAngle specifies the length of the arc	

```
import java.awt.Graphics;
import java.awt.Color;
import javax.swing.JFrame;
```

Open arcs.java

Open fonts.java

Open colors.java