Chapter 8 Worksheet

(16) Fill in the code for the World's act method so that the BlowUpActor is added to the world every time the user clicks the mouse in the world.

```
public class Background extends World {

    public void act() {




    }
}
```

(17) What does this actor do when added to a scenario and "Run" is selected?

```
public class Ball extends Actor
{
    private int deltaX;          // x movement speed
    private int deltaY;          // y movement speed
    private int count = 2;

    public Ball() {
        deltaX = Greenfoot.getRandomNumber(11) - 5;
        deltaY = Greenfoot.getRandomNumber(11) - 5;
    }

    public void act() {
        makeSmoke();
        move();
    }

    public void move() {
        setLocation (getX() + deltaX, getY() + deltaY);
        checkWalls();
    }

    private void checkWalls() {
        if (getX() == 0 || getX() == getWorld().getWidth()-1) {
            deltaX = -deltaX;
        }
        if (getY() == 0 || getY() == getWorld().getHeight()-1) {
            deltaY = -deltaY;
        }
    }

    private void makeSmoke() {
        count--;
        if (count == 0) {
            getWorld().addObject ( new Smoke(), getX(), getY());
            count = 2;
        }
    }
}
```

Chapter 8 Worksheet

(18) Here is the code for the Smoke actor with the BlowUpActor code inserted inside. What needs to be removed and changed to make the Smoke shrink instead of get bigger?

```java
import greenfoot.*;  // (World, Actor, GreenfootImage, Greenfoot and MouseInfo)

public class Smoke  extends Actor
{
  private String imageName;
    private int imageDisplayed;

    private GreenfootImage[] images;

    private static final int NUMBER_OF_IMAGES = 30;

    public Smoke(String image) {
        imageName = image;
        initializeImages();
        setImage(images[0]);
        imageDisplayed = 0;
    }

    public void act() {
        grow();
    }

    private void initializeImages() {
        images = new GreenfootImage[NUMBER_OF_IMAGES];

        GreenfootImage baseImage = new GreenfootImage(imageName);

        int count = 0;
        while(count < NUMBER_OF_IMAGES) {
            images[count] = new GreenfootImage(baseImage);

            int size = (count + 1) * (baseImage.getWidth()/NUMBER_OF_IMAGES);

            images[count].scale(size, size);

            count = count + 1;
        }
    }

    private void grow() {
        setImage(images[imageDisplayed]);
        imageDisplayed = imageDisplayed + 1;

        if(imageDisplayed == NUMBER_OF_IMAGES) {
            int count = 0;
            while(count < 10) {
                int x = Greenfoot.getRandomNumber(getWorld().getWidth());
                int y = Greenfoot.getRandomNumber(getWorld().getHeight());
                Square s = new Square(Greenfoot.getRandomNumber(200) + 6);

                getWorld().addObject(s, x, y);

                count = count + 1;
            }

            getWorld().removeObject(this);
        }
    }
}
```

Chapter 8 Worksheet

(19) Let us fill in the shrink method so that if the currently displayed image is smaller than 10x10, it should be removed from the world. We will fill in the rest in the next question.

```
private void shrink() {




}
```

(20) Fill in the else so that if the image has not yet shrunk to 10x10, we scale the image down by 3 pixels in each direction each time shrink is called.

```
private void shrink() {
    if(getImage().getWidth() < 10) {
        getWorld().removeObject(this);
    }
    else {








    }
}
```

(21) Write the line of code that will change the transparency of the image each time act is called by (3 * 5).