

## Lesson 8: Creating a World, Animating Actors and Ending a Game

### Try It: Practice Activities

#### Objectives

- Construct a world object using a constructor method
- Create an object using a constructor
- Write programming statements to use the new keyword
- Define the purpose and syntax of a variable
- Recognize the syntax to define and test variables
- Write programming statements to switch between two images
- Write programming statements to end a game

#### Vocabulary

Identify the vocabulary word for each definition below.

	These statements describe the tasks or operations for the instances to perform in a mix of Java language and plain English words. This helps us better understand what behaviors we want the instances to perform before we write the real code.
	Declared in a class, this is used to store information for later use, or to pass information. It can store objects or values.
	A special method that is executed automatically whenever a new instance of the class is created.

#### Project

1. Continue the project from Section 3 Lesson 7.
2. Open the Project named FrogFlyL7. From the Scenario Menu, choose "Save as" and use the name FrogFlyL8. This will keep a copy from Lesson 7 in case there is a need to refer to it later.
3. Compile the Greenfoot Project.
4. Open the FrogWorld code editor.
5. Change the size of the FrogWorld to 600x600.

6. Use the addObject() method to add another Fly instance to the FrogWorld constructor. (There should now be one Frog and two Fly instances.)
7. Right+click on the Fly class from the Actor classes tree.
8. Select “Set image.”
9. Select the “animal” image category, and select “bee.png.” This will add the “bee.png” image to the project folder. Click “Ok.”
10. Open the Fly code editor.
11. Add a constructor for the Fly.
12. Create and initialize variables for the “fly.png” image AND the “bee.png” image. Create the variables above the constructor. Initialize the variables inside the constructor.
13. In the constructor, add a statement to set the image for the Fly as the fly image variable.
14. In the act() method for the fly, add if-else code to switch back and forth between the two images. (In other words, the fly will be a fly, then it will turn into a bee, then it will turn into a fly again, etc.)
15. Compile and test the project. The Fly image should alternate between the two images.
16. Open the Frog code editor.
17. Add an if statement that will stop Greenfoot when the “z” key is pressed.
18. Compile and test the new features.
19. Save the project and exit.

## Optional Practice

1. In a new scenario, add a new world subclass, and new actor subclass. Using the world constructor, create the code that constructs one new instance of the actor subclass each time the world is re-initialized. Compile and test the code.
2. In a new scenario, create a World subclass and then compile. Open the code editor for the subclass. Try a variety of different resolutions and sizes for your World subclass.