Java Fundamentals
2-2: Add and Position Objects
Practice Activities

Lesson Objectives:

- Open a saved version of a project
- Add multiple objects to a scene
- Describe the difference between precise positioning and drag-and-drop (or imprecise) positioning
- Use a one-shot procedure to precisely position an object in a scene
- Edit properties of an object in the Scene editor
- Describe three-dimensional positioning axes
- Position the sub-parts of an object in the Scene editor

Vocabulary:

Identify the vocabulary word for each definition below.

	Characteristics of an instance, such as color, opacity, or position in the world.
	Sense of direction.
	Procedures in the Scene editor that execute only one time to position the object.
	A set of instructions, or programmed code, for how the object should perform a task.

Try It/Solve It:

Open the "WhiteRabbitProject" project you saved in the previous lesson. You will use this project for all of the practice activities listed below.

1. Position an object using a one-shot procedure.
    a. Move the rabbit 2 meters to the left using a one-shot procedure.
    b. Save your project.

2. Add multiple objects to a scene.
    a. Add a castle wall and a hedge to the scene.
    b. Make sure the objects are not all located in the center of the scene. (HINT: use a one-shot procedure to move an object.)
    c. Save your project.

3. Position objects using the drag-and-drop method.
    a. Position the castle wall so that it is on the far left of the scene using drag and drop.
    b. Rotate the castle wall so that position is angled behind the white rabbit and the face of the wall is fully visible.
    c. Save your project.

4. Position objects using coordinates.
    a. Position the White Rabbit so that it is at the following coordinates: x=-1, y=0, z=1
    b. Save your project.

5. Change the properties of an object.
    a. Change the size of the hedge to 1.0 meter in height.
    b. Save your project.

6. Position sub-parts of an object.
    a. Position the White Rabbit's arms and hands so that they are in a more natural position.
    b. Save your project.

Optional Activities:

Complete the following optional practice activities below to continue practicing the concepts you learned in this lesson.

1. Browse the gallery tab “Gallery by Theme”. Set up an initial scene with objects from the ocean theme. Create an initial scene for the following scenario: A school of fish approach a coral reef and notice trash dumped by humans.
    a. Add the scenery objects. Add sea plants, seaweed, and coral objects to make the sea floor look like a coral reef.
    b. Add a few objects that should not be in a coral reef that appear to be dumped by humans, and position them to appear as if they have fallen to the ocean floor.
    c. Add three fish and position them to the left of the scene (viewer's left).
    d. Save the project.

2. Browse the gallery tab “Gallery by Theme”. Set up an initial scene using the sea_surface template and objects from the snow theme. Create an initial scene for the following scenario: Three penguins stand on an ice floe, while two orcas swim in the water. Here are the steps to set up the initial scene:
    a. Add an ice floe and position it in the water.
    b. Add three penguins and position them next to each other on the ice floe.
    c. Add two orcas and position them in the water, so just their heads are peeking out from underneath the water. Position them so they face the camera.
    d. Save the project.

3. Browse the gallery tab “Gallery by Theme”. Set up an initial scene using the grass template and objects from the amazon theme. Create an initial scene for the following scenario: Three toucans sit in a tree while two lionesses sleep underneath the tree. Here are the steps to set up the initial scene:
    a. Add three toucans and a tree. Resize the tree to make it large enough to hold the three birds, and position the toucans in the tree as you wish.
    b. Add two lionesses. Position them so they are lying or sitting down on the ground underneath the tree.
    c. Save the project.