

## Java Fundamentals

### 2-4: Rotation and Randomization

### Practice Activities

#### Lesson Objectives:

- Correlate storyboard statements with program execution tasks
- Add a control statement to the Code editor
- Use random numbers to randomize motion

#### Vocabulary:

Identify the vocabulary word for each definition below.

	A document with the step-by-step actions of the animation that need to be programmed.
	Define how programming statements are executed in the program.
	The process of putting one thing inside of another.
	Numbers generated by the computer with no pattern in their sequence.

#### 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. Program an object to rotate.
  - a. Program the White Rabbit to do one complete spin to the left.
  - b. Save the project.
2. Create a control statement.
  - a. Program both of the White Rabbit's ears to wiggle at the same time.
  - b. Save the project.
3. Program an object's sub-part to rotate.
  - a. Program the White Rabbit's right foot to move up and down.
  - b. Save the project.
4. Randomize object movement.
  - a. Make White Rabbit's ears wiggle a random number of times equal to an integer between and including 1 and 3.
  - b. Save the project.

## Optional Activities:

Complete the following optional practice activities below to continue practicing the concepts you learned in this lesson. Add background scenery to improve the look of your animation.

1. Browse the gallery tab "Gallery by Theme". Set up an initial scene using the objects in the Southwest theme. Be sure to include the horse object in the scene and place him near a pond. Program the horse to do the following:
  - a. Move its head up and down while simultaneously saying "Neigh!"
  - b. Move its tail back and forth a random number of times.
  - c. Tilt its head down to look in the pond. Hint: This will require you to manipulate the head and neck sub-parts to achieve this action.
  - d. Save the project.
2. Browse the gallery tab "Gallery by Theme". Set up an initial scene using the snow template and objects from the snow theme. Be sure to include a penguin object in the scene. Program the penguin to do the following:
  - a. Turn its head from left to right a random number of times equal to an integer between and including 0 and 5.
  - b. Flap its wings at the same time.
  - c. Save the project.
3. Set up an initial scene with a biped object of your choice. Program the object to do the following:
  - a. Say "Hello!" and simultaneously wave its left hand.
  - b. Say "Watch me spin!" and simultaneously turn a random number of times equal to an integer between and including 0.25 and 4.25.
  - c. Say "Goodbye!" and simultaneously wave its right hand.
  - d. Save the project.