

**Activities:**

- A) Download the GridWorld Files from Mr Greenstein's web site.
- B) Compile and run the first project. In the GUI, click "Run" to run the simulation and observe what happens.

```
cd GridWorldCode/projects/firstProject
javac -cp ../../gridworld.jar BugRunner.java
java -cp ../../gridworld.jar BugRunner
```

**Read:** Pages 1 to 9 in the GridWorld Student Manual

**Questions:**

- 1) Does the bug always move to a new location? Explain.
- 2) In which direction does the bug move?
- 3) What does the bug do if it does not move?
- 4) What does a bug leave behind when it moves?
- 5) What happens when the bug is at an edge of the grid? (Consider whether the bug is facing the edge as well as whether the bug is facing some other direction when answering this question.)
- 6) What happens when a bug has a rock in the location immediately in front of it?
- 7) Does a flower move?
- 8) What behavior does a flower have?
- 9) Does a rock move or have any other behavior?
- 10) Can more than one actor (bug, flower, rock) be in the same location in the grid at the same time?

**Activities:**

C) Run BugRunner. Click on a cell containing a bug, flower, or rock. Test the `setDirection` method with the following inputs and complete the following table, giving the compass direction each input represents.

<b>Degrees</b>	<b>Compass Direction</b>
0	North
45	
90	
135	
180	
225	
270	
315	
360	

D) Move a bug to a different location using the `moveTo` method. In which directions can you move it? How far can you move it? What happens if you try to move the bug outside the grid?

E) Change the color of a bug, a flower, and a rock. Which method did you use?

F) Move a rock on top of a bug and then move the rock again. What happened to the bug?