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?

1. No, unless the path ahead is free.

2. Forward in the direction it is facing.

3. Turn 45 degrees in a direction until it can move to another free space.

4. A flower.

5. It will turn facing the grid again (for example if it is facing north, it may turn to the right until it is facing another empty square and move there).

6. It will treat it as a blocked path and rotate 45 degrees until it can find a available path.

7. No.

8. None, besides showing the previous path the bug took. However it changes colors depending on how many “ticks” the world has ran for.

9. By default no, however it can if programmed.

10. By default no.

1.

|  |  |
| --- | --- |
| Degrees | Compass Direction |
| 0 | North |
| 45 | North-East |
| 90 | East |
| 135 | South-East |
| 180 | South |
| 225 | South-West |
| 270 | West |
| 315 | North-West |
| 360 | North |

2. You can only move the bug in the direction it is facing. Using the method move() provided from the Bug Object, you can only move it once, however you can create your own method to call this method as many times as you want. The bug will move as far as you want within the grid space, if you are using a Bounded Grid. Otherwise it will go on “forever” (or until you hit the Java Integer MAX\_VALUE limit ;) )

3. The setColor() method.

4. The bug is gone! The actor was “overwritten” or more properly deleted since the space it occupied was set to another Actor Object, I am assuming.