Part 1

**Do you Know?**

**Set 1**

1. Does the bug always move to a new location? Explain.

不是。只有在 bug 朝向的方向上有格子且其是空的或者有 flower，bug 才会移动到其前面的位置。

1. In which direction does the bug move?

Bug 的移动方向是其朝向的方向。

1. What does the bug do if it does not move?

Bug 会向右转45度。

1. What does a bug leave behind when it moves?

Bug 会留下一朵颜色与 bug 相同的 flower。

1. 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.)

Bug 处于边缘时，如果其不朝向边缘，bug 会往前移动。如果其朝向边缘，若选择act，bug 向右转45度，若一直继续选择 act，bug 会旋转至所朝方向可以移动为止；若选择 move，则 bug 会执行 removeSelfFromGrid，消失后在原来的位置上留下一朵 flower。

1. What happens when a bug has a rock in the location immediately in front of it?

Bug 会向右旋转45度。

1. Does a flower move?

不会，flower 不移动。

1. What behavior does a flower have?

花会逐渐枯萎，颜色逐渐变深直到变成深灰色。

1. Does a rock move or have any other behavior?

Rock 不会移动，按下 step 或 run 按钮时 rock 没有任何行为。

1. Can more than one actor (bug, flower, rock) be in the same location in the grid at the same time?

不可以，同一时刻一个位置只能有一个 actor。

**Exercises**

1. Test the setDirection method with the following inputs and complete the table, giving the compass direction each input represents.

|  |  |
| --- | --- |
| **Degrees** | **Compass Direction** |
| 0 | North |
| 45 | NorthEast |
| 90 | East |
| 135 | SouthEast |
| 180 | South |
| 225 | SouthWest |
| 270 | West |
| 315 | NorthWest |
| 360 | North |

1. 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?

使用 moveto 可以将 bug 移动到网格上的任意有效位置，任意方向任意距离。

移动失败，报错: IllegalArgumentException。

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

方法 setColor。

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

当 rock 移动到bug之上时，bug 会消失。

当 rock 再次移动后，bug 不会重新出现。