Lesson 5

While Loops: Running Code While…

```
while isOnClosedSwitch {
    toggleSwitch()
    moveForward()
}
```

While Loops: Creating Smarter While Loops

```
while !isBlocked {
    if isOnClosedSwitch {
        toggleSwitch()
    }
    moveForward()
}
```

Lesson 5

While Loops: Choosing the Correct Tool

```
func turnAndcollectGem() {
    moveForward()
    turnLeft()
    moveForward()
    collectGem()
    turnRight()
}
while !isBlocked {
    turnAndcollectGem()
}
```

While Loops: Four by Four

```
for i in 1…4 {
    moveForward()
    moveForward()
    moveForward()
    if isOnClosedSwitch {
        toggleSwitch()
    }
    turnRight()
}
```

Lesson 5

While Loops: Choosing the Correct Tool

```
func turnAndcollectGem() {
    moveForward()
    turnLeft()
    moveForward()
    collectGem()
    turnRight()
}
while !isBlocked {
    turnAndcollectGem()
}
```

While Loops: Four by Four

```
for i in 1…4 {
    moveForward()
    moveForward()
    moveForward()
    if isOnClosedSwitch {
        toggleSwitch()
    }
    turnRight()
}
```

Lesson 5

While Loops: Turned Around

```
while isOnGem {
    turnLeft()
    collectGem()
    moveForward()
    collectGem()
    turnLeft()
    moveForward()
    turnRight()
    moveForward()
}
```

While Loops: Land of Bounty

```
func solveColumn() {
    while !isBlocked {
        if isOnClosedSwitch {
            toggleSwitch()
        } else if isOnGem {
            collectGem()
        }
        moveForward()
    }
}

solveColumn()
turnRight()
moveForward()
turnRight()
solveColumn()
turnLeft()
moveForward()
turnLeft()
solveColumn()
```

Lesson 5

While Loops: Turned Around

```
while isOnGem {
    turnLeft()
    collectGem()
    moveForward()
    collectGem()
    turnLeft()
    moveForward()
    turnRight()
    moveForward()
}
```

While Loops: Land of Bounty

```
func solveColumn() {
    while !isBlocked {
        if isOnClosedSwitch {
            toggleSwitch()
        } else if isOnGem {
            collectGem()
        }
        moveForward()
    }
}

solveColumn()
turnRight()
moveForward()
turnRight()
solveColumn()
turnLeft()
moveForward()
turnLeft()
solveColumn()
```

Lesson 5

While Loops: Nesting Loops

```
while !isBlocked {
    while !isOnGem {
        moveForward()
    }
    collectGem()
    turnLeft()
}
```

While Loops: Shapeshifter

```
while !isBlocked {
        while !isBlocked {
            moveForward()
        }
        turnRight()
    }
    toggleSwitch()
```

>

Lesson 5

While Loops: Nesting Loops

```
while !isBlocked {
    while !isOnGem {
        moveForward()
    }
    collectGem()
    turnLeft()
}
```

While Loops: Shapeshifter

```
while !isBlocked {
        while !isBlocked {
            moveForward()
        }
        turnRight()
    }
    toggleSwitch()
```

Lesson 5

While Loops: You're Always Right

```
while !isOnGem {
        while !isBlocked {
            moveForward
            if isOnClosedSwitch {
                toggleSwitch()
            }
        }
        turnRight()
    }

    collectGem()
```

*Some puzzles may have multiple solutions

Lesson 5

While Loops: You're Always Right

```
while !isOnGem {
        while !isBlocked {
            moveForward
            if isOnClosedSwitch {
                toggleSwitch()
            }
        }
        turnRight()
    }

    collectGem()
```

*Some puzzles may have multiple solutions