



Pre-Mission Preparation

Your cell phone can detect if it is level or tilted. What other devices use some kind of sensor to determine their orientation?

Answers will vary. Possible answers:

- Drone or robot to stay level
- A toy
- A car, plane, etc.

Mission Objective #1

Use the toolbox to answer this question: An accelerometer is a sensor chip that lets CodeX detect a , b , and c

- a. motion
- b. impacts
- c. orientation

What are the three axes for orientation?

x, y, z

Mission Objective #2

What does the data from the accelerometer look like?

(0, 0, -16383)

What is this type of data called?

tuple

What is the code for getting the x value of the accelerometer?

```
val = accel.read()
x = val[0]
```

Mission Objective #3

What module do you need to import to do the trig calculations?

```
import math
```

Mission Objective #6

How do you keep the program from drawing multiple orange balls?

Erase the orange ball by drawing a white one on top of the old one before drawing a new orange ball

Post-Mission Reflection

What are some ways you can use this program?

Answers will vary. Possible answers:

- See how level the school desk is
- See how straight a wall is

What is one way you can extend this program, or make it do more than measure x tilt?

Answers will vary. Possible answers:

- Check the y as well as the x on the level
- Add an indicator for perfectly centered