## Lesson 16 – Activity Sheet

## Getting Started

The example program shows you how to measure and respond to **acceleration** along the *x*-axis. This measures the micro:bit being tilted to either the left or the right.

from microbit import \*

while True:

reading = accelerometer.get\_x()

if reading > 20:

display.show("R")

elif reading < -20:

display.show("L")

else:

display.show("-")

The *y*-axis relates to the micro:bit being tilted forwards or backwards. Adapt the program to measure these movements. Remember that the value 20 can be adjusted.

from microbit import \*

while True:

reading = accelerometer.get\_y()

if reading > 20:

display.show("R")

elif reading < -20:

display.show("L")

else:

display.show("-")

Now adapt your program to measure and respond to the *z*-axis. Remember this the up and down movement Again you may need to adjust the values depending on how fast you move the micro:bit.

## Success Criteria

* The micro:bit responds to acceleration on one of the axes, *x*, *y* or *z*
* The micro:bit responds to acceleration on a combination of **two** of the axes, *x*, *y* or *z*
* The micro:bit responds to acceleration on all three axes
* The responses are standard, LED or scrolling text message

## Pro-tip

The responsiveness of the micro:bit depends on how fast you move it. Try to stay consistent in movements so that you can test the code and set the values at a suitable level.

## Test Time

**Testing needs to be conducted safely**. Be careful when moving the micro:bit with pace, check who is behind you or in front. Keep adjusting the values until the measurements and responses are accurate.

## Stretch Tasks

* micro:bit responds to acceleration on 2 axes
* micro:bit responds to acceleration on all 3 axes

## Final Thoughts

This has been a program that has combined acceleration of three axes. You have also had to test your program and adjust the values to create responses that work in the real world. You will use this program in the next project, a bike collision detector.