

Using a Motion Detector to Collect Data to Match Descriptions of Functions

When the Go!Motion sensor is activated, distance data is collected at equally spaced points in time. If you walk away from the sensor, or towards it, a graph of your position over time will be created. It may help to hold a reflecting surface, such as the top of the storage box, towards the sensor.

The challenge: Move (to and/or from) the sensor so as to produce the following graphs as described verbally.

- 1) A line with a positive slope
- 2) A line with a positive slope with a different y-intercept than (1)
- 3) A line with a negative slope and different y-intercept than (1) or (2)
- 4) A line with a negative y-intercept?
- 5) A line with a negative x-intercept?
- 6) A line with a positive x-intercept?
- 7) A piecewise graph that would begin with a line with a negative slope, level off for two seconds, and continue a negative slope
- 8) An absolute-value graph that opens down
- 9) A parabola that is concave up
- 10) A parabola that is concave down
- 11) A step-function