***Gravity Lab Name* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Do Now: Vocabulary***

***Gravity*** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

***Velocity*** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***\_\_\_.

***Acceleration*** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***.

***Experiment:***

*Equipment:*

 Lego eV3 brick, motor, and touch sensor in “release setup”

 Meter stick

*Procedure:* Using the experimental setup, release the ball from different heights

and record the time it takes for the ball to hit the base plate. This time will be

displayed on the LEGO eV3 brick, in seconds. Measure the velocity of reach drop

height using the formula:

*v = height /time*

Record data here:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data Point | Height | Time | Velocity (height/time) | Instantaneous Velocity (2\*velocity) |
| Example | 10 m | 5 s | 10m/5s = 2m/s | 2\*2m/s=4m/s |
| 1 | 0.25m |  |  |  |
| 2 | 0.5m |  |  |  |
| 3 | 0.75m |  |  |  |
| 4 | 1.0m |  |  |  |
| 5 | 1.25m |  |  |  |

***Analysis:*** Plot your data points (*time, instantaneous velocity*) on the graph below. Don’t forget to label the axes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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Plot your data points (time, instantaneous velocity) again, using a spreadsheet program (e.g. Microsoft excel). Add a best fit line to your data (linear regression or trend line)

in excel) and generate an equation, as well as the R2 value for this line.

Equation of best fit line (y=mx +b): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The slope of the best fit line is:\_\_\_\_\_\_\_ m/s2

***Question:*** How does the slope of your best fit line compare to the standard

value of *g*?