

Name: \_\_\_\_\_ Section: \_\_\_\_\_ Date: \_\_\_\_\_

### “OUTDOOR ACCELERATION LAB”

#### Final Report Requirements (*Due: October 25<sup>th</sup>*)

- (1) Provide a Possible Hypothesis: For example, I believe that human beings can accelerate in the horizontal direction over a course length of at least 40 yards *or* I believe human beings accelerate only for the first few yards of a sprint race and then continue the remainder of their run at a constant speed (*i.e. at zero acceleration*) *or* other. Also include your rationale for your chosen hypothesis.
- (2) Provide a technical definition from our text or other source explaining in words just what acceleration is.
- (3) Provide your own interpretation (*definition*) in your own words, providing examples as necessary, of that concept we call acceleration – *minimum 100 words*.
- (4) Explain in your own words how the outdoor acceleration lab was run and how the data taken could prove or disprove your hypothesis.
- (5) Provide a neat / clean copy of your data on a fresh data sheet. A fresh data sheet master can be downloaded from the “foundations” web site under the “Lab Documentation” tab.
- (6) Plot your data – average velocities vs. time to center of the respective 10-yard segments. Fair a continuous curve through resulting data points. Use of MS Excel is recommended. In any event the resulting graph must not be done freehand (*i.e. it is either to be computer generated or drafted with straight edges and template followed curves*).
- (7) From your curve of (6) above – estimate an acceleration rate at a minimum of four equidistant points on the curve.
- (8) In a minimum of one-hundred words state your conclusion relative to your hypothesis based on the results of (7) above. If your hypothesis was not supported, provide some rationale as to why. Also provide several, at least five, reasons why the lab was less than an ideal way to prove your hypothesis and provide some suggestions as to how you would improve the lab exercise.

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**For those of you that did not complete the lab (*i.e. the data taking portion thereof*) - please see me as to available alternatives as follows:**

- Either - You may acquire data from a receptive classmate *or* I will provide data for you. Permission requires initials signature of instructor here.

*Or*

- You must complete the lab on your own (*or with a receptive classmate(s)*) *or* prepare a minimum 750-word essay (*utilizing at least three references*) on the history of “Acceleration” featuring among other information, the perspectives of one or more of the ancient Greek philosophers, Galileo and Newton.