**Free Fall Lab**

**Question: How can the acceleration of a free-falling object be described? Is it constant or changing? Is it directed upward or downward? Is there a magnitude that is commonly associated with it?**

**Purpose: To describe the acceleration of a free-falling object as being either constant or changing; as being directed upward, downward or both (depending on some other variable); and as having a particular numerical value.**

**A complete lab write-up includes a Title, a Purpose, a Data section, a Conclusion and a Discussion of Results. The Data section should include a sketch of the velocity-time graph representing the object's motion. Results of the slope analyses should be organized in a table; an average of all trials (except those which are obvious outliers) should be recorded. Class data should be recorded and labeled as such. The Conclusion should respond to the questions raised in the Purpose of the lab. The Discussion section should include an error analysis.**

**Scoring Rubric:**

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| **Points:** | **Description:** |  |
| **/2** | **Included – labeled and organized all parts of the lab report.** | **Score:** |
| **/4** | **Data section includes sketch of the velocity-time graph. The highlighted region used to determine the slope is shown on the graph. A table of several trials is recorded with column headings and units; slope values for each trial are reported. An average of all reasonable trials is recorded. Class data is reported and labeled.** | **\_\_\_\_\_/12** |
| **/2** | **Conclusion describes the free fall acceleration of the object, accurately responding to each of the three parts of the Purpose.** |  |
| **/4** | **Discussion of Results appropriately evaluates the reliability of the data; personal data is compared to class data and to the theoretical value. A percent error analysis is performed; work is shown and labeled. Reveals understanding.** |  |