Honors Physical Science: S2 Analysis

Name: _____ Lab: _____ Date: _____

Analysis	
Mark	Descriptor
0	• The student's report does not reach a standard described by the descriptors below.
1–2	• The report includes insufficient relevant raw data to support a valid conclusion to the research question. • Some basic data processing is carried out but is either too inaccurate or too insufficient to lead to a valid conclusion. • The report shows evidence of little consideration of the impact of measurement uncertainty on the analysis. • The processed data is incorrectly or insufficiently interpreted so that the conclusion is invalid or very incomplete.
3–4	• The report includes relevant but incomplete quantitative and qualitative raw data that could support a simple or partially valid conclusion to the research question. • Appropriate and sufficient data processing is carried out that could lead to a broadly valid conclusion but there are significant inaccuracies and inconsistencies in the processing. • The report shows evidence of some consideration of the impact of measurement uncertainty on the analysis. • The processed data is interpreted so that a broadly valid but incomplete or limited conclusion to the research question can be deduced.
5–6	• The report includes sufficient relevant quantitative and qualitative raw data that could support a detailed and valid conclusion to the research question. • Appropriate and sufficient data processing is carried out with the accuracy required to enable a conclusion to the research question to be drawn that is fully consistent with the experimental data. • The report shows evidence of full and appropriate consideration of the impact of measurement uncertainty on the analysis. • The processed data is correctly interpreted so that a completely valid and detailed conclusion to the research question can be deduced.

Analysis Checklist:

____ all relevant raw data has been included—both quantitative & qualitative
____ uncertainties of measures are identified
____ data is collected into tables with:
- I.V. values and trials/replicates are identified
- Cells contain only one value
- Values are aligned (by decimal point)

____ data tables contain headings—both table title and columns/rows
____ all measurements contain units and uncertainties (written in the column heading)-
____ measures and uncertainties have the same significance (same place)-
____ all raw data has been completely processed (e.g. calculations, graphed and statistical analyses performed)
____ sample calculations are present & clearly explained-
-standard calculations need not be shown but referenced (e.g. sum, mean, & standard deviation)
____ calculations show propagation of uncertainty (addition/subtraction vs. multiplication/division)-
____ a suitable format (graphs/tables) shows the relationship between I.V. & D.V.
____ graphs/tables have proper titles—identifying the variables included in the table
____ graphs have appropriate scales, labeled axes with units & uncertainties and accurately plotted data
- A suitable best fit line/curve with appropriate equation is present

____ tables/graphs have annotations describing graphical relationships
____ statistical analyses of error is incorporated when prompted (e.g. standard deviation, error bars, max./min. slopes)