AP/IB Physics Lab Report Rubric

DESIGN (30 pts)
Introduction:
State a clear purpose statement or research question
Define the dependent, independent, and control variables
Introduce equations and theorems (if applicable)

Methods & Materials:
All materials are described in a detailed narrative and/or schematic
The experimental method is described in a detailed narrative and
- effectively controls the variables
- collects a statistically relevant amount of data
  - a valid range over which the independent variable will be varied
  - a sufficient number of trials to be conducted for each value of the independent variable
Procedure changes only one variable at a time
Procedure is detailed and clear enough for outsider to follow

DATA COLLECTION AND PROCESSING (40 pts)
Recording Raw Data:
Records appropriate quantitative & qualitative data
Raw data table annotated w/ headings, units, and uncertainties
Sig. digits correctly reflect precision of the measurement
Sig. digits in the data and associated uncertainty are consistent

Processing Raw Data:
Calculations performed correctly
Sample calculations shown
Quantitative results summarized in processed data table(s) annotated w/ headings, units, and propagated uncertainties.

Presenting Processed Data:
Graphs are properly formatted and labeled
Data points are accurately plotted with a suitable best-fit line or curve
Uncertainty bars included when significant
Explanation given when uncertainties are not significant
Lines of minimum and maximum gradient are shown (if applicable)
Uncertainty in the best straight-line gradient is determined (if applicable)

CONCLUSION AND EVALUATION (20 pts)
State a conclusion based on reasonable interpretation of data
Justification of conclusion takes into account systematic or random errors
Weakness and limitation in the experimental procedure evaluated
Realistic improvements to address identified weaknesses and limitations suggested.

WRITING (10 pts)
Grammar; spelling; consistent tense, voice, person; and overall clarity of writing