2019 Experimental Design Checklist for Divisions B & C
(Note: The maximum points available for each task are shown.)

Part I - Design and Construct Experiment
A. Hypothesis (6 pts)
   ② ① ① Statement predicts a relationship or trend between the independent and dependent variables
   ② ① ① Statement gives specific direction to the predictions(s) (e.g., a stand is taken)
   ② ① ① A rationale is given for the hypothesis.

B. Variables (16 pts)
   a. Independent Variable (IV) (6 pts)
      ② ① ① IV correctly identified
      ② ① ① IV operationally defined
      ② ① ① At least three levels of IV given
   b. Dependent Variable (DV) (4 pts)
      ② ① ① DV correctly identified
      ② ① ① DV operationally defined
   c. Controlled Variables (CV) (6 pts)
      ② ① ① One CV correctly identified
      ② ① ① Two CVs correctly identified
      ② ① ① Three CVs correctly identified

C. Experimental Control (Standard of Comparison) (4 pts)
   ② ① ① SOC correctly identified and makes logical sense for the experiment
   ② ① ① Reason given for selection of SOC

D. Materials (6 pts)
   ② ① ① Materials listed separately from procedure
   ② ① ① All materials used are listed
   ② ① ① No extra materials are used

E. Procedure with Diagrams (12 pts)
   ② ① ① Procedure well organized
   ② ① ① Procedure is in a logical sequence
   ② ① ① Repeated trials
   ② ① ① Diagram of the experimental setup provided
   ④ ③ ② ① ① Enough information is given so another could repeat procedure

F. Qualitative Observations (8 pts)
   ② ① ① Observations about results given
   ② ① ① Observations about procedure/deviations
   ② ① ① Observations about results not directly relating to Dependent Variable or other data
   ② ① ① Observations given throughout the course of the experiment

G. Quantitative Data - Data Table (10 pts)
   ② ① ① All raw data is given
   ② ① ① All data has units
   ② ① ① Table(s) labeled properly
   ② ① ① Reports most relevant data
   ② ① ① All data reported using correct figures (significant figures C Division only)

Part II – Data, Analysis and Conclusions
H. Graphs (10 pts)
   ② ① ① Appropriate type of graph used
   ② ① ① Graph has title
   ② ① ① Graph labeled properly (axes/series)
   ② ① ① Units included
   ② ① ① Appropriate scale used

I. Statistics (6 pts)
   ② ① ① Age-appropriate statistics (i.e., best fit, average/mean, median, mode) are used
   ② ① ① Example calculations are given with appropriate units
   ② ① ① Calculations are accurate

J. Analysis and interpretation of data (10 pts)
   ② ① ① All data discussed and interpreted
   ② ① ① Unusual data points commented on
   ② ① ① Trends in data explained and interpreted
   ② ① ① Interpretations based on statistics used are accurate
   ② ① ① Enough detail is given to understand data and all statements must be supported by the data.

K. Possible Experimental Errors (6 pts)
   ② ① ① Possible reasons for errors are given
   ② ① ① Important info about data collection given
   ② ① ① Effect errors had on data discussed

L. Conclusion (8 pts)
   ② ① ① Hypothesis is evaluated according to data
   ② ① ① Hypothesis is re-stated
   ② ① ① Reasons to accept/reject hypothesis given
   ② ① ① All statements are supported by the data

M. Applications & Recommendations for Further Use (8 pts)
   ② ① ① Specific suggestions to improve the experiment are given
   ② ① ① Suggestions for other ways to look at hypothesis are given
   ② ① ① Suggestions for future experiments are given
   ② ① ① Practical application(s) of experiment are given

Team #: ________________

School Name: ________________________________

Point Total: _______/110

Deduction multiplier(s): ________________
Non clean up (0.95), Off topic (0.75), or Non lab (0.25)

Final Score: ________________

(revised 09/05/18)