



PENNSYLVANIA EXPERIMENTAL DESIGN CHECKLIST

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

2020 Experimental Design Division B Checklist for Pennsylvania

(Note: The maximum points available for each task are shown.)

Part I – Design and Construction of the Experiment (59 pts)

A. Statement of the Problem (2 pts)

- ② ① ① Statement addresses the experiment including variables (Not a yes/no question)

B. Hypothesis (6 pts)

- ② ① ① Statement predicts a relationship between the independent and dependent variables
- ② ① ① Statement gives specific direction to the prediction(s) (e.g., a stand is taken)
- ② ① ① A rationale is given for the hypothesis.

C. Variables (17 pts)

a. Independent Variable (IV) (7 pts)

- ② ① ① Correctly identified
- ② ① ① Correctly defined
- ③ ② ① ① Levels of IV given

b. Dependent Variable (DV) (4 pts)

- ② ① ① Correctly identified
- ② ① ① Correctly defined

c. Controlled Variables & Constant (CV) (6 pts)

- ② ① ① First CV correctly identified
- ② ① ① Second CV correctly identified
- ② ① ① Constant correctly identified

D. Materials (4 pts)

- ② ① ① All materials are listed and quantified
- ② ① ① No extra materials are listed

E. Procedure and Set-up Diagrams (14 pts)

- ② ① ① Procedure is presented in list form
- ② ① ① Procedure is in a logical sequence
- ② ① ① Steps for repeated trials are included
- ② ① ① Multiple diagrams of setup are provided
- ② ① ① All diagrams are appropriately labeled
- ④ ③ ② ① ① Enough information is given so another could repeat procedure

F. Qualitative Observations (6 pts)

- ② ① ① Observations about procedure provided
- ② ① ① Observations about the results provided
- 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 provided
- ② ① ① A condensed data table showing only the data to be graphed provided
- ② ① ① Tables and columns labeled properly
- ② ① ① All data has units
- ② ① ① Example calculations for derived variables are given

Part II – Data, Analysis and Conclusions (48 pts)

H. Graph (12 pts)

- ④ ② ① Appropriate Graph is provided
- ② ① ① Graph properly titled
- ② ① ① Graph properly labeled
- ② ① ① Appropriate scale
- ② ① ① Units included

I. Statistics (12 pts)

- ③ ② ① ① Statistics of Central Tendency used (i.e., median, mode, mean)
- ② ① ① One example of Statistics of Central Tendency calculation is given for each statistic with units
- ③ ② ① ① Statistics of variation are included (i.e., min, max, range)
- ② ① ① One example of Statistics of Variation calculation is given for each statistic with units
- ② ① ① Calculations are accurate

J. Analysis of Claim/Evidence/Reason (CER) (6 pts)

- ② ① ① Data Trend Claim completed logically (i.e., precise, not precise)
- ② ① ① Data Trend Evidence using statistics completed logically
- ② ① ① Data Trend Reasoning completed logically

K. Possible Experimental Errors (4 pts)

- ④ ③ ② ① ① Two specific errors are identified and their effects on results discussed.

L. Conclusion (8 pts)

- ② ① ① Hypothesis is re-stated
- ② ① ① Hypothesis Claim completed logically
- ② ① ① Hypothesis Evidence completed logically
- ② ① ① Hypothesis Reasoning completed logically

M. Recommendations for Future Experimentation (6 pts)

- ② ① ① Suggestions to improve the experiment are given
- ② ① ① Suggestions for practical applications of experiment are given
- ② ① ① Suggestions for future experiments are given

School: _____ Team# _____

Point Total: _____/107

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

Final Score: _____