



2023 Experimental Design Division B Checklist

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

Part I – Design and Construction of the Experiment (61 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 (15 pts)

a. Independent Variable (IV) (5 pts)

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

b. Dependent Variable (DV) (4 pts)

- ④ ③ ② ① ① Correctly identified and defined

c. Controlled Variables (CV) (4 pts)

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

d. Constant (2 pts)

- ② ① ① Constant correctly identified

D. Materials (4 pts)

- ② ① ① All materials **used** are listed and quantified
 ② ① ① No **unused or** 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 (12 pts)

- ④ ③ ② ① ① Observations about procedure provided
 ④ ③ ② ① ① Observations about the results provided
 ④ ③ ② ① ① Observations given throughout the course of the experiment

G. Quantitative Data - Data Table (8 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

Part II – Data, Analysis and Conclusions (69 pts)

H. Graph (12 pts)

- ④ ③ ② ① ① Appropriate Graph is provided
 ④ ③ ② ① ① Graph properly titled and labeled
 ④ ③ ② ① ① Appropriate scale and units included

I. Statistics (14 pts)

- ④ ③ ② ① ① Statistics of Central Tendency (i.e., best fit, median, mode, mean)
 ④ ③ ② ① ① One example calculation is given for each statistic including units
 ④ ③ ② ① ① Statistics of Variation (i.e., min, max, range)
 ② ① ① Calculations are accurate

J. Analysis of Claim/Evidence/Reason (CER) (18 pts)

- ② ① ① **Variation** Claim completed logically
 ② ① ① **Variation** Evidence completed logically
 ② ① ① **Variation** Reasoning completed logically
 ② ① ① Outliers Claim completed logically
 ② ① ① Outliers Evidence completed logically
 ② ① ① Outliers Reasoning completed logically
 ② ① ① Data Trend Claim completed logically
 ② ① ① Data Trend Evidence completed logically
 ② ① ① Data Trend Reasoning completed logically

K. Possible Experimental Errors (8 pts)

- ④ ③ ② ① ① One specific error is identified and effect on results discussed.
 ④ ③ ② ① ① Second specific error is identified and effect 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 (9 pts)

- ③ ② ① ① Suggestions to improve the experiment with rationale are provided
 ③ ② ① ① Suggestions for practical applications of experiment are given
 ③ ② ① ① Suggestions for future experiments are given

School: _____ Team# _____

Point Total: _____/130

Deduction multiplier(s): _____

Materials Used (0.95), **Non-clean up** (0.95), **Off topic** (0.75), or **Non-lab** (0.25)