



2024 Experimental Design Division C Checklist

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

Part I – Design and Construction of the Experiment (70 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) (i.e., a stand is taken)
 ② ① ① A rationale is given for the hypothesis.

C. Variables (20 pts)

a. Independent (IV) & Dependent (DV) Variable (12 pts)

- ④ ③ ② ① ① IV Correctly identified and **operationally** defined
 ④ ③ ② ① ① Levels of IV given
 ④ ③ ② ① ① DV Correctly identified and **operationally** defined

b. Controlled Variables (CV) (6 pts)

- ② ① ① First CV correctly identified **and relevant**
 ② ① ① Second CV correctly identified **and relevant**
 ② ① ① **Third CV** correctly identified **and relevant**

c. Constant (2 pts)

- ② ① ① First Constant correctly identified **and relevant**

D. Experimental Control (Standard of Comparison) (4 pts)

- ② ① ① SOC logically identified for the experiment
 ② ① ① Reason given for selection of SOC

E. Materials (4 pts)

- ② ① ① All materials used are listed and quantified
 ② ① ① No unused or extra materials are listed

F. 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 Procedure detailed enough to repeat experiment accurately

G. 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

H. Quantitative Data - Data Table (8 pts)

- ② ① ① All raw data is provided
 ② ① ① Condensed data table with only the data to be graphed is provided
 ② ① ① Tables and columns labeled properly
 ② ① ① All data has units

Part II – Data, Analysis and Conclusions (97 pts)

I. 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

J. Statistics (14 pts)

- ④ ③ ② ① ① Statistics of Central Tendency used (i.e., best fit, median, mode, mean)
 ④ ③ ② ① ① One example calculation is given for each statistic with units
 ④ ③ ② ① ① Statistics of Variation are included (i.e., minimum, maximum, range, standard deviation)
 ② ① ① Calculations are accurate

K. Significant Figures (12 pts)

- ④ ③ ② ① ① Data is reported using correct significant figures
 ④ ③ ② ① ① Graph completed using correct significant figures
 ④ ③ ② ① ① Statistics are reported using correct significant figures

L. 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

M. 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.

N. 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

O. Applications & Recommendations for Further Use (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 provided
 ③ ② ① ① Suggestions for future experiments are provided

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EXPERIMENTAL DESIGN CHECKLIST (CONT.)

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



P. Abstract (16 pts)

- ④ ③ ② ① ① Brief and well-organized
- ④ ③ ② ① ① Contains the Statement of the Problem and Hypothesis
- ④ ③ ② ① ① Describes the research procedure
- ④ ③ ② ① ① Includes major findings and conclusion

School: _____ Team# _____

Point Total: _____/167

Deduction multiplier(s): _____

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

Final Score: _____