W. I. S. E. 2002

Wonders of the Imagination Science Exhibition

Second annual science fair for home-schooled students in grade levels K through 12

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Scoring Booklet

Name of Student _____ **Project No.** _____

Collection ___ **Model** ___ **Experiment** ___

Instructions to Coach and Judge(s):

1. Record the student's score in the "Student Score" column.
2. For a collection, score each criterion marked "C", for a model, "M", and for an experiment, "E."
3. Use each criterion's "Rating Factor" to determine the scoring for the item. Score zero if the item is poorly done.
   Fair = rating factor, Good = two times the rating factor, Superior = three times the rating factor
   Outstanding = four times the rating factor, but this should rarely be given.
   For example, if the rating factor = 2, then fair = 2, good = 4, superior = 6, and outstanding = 8.

Instructions to Coach:

4. Complete sections A, B, and C.
5. Unless indicated otherwise, score zero when the item is not done, such as no report (section B) or no interview (section D).
6. Record the totals for sections A, B, and C in the "Section" column.
7. Write any constructive comments in the "Comments of Coach" section.
8. Date and sign the scoring booklet.

Instructions to Judge(s):

9. If the project is disqualified for one or more of the following reasons, check the box(es) and do not continue.
   - ☐ The project does not have a freestanding display board.
   - ☐ The display or the items in front of the display do not fit in the designated area.
   - ☐ The display uses an open flame.
   - ☐ The display uses flammable chemicals or explosive, toxic, or caustic substances.
   - ☐ The display does not use normal safety precautions for other chemicals.
10. Interview the student and complete section D.
11. Record the total for section D and the TOTAL SCORE in the "Section" column.
12. Write any constructive comments in the "Comments of Judge(s)" section.
13. Date and initial the scoring booklet.

C	M	E	Rating Factor	Student Score	Sec-tion	Item No.	Scoring Criteria
					A.		**WORKBOOK**
						a.	Question or Problem
		E	1			1.	The question or problem is stated clearly and concisely.
		E	1			2.	The question or problem is sufficiently narrow in scope; it addresses a single, clear issue.
		E	1			3.	The question or problem is original or creative.
						b.	Hypothesis
		E	1			1.	The hypothesis is clearly stated.
		E	1			2.	The hypothesis is simple.
		E	1			3.	The hypothesis is logical.
		E	2			4.	The hypothesis is testable.
						c.	Experimental Design
		E	2			1.	The experimental design is comprehensive.
		E	1			2.	The experimental design is creative.
		E	1			3.	The experimental design is flexible enough to allow for handling unanticipated problems.
		E	1			4.	The experimental design logically tests the hypothesis.
		E	1			5.	The method of data collection is appropriate.

C	M	E	Rating Factor	Student Score	Sec-tion	Item No.	Scoring Criteria
		E	1			6.	The correct kind of data is collected.
		E	1			7.	Appropriate controls (the factors that remain the same during an experiment) are established.
		E	1			8.	Variables (the factors that change during an experiment) are clearly defined.
		E	1			9.	The variables are such that they can be accurately measured.
						d.	Materials and Equipment
		E	1			1.	The listing of materials and equipment is accurate.
		E	1			2.	The student uses appropriate materials and equipment for the experiment.
		E	2			3.	The student designed special experimental equipment.
						e.	The Experiment
		E	2			1.	The experimental data is organized and neatly presented.
		E	5			2.	The experimental design was rigorously followed (allowing for problems encountered), including the planned use and budgeting of materials and equipment and the systematic plan of work.
		E	2			3.	Sample sizes and population sources were appropriate.
		E	2			4.	The quality and quantity of data collected from each experiment were appropriate.
		E	2			5.	The data measurements and calculations were done accurately.
		E	2			6.	The variables were well controlled during the experiments.
		E	2			7.	The student repeated each experiment to assure accuracy and consistency of results.
		E	2			8.	The number of repeated trials was appropriate.
		E	2			9.	The data were thoroughly and systematically analyzed in interpreting the results.
		E	2			10.	Appropriate statistical methods were used to analyze and interpret the results.
		E	2			11.	The experiment could be replicated by another student.
						f.	Conclusions
		E	2			1.	The student clearly states if the experimental results do or do not support the hypothesis.
		E	2			2.	The experimental results do support the conclusions.
		E	2			3.	The conclusions are supported by the student's other scientific inquiry (consultation with mentors and reference to scientific literature).
		E	2			4.	A person with an average knowledge of science is able to understand the conclusions.
	M		2			**g.**	The Model
	M		2			1.	The data is organized and neatly presented.
	M		8			2.	The design notes show evidence of careful work.
						h.	The Collection
C			2			1.	The data is organized and neatly presented.
C			8			2.	The student recorded when, where, and how the specimens were collected.
						ii.	Budget
C	M	E	2			1.	A comprehensive financial budget for materials and equipment was prepared.
						j.	Schedule
C	M	E	2			1.	A comprehensive schedule or systematic plan of work was prepared.
						k.	Mentoring
C	M	E	2			1.	Parts of the project that represent other people's work are clearly documented.
C	M	E	2			2.	The kind and amount of help received are appropriate for the age of the student.
						l.	Scientific Inquiry
C	M	E	1			1.	The project is appropriately challenging for a student of this age.
C	M	E	3			2.	The student interviewed mentors who had information or knowledge about the topic.
C	M	E	3			3.	The student researched the scientific literature.
C	M	E	2			4.	A bibliography is included, with citations given in standard format.
C	M	E	2			5.	The project contributes to scientific knowledge.
C	M	E	2			6.	Additional areas of investigation are identified for further study.

C	M	E	Rating Factor	Student Score	Sec-tion	Item No.	Scoring Criteria
						m.	Theme of Science Fair
C	M	E	4			1.	The project fully reflects the theme of the science fair (“Promoting the wise use of science”).
							SCORE FOR SECTION A
					B.		**REPORT**
		E	2			1.	The workbook section on "Question or Problem" is summarized.
		E	2			2.	The workbook section on "Hypothesis" is summarized.
		E	4			3.	The workbook section on "Experimental Design" is summarized.
		E	1			4.	The workbook section on "Materials and Equipment" is summarized.
		E	6			5.	The workbook section on "The Experiment" is summarized.
		E	4			6.	The workbook section on "Conclusions" is summarized.
	M		4			7.	The workbook section on "The Model" is summarized.
C			4			8.	The workbook section on "The Collection" is summarized.
C	M	E	1			9.	The workbook section on "Budget" is summarized.
C	M	E	1			10.	The workbook section on "Schedule" is summarized.
C	M	E	1			11.	The workbook section on "Mentoring" is summarized.
C	M	E	3			12.	The workbook section on "Scientific Inquiry" is summarized.
C	M	E	2			13.	The workbook section on "Theme of Science Fair" is summarized.
C	M	E	1			14.	The report title is descriptive.
C	M	E	3			15.	The report is well organized.
C	M	E	3			16.	The report is clearly written.
C	M	E	3			17.	Spelling and grammar are correct.
C	M	E	3			18.	Visual aids (tables, charts, graphs, diagrams, and photographs) are used effectively.
							SCORE FOR SECTION B
					C.		**DISPLAY**
		E	3			1.	The workbook section on "Question or Problem" is summarized. (MINUS 9 points if not included)
		E	3			2.	The workbook section on "Hypothesis" is summarized. (MINUS 9 points if not included)
		E	6			3.	The workbook section on "Experimental Design" is summarized. (MINUS 18 points if not included)
		E	1			4.	The workbook section on "Materials and Equipment" is summarized. (MINUS 6 points if not included)
		E	7			5.	The workbook section on "The Experiment" is summarized. (MINUS 21 points if not included)
		E	3			6.	The display includes a model of the experimental process.
		E	6			7.	The workbook section on "Conclusions" is summarized. (MINUS 18 points if not included)
		E	1			8.	The "Conclusions" section clearly states if the experimental results do or do not support the hypothesis.
	M		6			9.	The workbook section on "The Model" is summarized. (MINUS 18 points if not included)
	M		3			10.	The model is skillfully constructed.
	M		3			11.	The model is scientifically accurate.
	M		3			12.	The model is dynamic. (The model actually works and is not just a static, non-working model.)
C			6			13.	The workbook section on "The Collection" is summarized. (MINUS 18 points if not included)
C			3			14.	The specimens are attractively displayed.
C			3			15.	The labeling of the specimens is scientifically accurate.
C			3			16.	The specimens are scientifically categorized.
C	M	E	1			17.	The workbook section on "Budget" is summarized.
C	M	E	1			18.	The workbook section on "Schedule" is summarized.
C	M	E	1			19.	The workbook section on "Mentoring" is summarized.
C	M	E	3			20.	The workbook section on "Scientific Inquiry" is summarized.
C	M	E	3			21.	The workbook section on "Theme of Science Fair" is summarized.
C	M	E	1			22.	The display is physically well-constructed.
C	M	E	1			23.	The Title (statement, phrase, or question) captures the viewer's attention. (MINUS 6 points if not included)
C	M	E	3			24.	The overall display has visual appeal; it is neat, creative, and well-organized.
C	M	E	1			25.	Each section of the display is clearly labeled.
C	M	E	3			26.	The text is clearly written.

C	M	E	Rating Factor	Student Score	Section	Item No.	Scoring Criteria
C	M	E	3			27.	Spelling and grammar are correct.
C	M	E	3			28.	Visual aids (tables, charts, graphs, diagrams, and photographs) are used effectively.
C	M	E	3			29.	The display is easy to understand relative to the project's complexity.
C	M	E	3			30.	The display provides for hands-on learning.
C	M	E	0	( )		31.	The animal enclosure is <u>not</u> secure. (MINUS 9 points)
C	M	E	0	( )		32.	Bacteria or viruses are <u>not</u> in sealed containers. (MINUS 9 points)
C	M	E	0	( )		33.	Water or other fluids are <u>not</u> in watertight containers. (MINUS 9 points)
							SCORE FOR SECTION C
					D.		**INTERVIEW**
		E	4			1.	The student clearly explains the experiment used for testing the hypothesis.
		E	4			2.	The student clearly understands if the experimental results do or do not support the hypothesis.
	M		8			3.	The student clearly understands the scientific principles of the model.
C			8			4.	The student clearly explains how the collection is categorized.
C	M	E	4			5.	The student understands how this project could be improved or expanded.
C	M	E	4			6.	The student understands the research and where it can lead to in the future.
C	M	E	3			7.	The student understands how the project reflects the theme of science fair.
C	M	E	4			8.	Judge's evaluation of the overall quality of the project
							SCORE FOR SECTION D (MINUS 60 points if the student fails to appear for a scheduled interview)
							TOTAL SCORE = Totals of sections A through D

Comments of Coach

Date	Signature of Coach

Comments of Judge(s)

Date	Initials of Judge(s)
Award Level	Name of Award