Lab Report Scoring Rubric

Component	Exceptional Quality(4)	Acceptable (3)	Progressing (2)	Unacceptable (1) Missing (0)
Identifying Info	-	-	-	-
Title	Title is descriptive and representative of the purpose, clearly incorporates the experiments variables.	Title gives a general description of the purpose of the experiment. The topic is clear from the title	The title is creative but gives little to no insight into the purpose of the experiment	The title is either erroneous, irrelevant, or missing.
Question	The question is clearly identified and stated using appropriate academic vocabulary. The question is open – ended and requires an experiment.	The question partially identifies the purpose of the experiment. It may lack appropriate vocabulary or be vague in its description.	The question is not open-ended and can be answered with a yes or no. It does not require experimentation to find an answer.	The question does not apply to the lab. It is either erroneous, irrelevant, or missing.
Hypothesis	The hypothesis shows a clear relationship between the variables and the predicted results. The hypothesis is thoroughly explained using research or background knowledge.	The prediction is clear and reasonable based on the background knowledge the student has acquired through class but gives little to no explanation.	The stated hypothesis indicates flawed logic about the relationship between the variables and predicted results.	The hypothesis stated is either erroneous, irrelevant, or missing.
Materials	All materials and quantities are clearly and accurately listed.	All materials are listed but the list lacks quantities and attention to detail.	Most materials are listed. Some are missing	Materials list includes items that are either erroneous or irrelevant. OR list is missing.
Procedure	Procedures are listed in clear steps; each step is numbered and in a complete sentence; the experiment could be easily replicated based on the procedures provided	Procedures are listed, but seem to be missing some information that would allow one to successfully replicate the experiment;.	Procedures do not accurately list the steps of the experiment. some steps are not numbered and/or are in incomplete sentences	Procedure is either erroneous, irrelevant, or missing.

Data	Professional looking and accurate representation of the data in tables, graphs, and written form; graphs and tables are appropriately labeled and titled	Accurate representation of the data in two of the three possible forms (written, graphs, tables); graphs or tables are not appropriately labeled and titled; "something is missing"	Data are inaccurate and/or represented in only one of the three possible forms (written, graph, tables); "a lot is missing"	Data included is either erroneous, irrelevant, or missing.
Conclusion	Conclusion includes ALL necessary components: summary of the experiment claims with supporting evidence, whether the findings support or refute the hypothesis, sources or error, and what was leaned from the experiment. Conclusion includes proper use of academic vocabulary and student attempts to extend their thinking including questions they still have.	Conclusion includes a general overview of the experiment and what was learned from the experiment; 1 -2 components are missing	Conclusion shows little effort and reflection. 3 or more components are missing.	Conclusion has info that is either erroneous, irrelevant, or missing over half of the necessary components/

Point Totals:

AD—24-28 pts

PR—18-23 pts

BA—10-17 pts

MI— 1-9 pts

Science Fair Project Score Sheet--- Scientific Practices

Student: _____ **Project:** _____ **Grade:** ____ **Class:** ___

Scientific Practice	Advanced	Proficient	Basic	Minimal	N/A
Asking Questions/ Defining Problems	Question arises from examining models or a theory and aims to clarify and/or seek additional information about phenomena	Question Seeks to determine relationships between independent and dependent variables	Question can be investigated and used to predict reasonable outcomes based on patterns such as cause and effect relationships.	Question builds on prior experiences and progresses to a descriptive idea that can be tested.	N/A
Developing and Using Models	Develop and/or use multiple types of models to provide mechanistic accounts and/or predict phenomena, and move flexibly between model types based on merits and limitations.	Develop and/or use a model to predict and/or describe phenomena. Develop and/or use a model to generate data to test ideas about phenomena in natural or designed systems.	Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.	Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).	N/A
Planning and Carrying Out Investigations	Plan an investigation or test a design individually to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.	Plan an investigation individually and, in the design, identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.	Plan and conduct an investigation to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered	Plan and conduct an investigation (independently or with assistance) to produce data to serve as the basis for evidence to answer a question.	N/A
Analyzing and Interpreting Data	Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data. ? Compare and contrast various types of data sets (e.g., self-generated, archival) to examine consistency of measurements and observations	Use graphical displays (e.g., maps, charts, graphs, and/or tables) of large data sets to identify temporal and spatial relationships. Distinguish between causal and correlational relationships in data. Analyze and interpret data to provide evidence for phenomena.	Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships.	Compare predictions (based on prior experiences) to what occurred (observable events).	N/A
Using Mathematical and	Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to	Use mathematical representations to describe and/or support scientific conclusions and design	Decide if qualitative or quantitative data are best to determine whether a	Decide when to use qualitative vs. quantitative data. Use counting and	N/A

Computational Thinking	describe and/or support claims and/or explanations. Apply techniques of algebra and functions to represent and solve scientific and engineering problems.	solutions. Apply mathematical concepts and/or processes (e.g., ratio, rate, percent, basic operations, simple algebra) to scientific and engineering questions and problems	proposed object or tool meets criteria for success. Describe, measure, estimate, and/or graph quantities (e.g., area, volume, weight, time) to address scientific and engineering questions and problems.	numbers to identify and describe patterns in the natural and designed world(s).	
Constructing Explanations and Designing Solutions	Apply scientific reasoning, theory, and/or models to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.	Construct an explanation that includes qualitative or quantitative relationships between variables that predict(s) and/or describe(s) phenomena.	Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.	Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.	**N/A**
Engaging in Argument from Evidence	Respectfully provide and/or receive critiques on scientific arguments by probing reasoning and evidence, challenging ideas and conclusions, responding thoughtfully to diverse perspectives, and determining additional information required to resolve contradictions. Construct, use, and/or present an oral and written argument or counter-arguments based on data and evidence.	Respectfully provide and receive critiques about one's explanations, procedures, models, and questions by citing relevant evidence and posing and responding to questions that elicit pertinent elaboration and detail. Construct, use, and/or present an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.	Construct and/or support an argument with evidence, data, and/or a model. Use data to evaluate claims about cause and effect.	Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.	**N/A**
Obtaining, Evaluating, and Communicating Information	Communicate scientific and/or technical information or ideas (e.g. about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (i.e., orally, graphically, textually, mathematically).	Evaluate data, hypotheses, and/or conclusions in scientific and technical texts in light of competing information or accounts. Communicate scientific and/or technical information (e.g. about a proposed object, tool, process, system) in writing and/or through oral presentations.	Communicate scientific and/or technical information orally and/or in written formats, including various forms of media as well as tables, diagrams, and charts.	Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.	**N/A**

Science Fair Score Sheet

Oral Presentation/Display Board

Name: _____ **Class:** ____

Title of Project: _____

Category	Rating	Comments/Suggestions
Title and subtitles are prominently displayed and clearly convey the thesis/hypothesis and subject of the experiment.	4 3 2 1	
The display is organized into subtopics and the starting and stopping points are easy to identify. It is neat, creative and visually appealing.	4 3 2 1	
Clear, concise captions and/or other text are used to explain pictures, charts, graphs, or other visuals.	4 3 2 1	
Presentation is well planned, organized, and coherent.	4 3 2 1	
The significance of the topic is clearly explained and conclusion gives scientific reasons for results.	4 3 2 1	
Provided in depth coverage of the topic but stayed within the allotted 6 minute time frame.	4 3 2 1	

AD: 21+ **PR: 15-20** **BA: 10-14** **MI: ≤13**

STEM FAIR

Science Fair Project

Judge No. _____
Project No. _____
Grade _____

Display/Creativity (20 points)	5	4	3	2	1	0
The problem is original or is a unique approach to an old problem (considering student's grade level)						
Scientific criteria displayed (problem, hypothesis, experiment, data collection, results, conclusion, new problem)						
Visual representation of data (model, graph, colors, designs, etc.)						
Student communicates knowledge of topic and understands that unanswered questions remain						
Scientific Thought (20 points)	**5**	**4**	**3**	**2**	**1**	**0**
Hypothesis is clearly stated						
Project shows depth of study and effort						
Project exhibits orderly recording and analysis of data and the inclusion of a log book						
Sampling techniques and data collection are appropriate for the problem						
Scientific procedures are logical, complete and organized						
Conclusions formulated are logical, supported by the data collected and refer to the hypothesis and its relationship to the conclusion. Questions arising from the analysis of the investigation as well as errors made and suggestions for improvement of the project are included.						
Total number of points per column						

Grand Total:

A total of 50 points are possible.

Comments: _____