

Science Fair Project Information

All work must have prior approval. Work will not be graded for projects that have not been approved. Parts of these projects will be turned in multiple times. Make sure all work is saved in more than one place and that all group members have access to the electronic version. Exploravision projects and science fair projects will be submitted electronically. All parts of the project must be turned in on time or result in ten points taken off for each day that it is late. If the student chooses to participate in a group project, all students in the group will receive the same grade. Checklists will be provided for every assignment and due dates will be posted on the checklists.

| Exploravision Group of 2-4 www.exploravision.org | Science or Engineering Project Individual or Pairs http://www.societyforscience.org/isef/ | Due date & assignment |
|--|--|--|
| Create and explore a vision of future technology by combining imagination with the tools of science. See above website for more information. | Design and conduct an experiment to answer a question or solve a problem. Engineering projects set a goal and build a prototype. See above website for more information. | |
| <p>TOPIC Select group and identify topic. Write a paragraph explaining your topic (the technology, the problem it could solve and a short explanation).</p> <p>DESIGN PROCESS Explain three other topics you initially thought about. Explain why you decided to focus on your topic instead of the other ones.</p> <p>FUTURE This is the most important part of the Exploravision paper. Describe your vision for your project. Use original drawings whenever possible.</p> | <p>TOPIC AND PURPOSE Work individually. Describe topic and briefly explain why you chose this topic</p> <p>MATERIALS Make a list of ALL the equipment and materials that you will need to complete your project at home</p> <p>METHODS Describe the procedure that you will follow in order to test your topic.</p> | <p>Friday, August 25th Lab Grade (no other work will be accepted until the topic has been approved)</p> |
| <p>HISTORY, PRESENT, & BIBLIOGRAPHY. Follow formatting guidelines given to you. You will resubmit these sections, be sure to save your work electronically.</p> <p>This should be written in proper MLA or APA format and include a bibliography. SUBMITTED through TURNITIN</p> | <p>BACKGROUND RESEARCH & BIBLIOGRAPHY Write a summary of background research relating to your topic and design your experiment. Introduce your paper with the purpose, question, and hypothesis.</p> <p>This should be written in proper MLA or APA format and include a bibliography. SUBMITTED through TURNITIN</p> | <p>Friday, September 15 (Forms and Rough Draft)</p> <p>Friday, September 29th Final Draft</p> <p>Lab Grade</p> |
| <p>REVISED FUTURE AND PROTOTYPE, BREAKTHROUGHS, & CONSEQUENCES Follow guidelines provided from teacher. SUBMITTED through TURNITIN</p> | <p>RESULTS Display data in appropriate tables and graphs with pictures</p> <p>Conclusion: written in the CER (claim-evidence Reason format)</p> | <p>Friday October 27th</p> <p>Lab Grade</p> |
| <p>ABSTRACT Describe your project in 150 words or less. SUBMITTED through TURNITIN</p> <p>WEB PAGE GRAPHICS (5) Follow directions provided.</p> | <p>ABSTRACT (Submitted on Turnitin.com) Complete all aspects of the abstract in 250 words or less.</p> <p>BACKBOARD DISPLAY Turn in an attractive and well organized backboard describing your work.</p> | <p>Friday, December 1st</p> <p>Lab Grade</p> |
| <p>December 8, 2023 TCCHS Science Fair</p> <p>A Physical Backboard Display will be needed for Region and State Level Competitions.</p> | | |
| <p>January 31, 2024 Virtual Competition for Exploravision</p> <p>TBD: Region Science Fair</p> | | |

Science Fair 1st nine weeks Rubric

Part 1: TOPIC, PURPOSE, MATERIALS, and METHODS

Due August 25, 2023 (Lab Grade)

| | Excellent | Good | Fair |
|---|--|--|---|
| Topic and Purpose Topic: Include the question being investigated, the dependent and independent variables, constants, and control variables are identified, and sample size is discussed Purpose: A brief summary of why and how you chose this topic | 30 Topic and Purpose are clearly described with significant supporting details | 25 Topic and Purpose are both described, but could use supporting details | 20 Topic is provided, but needs some supporting details; purpose is vague or missing |
| Materials Provide a complete list of chemical, measurement tools, and scientific devices to be used during the experiment. | 30 Material list is present and complete | 25 Material List is present, but is missing information | 20 Materials list is missing or has little information |
| Methods Detail all procedures and experimental design including methods for data collection. Risk and Safety: Identify any potential risks and safety precautions needed. | 30 Procedure includes clear steps and experimental design including methods for data collection Risk and Safety: All potential risks and safety precautions are identified | 25 Procedure includes vague steps and experimental design including methods for data collection Risk and Safety: potential risks and safety precautions are identified | 20 Procedure includes little or no steps and experimental design including methods for data collection Risk and Safety: Little or no potential risks and safety precautions are identified |
| Format and Grammar | 10 Correct capitalization; correct grammar and usage contribute to clarity and style; very little need for editing. | 7 Punctuation, spelling, and capitalization are generally correct; occasional lapses in correct grammar or usage; moderate need for editing. | 5 Basic punctuation tends to be omitted, haphazard, or incorrect; frequent spelling errors; capitalization is inconsistent or incorrect; errors in grammar or usage interferes with readability and meaning; substantial need for editing. |

Science Fair Part 2: BACKGROUND RESEARCH & BIBLIOGRAPHY DUE (Lab Grade)

Rough Draft and Forms September 15, 2023

Final Draft September 29, 2023

Write a summary of background research relating to your topic and design your experiment. Introduce your paper with the purpose, question, and hypothesis This should be written in proper MLA or APA format and include a bibliography. SUBMITTED through TURNITIN.

| | Excellent | Good | Fair |
|---|--|--|---|
| <p>Background What do we already know about your topic? What information is necessary to know before your project can be understood?</p> <p>2-3 pages long, not including the bibliography. Citations from the sources in bibliography</p> | <p>50 Information is complete, accurate, and stated clearly. Research appropriately relates to the topic</p> <p>Paper is 2-3 pages and citations are included and written in APA or MLA format</p> | <p>40 Information is complete, but is not stated clearly. Research relates to the topic.</p> <p>Paper is less than 2 pages and citations are mostly complete and correct in the appropriate format</p> | <p>30 Information is incomplete, contains inaccuracies and is not clear. Some research is off the stated topic.</p> <p>Paper is less than 1 page, and citations are missing or incorrect.</p> |
| <p>Introduction paragraph The introduction includes the purpose, problem or engineering goals, an explanation of what prompted your research, and what you hoped to achieve. Also include you hypothesis for the experiment</p> | <p>20 Purpose, hypothesis, problem, and explanation are meaningful and stated clearly.</p> | <p>18 Some of the parts are present or information is not meaningful and easily understood.</p> | <p>15 Information is not complete and is not easily understood.</p> |
| <p>Bibliography All sources used in researching the chosen technology should be referenced in the bibliography. Sources must be clearly labeled and include title, author, publisher, and copyright date. Internet sources, interviews, and non-original graphics should also be referenced in the bibliography. Footnotes are encouraged, but not required. The bibliography is not counted as part of the description.</p> | <p>20 At least five sources listed correctly using MLA or APA format</p> | <p>18 Between 3 or 4 sources listed with proper format or five sources listed with improper format.</p> | <p>15 Less than three resources listed with or without improper format.</p> |
| <p>Format and Grammar <i>Be sure to double-space and use 12 pt. standard type and 1 inch margins. Also include a bibliography of at least five sources (in proper MLA or APA format). Although reports may be much longer, your report should be 2-3 pages long, not including the bibliography.</i></p> | <p>10 Correct capitalization; correct grammar and usage contribute to clarity and style; very little need for editing.</p> | <p>7 Punctuation, spelling, and capitalization are generally correct; occasional lapses in correct grammar or usage; moderate need for editing.</p> | <p>5 Basic punctuation tends to be omitted, haphazard, or incorrect; frequent spelling errors; capitalization is inconsistent or incorrect; errors in grammar or usage interferes with readability and meaning; substantial need for editing.</p> |

Science Fair 2nd Nine weeks Rubrics (Lab Grade)

Science Fair: Part 3 Graphs, Pictures, and Conclusion

DUE: Friday, October 27, 2023

| | Excellent | Good | Fair |
|--|---|--|--|
| <p>Graphs and/or Data Table You should have a table and graph for each trial of your experiment AND a table and graph for the averages of your trials. If you are unsure of the best way to display your results, see your teacher well in advance of the due date. All graphs should be made using graph paper, or preferably a computer graphing program such as Excel or google sheet.</p> | <p>30 An appropriate graph or data tables of the of the trials are included; a title is provided; axes or columns are labeled; units are identified; metric units are used.</p> | <p>25 Graphs and Data tables are included, but they are lacking enough identifiers to be easily understood.</p> | <p>20 Graphs and Data tables are included, but they do not give any meaningful information.</p> |
| <p>Pictures Pictures should provide evidence for proof of individual work and support your experimental design Each picture needs to have a caption: "Photo credit by____" and a description to clarify picture</p> | <p>30 Appropriate pictures of the results of the experiment are included. Captions and descriptions are present</p> | <p>25 Pictures are included, but they do not relate to appropriately show experiments. Caption or descriptions are incomplete</p> | <p>20 Pictures absent or are included, but they do not relate to completing the experiment. Captions or descriptions are absent</p> |
| <p>Conclusion CER CLAIM: A statement or conclusion that answers the original question/problem. EVIDENCE: Scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim. REASONING: A justification that connects the evidence to the claim. It shows why the data counts as evidence by using appropriate and sufficient scientific principles</p> | <p>30 Makes an accurate and complete claim and includes points from the question in the writing. Provides all or most of the expected pieces of evidence from the sources used appropriately. Provides reasoning components for all or most of the evidence and explains how the evidence supports the claim.</p> | <p>25 Makes an accurate and complete claim. Provides some of the expected pieces of evidence from the sources used (e.g. data like numbers, observations, etc.) appropriately. Provides reasoning components for some evidence and explains how the evidence supports the claim.</p> | <p>20 Makes an accurate but vague or incomplete claim. Makes a general statement Regarding evidence, but does not include specific details. Repeats evidence and links it to the claim, but does not explain how the evidence supports the claim</p> |
| <p>Format and Grammar <i>Be sure to double-space and use 12 pt. standard type and 1 inch margins. Also include a bibliography of at least five sources (in proper MLA or APA format). Although reports may be much longer, your report should be 2-3 pages long, not including the bibliography.</i></p> | <p>10 Correct capitalization; correct grammar and usage contribute to clarity and style; very little need for editing.</p> | <p>7 Punctuation, spelling, and capitalization are generally correct; occasional lapses in correct grammar or usage; moderate need for editing.</p> | <p>5 Basic punctuation tends to be omitted, haphazard, or incorrect; frequent spelling errors; capitalization is inconsistent or incorrect; errors in grammar or usage interferes with readability and meaning; substantial need for editing.</p> |

Science Fair Part 4: Abstract and Backboard Display

DUE Friday, December 1, 2023 (Lab Grade)

| | Excellent | Good | Fair |
|---|--|--|--|
| <p>Abstract</p> <p>The abstract should include:</p> <p>a) purpose (hypothesis)</p> <p>b) procedures used (overview),</p> <p>c) data summary or analysis, and</p> <p>d) conclusions.</p> | <p>40</p> <p>All portions of the abstract are included</p> <p>The abstract is less than 250 words. Proper tense and grammar are used.</p> | <p>35</p> <p>The abstract contains some of the important formatting elements.</p> | <p>30</p> <p>The abstract contains only one of the important formatting elements.</p> |
| <p>Backboard Display</p> <p>Your display should attract and inform. Make it easy for readers to assess what you have done and the results you have obtained.</p> <p>Include the following 8 sections from Parts 1-3.</p> <ul style="list-style-type: none"> ● Title ● Background Information & Question ● Purpose ● Hypothesis ● Materials & Methods ● Results ● Photos w/ Photo credits ● Conclusion <p>Start with the question, followed by the hypothesis, equipment and procedure used, and end with results and conclusions.</p> | <p>40</p> <p>All 8 sections are included on the backboard display and contain all adequate supporting details</p> <p>Sections are organized in a logical manner so that it can be read left to right</p> <p>Headings are used to make it easy to find sections</p> | <p>35</p> <p>5-7 sections are included and completed or some sections are incomplete and missing adequate supporting details</p> <p>Sections are easy to read, but not well developed</p> <p>Headings are not used effectively</p> | <p>30</p> <p>1-4 sections are included and completed or most sections are incomplete and missing adequate supporting details</p> <p>Section are not easy to read and not clear</p> <p>Sections are not in a logical order</p> |
| <p>Format and Grammar</p> <p><i>Be sure to double-space and use 12 pt. standard type and 1 inch margins. Also include a bibliography of at least five sources (in proper MLA or APA format). Although reports may be much longer, your report should be 2-3 pages long, not including the bibliography.</i></p> | <p>10</p> <p>Correct capitalization; correct grammar and usage contribute to clarity and style; very little need for editing.</p> | <p>7</p> <p>Punctuation, spelling, and capitalization are generally correct; occasional lapses in correct grammar or usage; moderate need for editing.</p> | <p>5</p> <p>Basic punctuation tends to be omitted, haphazard, or incorrect; frequent spelling errors; capitalization is inconsistent or incorrect; errors in grammar or usage interferes with readability and meaning; substantial need for editing.</p> |
| <p>Creativity and Organization</p> <p>Do not clutter your display with unnecessary information. Tell a story.</p> | <p>10</p> <p>Neat and creative use of color and visuals. Well-organized, neat, proofread, and easy to read. Appropriate pictures are included.</p> | <p>8</p> <p>Somewhat neat, attractive, and easy to follow</p> | <p>0</p> <p>Not neat, attractive, nor easy to follow</p> |