

Original Experiment Rubrics

Adapted from Science Fair Projects rubrics created by the Science Department at ACS and FISSION 2020 team

Juror :	project number →								
<i>Materials and Procedure</i>	<ul style="list-style-type: none"> ● All materials are listed in sufficient detail ● Design is a well-constructed test of the stated hypothesis. ● Lists specific sequence of steps. ● Explains how independent variable is manipulated. ● Explains how dependent variable is measured, quantified or described. ● Provides for control of other variables. ● Steps are described in sufficient detail that another individual could replicate the experiment. ● Includes duplication of experiment. ● Clearly states what the experimental control is. ● Describes the sample size and the statistical analysis being used. 								
<i>Results</i>	<ul style="list-style-type: none"> ● Data tables are included and are relevant to the tested problem. ● Appropriate type of graphs are used ● Data are plotted correctly. ● Graph is titled and labeled correctly. ● Graph is properly scaled. ● Variables on proper axes (independent on x-axis, dependent on y-axis.) <p><i>In rare cases in which data cannot be quantified, results are summarized clearly and visually:</i> Provides enough data to draw a conclusion.</p>								

<i>Discussion</i>	<ul style="list-style-type: none"> ● Student completely understands the topic and uses scientific terminology properly and effectively. ● Summarizes the data and uses it as support in answering the problem. ● Relates background information to data and analysis. ● Summarizes and evaluates the experimental procedure, including relevant sources of error. ● Relates the study to general interest, other studies that have been or could be conducted. ● Clearly states the big-picture implications of the results and discusses the next logical future directions/follow-up. 								
<i>Conclusion</i>	<ul style="list-style-type: none"> ● Accepts/rejects hypothesis or answers the problem. ● States the relationship between the dependent and independent variables. ● Conclusion is precisely stated, relates directly to support or non-support of the hypothesis. ● Suggests recommended improvements for this experiment and possibilities for further study. 								
<i>Originality</i>	<ul style="list-style-type: none"> ● The experiment shows original ideas and approach to a problem. ● The study provides novel or unexpected results. ● The study combines concepts/ideas that have not been previously connected to produce new body of knowledge. ● The study creates/ implements new methodology/techniques 								
<i>Application and Exploration of the Scientific Method</i>	<ul style="list-style-type: none"> ● Experiment shows development of the research question through thoughtful analysis and exploration of each step to achieve the desired goal ● Demonstrates inquiry/problem solving/critical thinking at each step of the investigation 								
<i>Relevance</i>	<p>Possible types of relevance:</p> <ol style="list-style-type: none"> 1. Relevance to Human Health & Medicine 2. Relevance to World Economics 3. Relevance to the Environment/Climate Change 4. Relevance to human knowledge 								

<i>Application</i>	<ul style="list-style-type: none"> ● Applications of the results are clearly stated. ● Applications are technically possible + financially feasible. 								
<i>Poster</i>	<ul style="list-style-type: none"> ● All (Abstract, Background research, Hypothesis, Materials, Procedure, Data and Analysis, Discussion, Further Questions, Bibliography) are present and clearly distinguishable. ● Text is concise and free of errors. ● Three or more references are clearly displayed in the proper format. ● If appropriate, technical drawings are included and are neatly drawn. ● Poster attracts attention and uses visuals to make the material more understandable. 								
<i>Presentation</i>	<ul style="list-style-type: none"> ● Student/s demonstrates strong knowledge of the subject. ● Presentation is within the necessary time frame (5-10 mins), and explains all parts of the experiment. ● Students speak evenly and use appropriate speed and volume. ● Students maintain good eye contact and good posture. ● Students can answer questions, showing good understanding of the field and the relevance of their project. ● Students make an effort to make their project easily understandable, interesting and relevant to anyone. ● Students are conscious and can explain sources of error in their project. 								

Projects ranking: