



STL SCIENCE FAIR

Supporting the Advancement of Youth Scientists

A Program of the Academy of Science of St. Louis

Junior Regional Division SCIENCE PROJECTS

All projects are required to have a [signed approval document](#) and must follow the [STL Science Fair Rules and Regulations](#).

Project Elements	Category Weight	4	3	2	1
Research Statement	x2	- Clearly and completely identifies the question or problem being studied. - Uses all correct vocabulary to define the question or problem.	- Mostly identifies the question or problem being studied. - Uses mostly correct vocabulary to define the question or problem.	- Identifies the question being studied, but it is a different research question than what the project is about. - Uses some correct vocabulary to define the question or problem.	- No research statement present. OR - Incorrect vocabulary used to define the question or problem.
Overview	x2	- Gives a clear and complete summary of the project. - Completely explains the problem being addressed and the proposed solution. - Clearly and completely communicates the goals of the project.	- Gives a mostly clear summary of the project. - Mostly explains the problem being addressed and the proposed solution. - Mostly identifies the goals of the project.	- Gives some summary of the project. - Some explanation of the problem being addressed or the proposed solution is provided, but with incomplete information. - Somewhat shares the goals of the project.	- Does not give a project overview. OR - Explains the problem being addressed or the proposed solution using incorrect information. - Does not share the goals of the project.
Significance	x2	- Clearly and completely explains how the design could benefit people, society, or the environment. - Clearly and completely explains why solving this problem matters.	- Mostly explains how the project could benefit people, society, or the environment but includes incorrect information. - Tells why the <i>science of the project</i> is interesting or important, but does not connect the science	- Somewhat explains how the project could benefit people, society, or the environment but includes incorrect information. - Somewhat explains why solving this problem matters.	- No description of how the project could benefit people, society, or the environment. - No descriptions of why solving this problem matters.

			to the project.		
Hypothesis	x2	• Makes a logical, complete, and testable prediction based on the research statement about what will happen in the project. (<i>If..., then ..., because...</i>) • Completely explains why the prediction makes sense using research or scientific ideas.	• Makes an unreasonable, but testable prediction based on the research statement about what will happen in the project. (<i>If..., then ..., because...</i>) • Mostly explains why the prediction makes sense using research or scientific ideas.	• Makes a prediction about what will happen that does not address the research statement. • Somewhat explains why the prediction makes sense using research or scientific ideas.	• Does not make a prediction about what will happen in the project. • Does not explain why the prediction makes sense using research or scientific ideas.
Procedure <i>*Pictures can be used to support the written procedure, but are not required.*</i>	x3	• Completely identifies the steps of the experiment in the correct order. • All materials and measurements are clearly listed. • Includes enough detail for someone else to repeat the experiment.	• Identifies most steps of the experiment in the correct order. • Most materials and measurements are clearly listed. • Includes enough detail for someone else to repeat most of the experiment.	• Identifies some steps of the experiment in the correct order. • Some of the materials and measurements are listed. • Includes enough detail for someone else to repeat some of the experiment.	• The procedure is not listed, or does not reflect the experiment that was completed. • The materials list is not complete and incorrect measurements are used. • The experiment could not be repeated based on the procedure provided.
Experimental Conditions	x2	• Identifies the independent, dependent, and controlled variables. <i>Confounding variables are not necessary in the Junior Regional Division.</i> • Clearly explains how the test was kept fair. • The procedure was repeated multiple times.	• Identifies the independent and dependent variables. Controlled variables are identified incorrectly or not identified. • Mostly explains how the test was kept fair. • Procedure was repeated only once.	• Identifies an incorrect independent or dependent variable. • May be missing controlled variables, fairness in testing, and other key experimental components. • Procedure was repeated only once.	• No variables identified. • Repeated trials are not attempted.
Data	x2	• All observations and measurements are made by following the procedure.	• Most observations and measurements are usually made by following the procedure.	• Some observations and measurements are made by following the procedure.	• Observations and measurements are not consistent with the procedure.

		• Data (Qualitative or Quantitative) is collected in an appropriate and consistent scientific unit. • Tables, charts, or graphs are clearly labeled and appropriate to the study.	• Data (Qualitative or Quantitative) is collected in appropriate but inconsistent scientific units. • Tables, charts, or graphs are mostly clearly labeled and are appropriate to the study.	• Data (Qualitative or Quantitative) is not collected in an appropriate scientific unit. • Tables, charts, or graphs are incorrectly labeled and are inappropriate to the study.	• Tables, charts, or graphs are not used or are incorrect. • No data collected or too few data points collected to draw a conclusion.
Results	x2	• Explanation of what the data shows is clear and references specific data points. • All patterns or trends, and any outliers are identified. • If descriptive statistics are present, they are used correctly to support explanation. • Only data points and trends are used to support the explanation instead of opinions.	• Explanation of what the data shows is mostly clear and references specific data points. • Most of the patterns or trends, and any outliers are identified. • If descriptive statistics are present, they are used incorrectly to support explanation. • Mostly data points and trends are used to support the explanation instead of opinions.	• Explanation of what the data shows is somewhat clear but contains errors that impact understanding. • A general statement about patterns or trends is present, but not specifically addressed. • If descriptive statistics are present, they are used incorrectly to support explanation. • Some data points and trends are used in the explanation of the data.	• Explanation of what the data shows is incorrect or missing. • Patterns or trends, and any outliers are not identified. • If descriptive statistics are used, they are used incorrectly to support explanation. • Data points and trends are not used in the explanation of the data.
Conclusions	x4	• Clearly restates the hypothesis and states whether the hypothesis was supported or not supported by the data. • Completely explains the conclusion in detail using specific evidence from the experiment. • Discusses at least two possible sources of error or unexpected results.	• States that the hypothesis was TRUE or FALSE. • Explains the conclusion using general statements about the evidence from the experiment but not specific data points. • Discusses unexpected results but incorrectly identifies possible sources of error.	• Incorrectly states whether the hypothesis was supported or not supported by the data. • Explains the conclusion using opinions instead of data collected in the experiment. • Does not discuss unexpected results or identify possible sources of error.	• Does not state whether the hypothesis was supported or not supported by the data. • Does not explain the conclusion OR • Conclusion is explained using only opinions. • Does not discuss unexpected results or identify possible sources of error.

Future Work	x1	• Develops more than one question for further investigation related to the results and conclusions of the current investigation.	• Develops one question for further investigation related to the results and conclusions of the current investigation.	• Question(s) for further investigation are unrelated to the results and conclusions of the current investigation.	• Future work is not addressed.
Works Cited	x1	• Lists the books, websites, or people used to learn about the topic. (<i>More than 3 sources</i>) • Includes enough information so someone else can easily find the source. • Uses the same format for each source.	• Lists the books, websites, or people used to learn about the topic. (<i>Includes 3 sources</i>) • Includes most relevant information so someone else can find the source. • Uses a similar format for each source.	• Lists the books, websites, or people used to learn about the topic. (<i>Between 1-2 sources</i>) • Includes some information, but would be difficult to verify the source. • Uses a different format for each source.	• No sources are included.
Display Items	x1	• Project includes <u>all (12)</u> sections: title, research statement, overview, significance, hypothesis, procedure, experimental conditions, data, results, conclusions, future work, and works cited. • Includes a complete and clear acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project. • Pictures, graphs, logbook, models, and other visuals are relevant and help explain the project.	• Project includes between <u>11-9</u> sections: title, research statement, overview, significance, hypothesis, procedure, experimental conditions, data, results, conclusions, future work, and works cited. • Includes an mostly clear acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project. • Most of the pictures, graphs, logbook, models, and other visuals are relevant and help explain the project.	• Project includes between <u>8-6</u> sections: title, research statement, overview, significance, hypothesis, procedure, experimental conditions, data, results, conclusions, future work, and works cited. • Includes a somewhat clear acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project. • Some pictures, graphs, logbook, models and other visuals are minimally relevant but do not negatively impact understanding..	• Project includes <u>5 or less</u> sections: title, research statement, overview, significance, hypothesis, procedure, experimental conditions, data, results, conclusions, future work, and works cited. • Assistance is mentioned throughout the project but does not include an acknowledgement. • Pictures, graphs, logbook, models, and other visuals are not relevant and negatively impact understanding of the project.

Originality	x1	● Project is based on a unique question, idea, or way of solving a problem that has deep significance to the student. ● Clearly identifies all help received from adults, AI, teachers, or mentors while showing the student's own work and ideas and that the student completed the project themselves.	● Project is based on an interesting or creative (but not unique) idea or question that has significance to the student. ● Mostly identifies what help was received from adults, AI, teachers, or mentors while showing that the student did most of the thinking and that the student completed most of the project themselves.	● Project is based on an interesting or creative (but not unique) idea or question that has no significance to the student. ● Identifies some, but not all, help, resources, or use of AI or mentors, while showing that the student did some of the thinking and that the student completed some of the project themselves, but had significant assistance.	● Project is an exact replica of an existing activity. (ie. popsicle stick harmonicas). ● Does not clearly identify any help, resources, or use of AI or mentors, but does reference assistance throughout the project.
-------------	----	---	---	---	--