



# STL SCIENCE FAIR

Supporting the Advancement of Youth Scientists

A Program of the Academy of Science of St. Louis

## Regional Elementary 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 Score | 4                                                                                                                                                                                                                                            | 3                                                                                                                                                                                                                               | 2                                                                                                                                                                                                                                         | 1                                                                                                                                                                                                                                                         |
|--------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Research Statement | x2             | <ul style="list-style-type: none"> <li>Clearly and completely identifies the question or phenomenon being studied in <u>one sentence</u>.</li> <li>Uses all correct vocabulary to define the question or problem.</li> </ul>                 | <ul style="list-style-type: none"> <li>Mostly identifies the question being studied in one sentence.</li> <li>Uses mostly correct vocabulary to define the question or problem.</li> </ul>                                      | <ul style="list-style-type: none"> <li>Identifies the question being studied, but it is a different research question than what the project is about.</li> <li>Uses some correct vocabulary to define the question or problem.</li> </ul> | <ul style="list-style-type: none"> <li>No research statement present.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Incorrect vocabulary used to define the question or problem.</li> </ul>                                                 |
| Overview           | x2             | <ul style="list-style-type: none"> <li>Gives a clear and complete summary of the project (5-7 sentences).</li> <li>Completely explains what was built or designed</li> <li>Completely explains why the student chose the project.</li> </ul> | <ul style="list-style-type: none"> <li>Gives a mostly clear summary of the project (3-4 sentences).</li> <li>Mostly explains what was built or designed.</li> <li>Mostly explains why the student chose the project.</li> </ul> | <ul style="list-style-type: none"> <li>Gives some summary of the project (1-2 sentences).</li> <li>Somewhat explains what was built or designed.</li> <li>Somewhat shares why the student chose this project.</li> </ul>                  | <ul style="list-style-type: none"> <li>Does not give a project overview.</li> <li>Does not explain what was being built or designed or explanation contains incorrect information.</li> <li>Does not share why the student chose this project.</li> </ul> |
| Significance       | x2             | <ul style="list-style-type: none"> <li>Clearly and completely explains how the project could help people, animals, or the environment.</li> <li>Clearly and completely explains</li> </ul>                                                   | <ul style="list-style-type: none"> <li>Mostly explains how the project could help people, animals, or the environment; some details are unclear or vague.</li> <li>Tells why the science</li> </ul>                             | <ul style="list-style-type: none"> <li>Somewhat explains how the project could help people, animals, or the environment; includes incorrect information.</li> <li>Somewhat clear</li> </ul>                                               | <ul style="list-style-type: none"> <li>No description of how the project could help people, animals, or the environment.</li> <li>No descriptions of why someone should care about the project</li> </ul>                                                 |

|                                                                                                        |    | why the project is interesting or important.                                                                                                                                                                                                                               | of the project is interesting or important, but does connect the science to the project.                                                                                                                                                                                                          | explanation of why the project is important or interesting.                                                                                                                                                                                                                                                          |                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hypothesis                                                                                             | x2 | <ul style="list-style-type: none"> <li>• Makes a reasonable hypothesis about what will happen using an "If...then..." statement, when possible.</li> <li>• Completely explains why the student thinks the prediction will happen using research they collected.</li> </ul> | <ul style="list-style-type: none"> <li>• Makes an unreasonable hypothesis or impossible prediction about what will happen using an "If...then..." statement when possible.</li> <li>• Mostly explains why the student thinks the prediction will happen using research they collected.</li> </ul> | <ul style="list-style-type: none"> <li>• Makes a hypothesis about what will happen that does not address the research statement.</li> <li>• Somewhat explains why the student thinks the prediction will happen based on research they collected.</li> </ul>                                                         | <ul style="list-style-type: none"> <li>• Hypothesis is not present or does not explain why the student thinks the prediction will happen.</li> </ul>                                           |
| Procedure<br><br><i>*Pictures can be used to support the written procedure, but are not required.*</i> | x3 | <ul style="list-style-type: none"> <li>• Clearly shows all steps of the project in the correct order.</li> <li>• Lists all the materials that were used and the amount needed.</li> <li>• Includes enough information so another student could do the project.</li> </ul>  | <ul style="list-style-type: none"> <li>• Includes most steps of the project in the correct order.</li> <li>• Most of the materials and needed amounts are listed.</li> <li>• Includes enough information so another student could do most of the project.</li> </ul>                              | <ul style="list-style-type: none"> <li>• Some steps of the project are listed, but some steps are missing or there are unclear directions.</li> <li>• Some of the materials are listed with needed amounts.</li> <li>• Includes enough information so another student could do some steps of the project.</li> </ul> | <ul style="list-style-type: none"> <li>• Steps of the project are not present.</li> <li>• The materials list is incomplete and incorrect measurements are used.</li> </ul>                     |
| Fair Test                                                                                              | x2 | <ul style="list-style-type: none"> <li>• Completely explains how conditions were changed in the project. (3rd-5th should identify IV and DV).</li> <li>• Completely explains</li> </ul>                                                                                    | <ul style="list-style-type: none"> <li>• Mostly explains how conditions were changed in the project. (3rd-5th should identify IV and DV).</li> <li>• Mostly explains what</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>• Somewhat explains how conditions were changed in the project. (3rd-5th should identify IV and DV).</li> </ul> <p>OR</p>                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Does not explain what conditions were changed and what conditions stayed the same for the project.</li> <li>• Procedure was not attempted.</li> </ul> |

|             |    |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                     |
|-------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             |    | what conditions/ controlled variables were kept the same to make each test fair. <ul style="list-style-type: none"> <li>• Procedure was repeated multiple times.</li> </ul>                                                                            | conditions/ controlled variables were kept the same to make each test fair. <ul style="list-style-type: none"> <li>• Procedure was repeated only once.</li> </ul>                                                                                                                            | <ul style="list-style-type: none"> <li>• Somewhat explains what conditions/ controlled variables were kept the same to make each test fair.</li> <li>• Procedure was completed only once.</li> </ul>                                                                                             |                                                                                                                                                                                                                                                                                     |
| Data        | x2 | <ul style="list-style-type: none"> <li>• Carefully records all observations and measurements based on the procedure.</li> <li>• Uses tables, pictures, charts, or graphs that are neat, easy to understand, and appropriate to the project.</li> </ul> | <ul style="list-style-type: none"> <li>• Records most observations and measurements based on the procedure.</li> <li>• Uses tables, pictures, charts, or graphs that are neat and appropriate to the project, but are not easy to understand.</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Records some observations and measurements based on the procedure.</li> <li>• Uses tables, pictures, charts, or graphs that are not appropriate to the project, or have incorrect labels.</li> </ul>                                                    | <ul style="list-style-type: none"> <li>• Observations and measurements that are collected are not based on the procedure.</li> <li>• Tables, pictures, charts, or graphs have incorrect data displayed or are not present.</li> </ul>                                               |
| Results     | x3 | <ul style="list-style-type: none"> <li>• Completely explains what happened in the project using only the data collected.</li> <li>• Clearly and completely states the observed patterns or relationships based on the data collected.</li> </ul>       | <ul style="list-style-type: none"> <li>• Mostly explains what happened in the project using a mix of data points and opinions.</li> <li>• Suggests that there are patterns or relationships seen in the data collected but does not explicitly call out the data that shows them.</li> </ul> | <ul style="list-style-type: none"> <li>• Somewhat explains what happened in the project using few data points and mostly opinions.</li> <li>• Suggests that there are patterns or relationships seen in the data collected but does not explicitly call out the data that shows them.</li> </ul> | <ul style="list-style-type: none"> <li>• Explanation of results is not present</li> </ul> OR <ul style="list-style-type: none"> <li>• Explanation of data does not use any data collected.</li> <li>• Patterns or relationships in the data collected are not addressed,</li> </ul> |
| Conclusions | x4 | <ul style="list-style-type: none"> <li>• Restates hypothesis and tells if the results matched the hypothesis or not.</li> <li>• Uses the results from the investigation to explain conclusions, referencing specific data points.</li> </ul>           | <ul style="list-style-type: none"> <li>• Restates hypothesis but does not say if the results matched it or not.</li> <li>• Uses the results from the experiment to explain conclusions, without referencing specific data points.</li> </ul>                                                 | <ul style="list-style-type: none"> <li>• Incorrectly states if the hypothesis matched the results or not.</li> <li>• Explains the conclusions using mostly opinions and guesses.</li> <li>• Indicates things that</li> </ul>                                                                     | <ul style="list-style-type: none"> <li>• Does not state if the hypothesis matched the results or not.</li> <li>• Conclusions are not present.</li> <li>• Did not discuss anything that did not go as planned or that was surprising.</li> </ul>                                     |

|               |    |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               |    | <ul style="list-style-type: none"> <li>Clearly and completely indicates what did not go as planned or that was surprising.</li> </ul>                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Vaguely indicates that things did not go as planned but without specifics.</li> </ul>                                                                                                                                                                                                                                                                           | <p>did not go as planned, but they are irrelevant to the investigation.</p>                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                              |
| Future Work   | x1 | <ul style="list-style-type: none"> <li>Develops more than one question for further investigation related to the results and conclusions of the current investigation.</li> </ul>                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Develops one question for further investigation related to the results and conclusions of the current investigation.</li> </ul>                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Question(s) for further investigation are unrelated to the results and conclusions of the current investigation.</li> </ul>                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Future work is not addressed.</li> </ul>                                                                                                                                                                                                                                                                                                                              |
| Sources       | x1 | <ul style="list-style-type: none"> <li>Lists more than 3 books, websites, or people used to learn about the topic.</li> <li>Includes enough information so someone else can find the source.</li> </ul>                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>Lists 3 books, websites, or people used to learn about the topic.</li> <li>Includes some information, but would be difficult to verify the source.</li> </ul>                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Fewer than 3 sources are included.</li> <li>Includes some information, but would be difficult to verify the source.</li> </ul>                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>No sources are included.</li> </ul>                                                                                                                                                                                                                                                                                                                                   |
| Display Items | x1 | <ul style="list-style-type: none"> <li>Project includes <u>all</u> (13) sections: title, research statement, overview, significance, hypothesis, procedure, fair test, data, results, conclusions, future work, and sources.</li> <li>Includes an acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project.</li> <li>Pictures, graphs, logbook, models, or</li> </ul> | <ul style="list-style-type: none"> <li>Project includes between <u>12-10</u> sections: title, research statement, overview, significance, hypothesis, procedure, fair test, data, results, conclusions, future work, and sources.</li> <li>Includes an acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project.</li> <li>Most of the pictures,</li> </ul> | <ul style="list-style-type: none"> <li>Project includes between <u>9-7</u> sections: title, research statement, overview, significance, hypothesis, procedure, fair test, data, results, conclusions, future work, and sources.</li> <li>Explains that people helped with the project, but does not specifically call out who.</li> <li>Some of the pictures, graphs, logbook,</li> </ul> | <ul style="list-style-type: none"> <li>Project includes <u>6 or less</u> sections: title, research statement, overview, significance, hypothesis, procedure, fair test, data, results, conclusions, future work, and sources.</li> <li>Assistance is mentioned throughout the project but does not include an acknowledgement.</li> <li>The pictures, graphs, logbook, model or other visuals are</li> </ul> |

|  |  |                                         |                                                                                    |                                                                   |                            |
|--|--|-----------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------|
|  |  | other visuals help explain the project. | graphs, logbook, model or other visuals are relevant and help explain the project. | model or other visuals are relevant and help explain the project. | irrelevant to the project. |
|--|--|-----------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------|

The Academy of Science of St. Louis