



STL SCIENCE FAIR

Supporting the Advancement of Youth Scientists

A Program of the Academy of Science of St. Louis

Elementary Regional Division MAKER 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	- Clearly and completely identifies the question being studied in <u>one sentence</u>. - Uses all correct vocabulary to define the question or problem.	- Mostly identifies the question being studied in one sentence. - 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 (5-7 sentences). - Completely explains what was built or designed. - Completely explains why the student chose the project.	- Gives a mostly clear summary of the project (3-4 sentences). - Mostly explains what was built or designed. - Mostly explains why the student chose the project.	- Gives some summary of the project (1-2 sentences). - Somewhat explains what was built or designed. - Somewhat shares why the student chose this project.	- Does not give a project overview. - Does not explain what was being built or designed or explanation contains incorrect information. - Does not share why the student chose this project.
Significance	x2	- Clearly and completely explains how the project could help people, animals, or the environment. - Clearly and completely explains why the project is interesting or	- Mostly explains how the project could help people, animals, or the environment; some details are unclear or vague. - Tells why the <i>science of the project</i> is interesting or	- Somewhat explains how the project could help people, animals, or the environment; includes incorrect information. - Somewhat clear explanation of why the project is	- No description of how the project could help people, animals, or the environment. - No descriptions of why someone should care about the project

		important.	important, but does connect the science to the project.	important or interesting.	
Defining the Problem	x2	- Clearly and completely states a <u>specific problem</u> the project is trying to solve. - Completely explains who or what the problem affects. - Completely describes what a successful solution should do.	- Mostly states the specific problem the project is trying to solve but some details are not clear. - Mostly explains who or what the problem affects. - Hints at what a successful solution should do.	- A general problem is stated. - Incomplete explanation about who or what the problem affects. - A successful solution to the problem is not possible.	- Problem addressed by the project is not stated. - Missing explanation about who or what the problem affects. - No discussion of what a successful solution looks like.
Research the problem	x1	- Clearly and completely summarizes information from sources about the existing solutions to this or similar problems. - Clearly and completely explains how the research helped with the design.	- Summarizes information from some sources about the existing solutions to this or similar problems but also includes opinions. - Mostly explains how the research helped with the design.	- Summary of existing solutions is made up of primarily opinions. - Vague mention of how research helped with the design.	- Extremely vague or no summary of existing solutions. - No mention of how research helped with the design.
Imagine Solutions	x2	- Develops more than one possible solution and settles on a final design. - Gives a clear explanation as to why the final design was chosen. - Shows creative thinking while solving the problem.	- Mentions previous designs but does not share them. Settles on a final design. - Gives a mostly clear explanation as to why the final design was chosen - Shows creative thinking while solving the problem.	- Develops one solution to the problem. - Shows some creative thinking while solving the problem.	- No evidence of brainstorming possible designs. - Design is a previous design solution, not an original solution.

Plan the Design	x3	- Clearly draws or describes the design in great detail before building it. - Clearly labels all important parts of the design. - Lists all the materials and the amounts needed to build the design. - Includes enough information so another student could replicate the design exactly.	- Draws or describes most of the design with some details before building it. - Clearly labels some important parts of the design. - Lists most of the materials and the amounts needed to build the design. - Includes enough information so another student could replicate most of the design.	- Draws or describes the design with few details before building it. - Few labels are present on the design but they are not clear. - Some of the materials are listed, measurements are not given. - Includes little information so another student could replicate some of the design.	- Did not provide a plan for the design. - Based on the information provided, the design could not be replicated.
Create and Construct	x2	- Evidence (pictures or physical design) that design was built. - Completely follows a plan or explains any changes that were made between to the final design. - Uses materials safely and appropriately.	- Evidence (pictures or physical design) that most of a design was built. - Mostly follows a plan but does not explain any changes that were made between to the final design. - Uses materials safely and appropriately.	- Evidence (pictures or physical design) that some of a design was built. - Somewhat follows a plan but does not explain any changes that were made between to the final design. - Uses materials safely and appropriately.	- The design was not built. OR - Materials were not used safely or appropriately.
Test <i><u>*Points should NOT be deducted for prototype failure.</u></i> We encourage open-ended problem solving as students nurture	x2	- Attempts a test of the design and documents how well it worked. - Repeats testing of the device/model more than once. - Tells all the factors kept the same to make each test fair.	- Attempts a test of the design and documents how well it worked. - Repeats testing of the device/model more than once. - Tells most of the factors that were kept the same to make	- Attempts a test of the design and documents how well it worked. - Attempts to test the device/model only once. - Tells some of the factors that were kept the same between	- Did not try out the design. - Does not address anything kept the same for every test. - Observations and measurements were not collected for every test.

their ability for creative innovative solutions.*		Carefully records observations and measurements for each test.	each test fair. Most observations and measurements were collected the same way every test.	tests. Observations and measurements were collected differently in each test.	
Evaluate	x4	- Completely explains what worked well AND what did not work well and why. - Uses observations or measurements to completely describe the results. Does not use guesses or opinions. - Completely explains whether the design solved the problem.	- Mostly explains what worked well and why OR what did not work well and why. - Uses a combination of observations/measurements and guesses/opinions to describe the results. - Mostly explains whether the design solved the problem.	- Explains what worked well and does not include what did not work. Minimal explanation as to why the device worked or not. - Uses mostly guess/opinions instead of observations/measurements to describe the results. - Somewhat explains whether the design solved the problem.	- Does not explain what went well or did not do well in the test. - Does not use any observations/measurements to describe the results. - Does not explain if the solution solved the problem.
Future Work	x1	- Suggests one way to make the design better, related to the project. AND - Shares one new idea or question to explore next, related to the project.	- Suggests one way to make the design better, related to the project. OR - Shares one new idea or question to explore next, related to the project.	Suggests one way to make the design better or shares one new idea or question to explore next, <u>not related to the project</u>.	Does not address future work
Sources	x1	- Lists more than 3 books, websites, or people used to learn about the topic. - Includes enough information so someone else can find the source.	- Lists 3 books, websites, or people used to learn about the topic. - Includes some information, but would be difficult to verify the source.	- Fewer than 3 sources are included. - Includes some information, but would be difficult to verify the source.	No sources are included.

Display Items	x1	• Project includes <u>all</u> (13) sections: title, research statement, overview, significance, defining the problem, research, imagine solutions, plan the design, create/construct, test, evaluate, future work, and sources. • Includes an acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project. • Pictures, graphs, logbook, models, or other visuals help explain the project.	• Project includes between <u>12-10</u> sections: title, research statement, overview, significance, defining the problem, research, imagine solutions, plan the design, create/construct, test, evaluate, future work, and sources. • Includes an acknowledgment if someone outside the family, such as a mentor or scientist, helped with the project. • Most of the pictures, graphs, logbook, model or other visuals are relevant and help explain the project.	• Project includes between <u>9-7</u> sections: title, research statement, overview, significance, defining the problem, research, imagine solutions, plan the design, create/construct, test, evaluate, future work, and sources. • Explains that people helped with the project, but does not specifically call out who. • Some of the pictures, graphs, logbook, model or other visuals are relevant and help explain the project.	• Project includes <u>6 or less</u> sections: title, research statement, overview, significance, defining the problem, research, imagine solutions, plan the design, create/construct, test, evaluate, future work, and sources. • Assistance is mentioned throughout the project but does not include an acknowledgement. • The pictures, graphs, logbook, model or other visuals are irrelevant to the project.
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