



AVUHSD STEM Expo 2023

Categories

The AVUHSD STEM Expo showcases and celebrates student projects in the areas of science, technology, engineering, and math. We reward innovation, experimentation, creativity, and effective communication. To that end, the following categories for student entry are announced. (Refer to rubrics for more detailed criteria in each category.)

Environmental/Agricultural Innovation

Projects in this category identify a problem in environmental or agricultural science and innovate a solution. Successful projects should include background information on the problem, a prototype or proof of concept that is novel or innovative, and promotional materials to explain this innovative solution to interested parties.

Invention

Projects in this category identify a need, then design and prototype an invention to meet that need. Successful projects should include market research, a prototype or proof of concept that is novel or innovative, and promotional materials to explain this innovative solution to interested parties.

Reverse Engineering

Projects in this category disassemble products in order to understand and explain in detail product components, sub-assemblies, and how they work together. Successful projects should include clearly labeled and explained components to highlight operational concepts.

Computer Science

Projects in this category design software written for an innovative purpose. Successful projects will demonstrate consistent operation, elegant user interface, and useful real-world application. Examples might include app development, code that automates a process, or game development.

Robotics

Projects in this category design, construct, and operate a robot or robotic mechanism using programming, manual control, sensory feedback, or information processing. Successful projects will be complete, operational, and consistent in function.



Rube Goldberg

Projects in this category design, construct, and operate a chain-reaction type machine commonly known as a “Rube Goldberg machine.” Among other expectations listed on the rubric, successful projects will have a simple trigger event to initiate operation, at least 10 transfers of energy, and several types of physical forces used and identified accurately.

Science Fiction

Projects in this category provide a written narrative in the science fiction genre. Successful projects will include recognizable features of the genre such as scientific ideas, processes, theories, or technologies used as central elements to the characters, plot, or themes. Alternative scientific principles may be employed as this genre provides for imaginative exploration. Accompanying illustrations, images, or storyboards are helpful.

Scientific Inquiry

Projects in this category present a scientific question or problem, an experiment to test this problem, and resulting conclusions. Successful projects will include details regarding the investigation, hypothesis, materials, procedure, results, and conclusions. Where useful, information should be presented in both textual and visual format.

Health Communication

Projects in this category present a public awareness or education campaign designed to address a specific public health need or problem. Successful projects will identify a target audience and tailor a data-driven message to that audience, for the purpose of advancing and/or protecting public health. Campaign materials should have aesthetic appeal, and be complete with quantitative and qualitative evidence.