

CHEMISTRY/BIOCHEMISTRY*

The science that deals with the composition, structure and properties of chemical processes and phenomena of substances and the transformation that they undergo.

Projects in this category could involve physical chemistry, organic chemistry, inorganic chemistry, materials, plastics, fuels, pesticides, metallurgy, soil chemistry, etc. This category also includes the chemistry of life processes such as molecular biology, molecular genetics, enzymes, photosynthesis, blood chemistry, protein chemistry, food chemistry, hormones, etc.

The following requirements apply to Biology/Microbiology; Chemistry/Biochemistry; Computer Science; Earth and Space Sciences; Engineering; Mathematics; Medicine and Health; and Physics.

1. Only one (1) project can be entered per competition.
2. Submit one copy of a double-spaced scientific paper to accompany the project to be submitted. The content of the paper, which should not exceed five (5) pages, should include: a short introduction describing the background and purpose of the work, an experimental section including both methods and results, and a concluding section discussing the results and their implications. Tables, graphs, charts, maps, photographs, raw statistical data, etc. should be included whenever possible. They must also include references used and acknowledgements of any individuals who served as direct academic resources. The student's name, page number and unit name and number must be on the top of each page. Supporting documents must be submitted with the scientific paper.
3. The contestant is to make an oral presentation (minimum 5 minutes). This time limit does not include the time required for judge's questions and contestant to responses.
4. Contestants are responsible for providing their own equipment.
5. If competition is held in person, contestants must provide a display board for each qualifying entry. No display boards are permitted to appear in more than one competition. Additionally, the content of each display board must be relevant to the competition. Items used for demonstrations can be transferred if needed.
6. Contestants must submit a STEM Verification Form from a qualified scientist or science teacher with an earned professional degree or license. This person can also serve as a coach, working closely with the student during the course of the project to ensure the accuracy of the student's research and qualifications for entry.

A STEM Verification Form must be submitted for each qualifying STEM competition entry.

STEM projects will be judged by the following criteria:

- Quality of Research
 - Scientific Approach/Method (20)
 - Validity of Information (10)
 - Validity of Conclusion(s) (10)
- Depth of Understanding Oral Presentation
 - Knowledge Gained and Creativity (20)
 - Thoroughness & Individual Work (20)
- Written Report (10)
- Visual Presentation (10)