STEM EXPO 2023

Information, Rules, and Guidelines

The Middle Tennessee STEM Innovation Hub and Tennessee STEM Education Center at Middle Tennessee State University invite 5th-12th grade students in Middle Tennessee to work individually or in teams of up to 5 students to prepare and present their STEM project at the STEM Expo at MTSU.

Event Details

When: Wednesday, April 5, 2023
Where: On the third floor of the Student Union on the campus of Middle Tennessee State University

Eligibility

STEM EXPO 2023 is open to students in 5th-12th grades. Projects will be entered into one of four categories (outlined below) based on teacher classification at the time of submission and will be divided into one of three age groups (5-6th, 7-8th, and 9-12th). Schools may register multiple entries per category and age group.

Categories

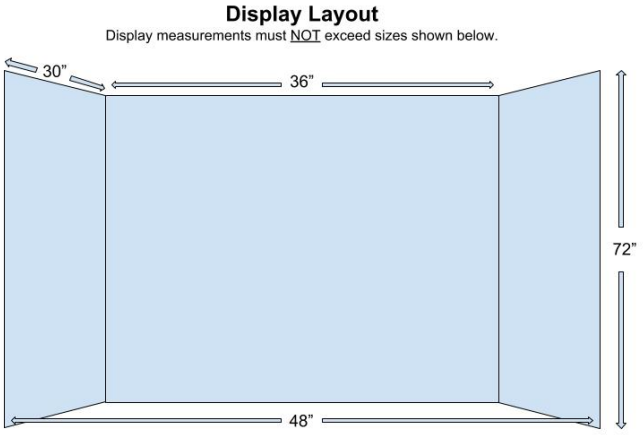
STEM EXPO will showcase original projects in one of the four following categories:

1. **STEM Research:** Science, Mathematics, Engineering, Biotechnology, or Medicine/Veterinary Medicine
2. **Engineering:** Mechanical, Industrial, Civil, Aerospace, Automotive, Environmental, Biomedical, Chemical, Electrical or other Engineering fields
3. **Agricultural STEM:** Agricultural production and science
4. **Technology:** Computer programming, programming computer games, designing computer applications, or designing websites

Rules & Guidelines

- Projects may be submitted by an individual student or a team of students (maximum of 5 students per team).
- Students may only be represented by one project in the STEM EXPO.
- Completed projects must demonstrate that students went through an extended process of inquiry in response to a complex question, problem, or challenge.

- Each project must be represented at the STEM Exposition by at least one student who actually participated in the project. Projects with no student representatives will not be evaluated.
- Evidence: The evidence component requires students to show proof of project completion, demonstrating an end product. Evidence will vary from project to project, but may take the following forms:
    - Physical model
    - Demonstration
    - Research log book (required for the STEM research category)
    - Video demonstration
    - Audio demonstration
    - Visual representations such as pictures, drawings, or art-work
    - Scientific poster
    - Portfolio
    - Other forms of evidence as approved by the STEM EXPO Director
- **Display guidelines**:
    - A standard display must consist of one or more panels of information and any objects the student/s wish to display within safety guidelines. Exhibit panels must be constructed of stable and **free-standing material not to exceed 48 inches** in **width, 30 inches in depth, and 72 inches in height**. ***Failure to meet these requirements will result in disqualification***. Tables will be provided.



    - Each project should include an abstract of 250 words or less. The poster should address the following eight elements as part of the presentation. Since these are used for evaluation purposes, they should be prominently displayed.

        1. **Purpose –** A purpose (question or problem) is provided, and the purpose is specific, clear, and stated succinctly. The project communicates the reason it is important.
        2. **Research –** Evidence of background research. Background research is sufficient and has been used to inform and create the hypothesis/requirements.

3. **Hypothesis/Requirements** – Hypotheses or requirements are provided, and they are clear and concise. The project addresses the purpose question. The project reflects why the hypothesis or design solution best fits the question/problem.
4. **Materials** – All materials used for the project are listed and adequately explained when necessary.
5. **Procedure/Experiment** – Procedures are described step-by-step and easily understood by the audience. The project shows evidence of replication or iterative improvement.
6. **Results** – Results are provided and easy to understand. Results provide information that answers the purpose question.
7. **Conclusion/Analysis** – A conclusion or summary is provided. It indicates whether the hypothesis/approach was correct or not, and there is an explanation for why or why not.
8. **Originality –** The project or approach is unique. The student(s) chose a novel topic or took a commonly used topic and changed it to make it different and interesting.

- **Safety Guidelines**: Projects will be ***prohibited*** from displaying or using the following on the day of the STEM Exposition
    - Combustible materials, in any combination, including chemicals
    - Chemicals, including household chemicals, that are not properly contained so as to prevent accidental spilling
    - Sharp items (including blades, cutters, knives, saws and scissors)
    - Plants that are poisonous, contain compounds that are irritating to the skin, may cause allergic reactions, or are endangered
    - Firearms (including BB, soft air, paint-ball, handguns, rifles and shotguns)
    - Invertebrate animals (including insects, worms, mollusks, spiders, slugs…)
    - Vertebrate animals (amphibians, birds, fish, mammals, and reptiles)
    - Human beings
    - Biohazards: infectious agents or hazardous biological materials that present a risk or potential risk to the health of humans, animals or the environment, including recombinant DNA; organisms and viruses infectious to humans, animals or plants.

- Interviews: Each individual or team entering a project will be interviewed by evaluators.

Project Recognition & Awards

The STEM EXPO **is** designed as a competitive event between students/teams. Projects will be evaluated using a common rubric (provided). Please note that the rubric has been modified from the one used in prior years. Awards will be granted to the top performers in each category and age group. The top two performers in the 9th – 12th grade age group will each be awarded a $500 scholarship to Middle Tennessee State University (if they choose to attend MTSU upon graduation).

Registration & Applications

You may register your students at the link below.

https://www.mtsu.edu:8443/midtnstem/stem-expo/registration.php

Space is limited, and registration will be on a first-come, first-served basis. However, there are still openings for the event.

Registration will be accepted until March 15th or until we reach our limit for the event. Teachers will need to provide contact information, chaperone info., project title(s), students' names, age group, and category when registering. **There is a $10.00 registration fee per student to cover the costs of the Expo, which includes lunch on the day of the event**. You will need to bring a check for this amount the day of STEM EXPO. You will also need to provide a signed permission form for each of the students attending. You may upload the forms in a single batch when registering or you may email the forms to midtnstem@mtsu.edu no later than March 31st.

No changes in registrations will be accepted after March 15, 2023.

We are looking forward to your participation in the STEM EXPO! Please contact Dr. Kevin Ragland at kevin.ragland@mtsu.edu or 615-904-8405 if you have additional questions.