

MIDDLETON ELEMENTARY STEM FAIR

REGISTERED PARTICIPANT INFORMATION PACKET

January 23rd, 2025: Evening expo 6:30p.m. - 7:30p.m.
January 20-24: Students are welcome to bring their projects to class

Congratulations! You are officially registered for the **Middleton STEM Fair!** We know you are eager to get started on your project. Here are some general details:

- **The STEM Fair Evening Expo will be on Thursday, January 23rd in the Middleton gym. Check-in will be in the Commons area from 6:15 to 6:30 PM. Students should be at their project for their assigned 45 minutes of sharing their project. During the evening expo, students will be given 15 minutes to visit others' projects.**
- **Student STEM fair participants are welcome to bring their project to school to present to their classmates during the week of January 20-24. Talk with your teacher about the best time to bring your project in to share with your class. This component of the STEM fair is optional.**
- **Back for 2025: The evening STEM Expo also includes the Middleton Art Fair! Please enjoy one created piece of art from each student, chosen by Ms. M&M, on display on the same night.**

This packet contains the following information:

1. Rules/Guidelines for everyone
2. STEM Fair categories
3. Questions to ask before the STEM Fair
4. The Scientific Method

If you have questions, please contact one of us. We're excited to see what kind of experiment, invention, research project, or display you create!

STEM Fair Chairs and Contact Information – 2025

Katie Rock - yourmiddletonpto@gmail.com (Middleton Parent Volunteer)

Jenna Downs- jdowns@sowashco.org (Middleton Principal)

How to choose a STEM topic: Choose something in the STEM world (Science, Technology, Math, or Engineering) you want to learn more about! What are your science interests? What is a topic that sparks interest for you? We encourage you to think outside of the box and to think creatively!

All Participants: Project displays are encouraged to be brought to school during the school day sometime during the week for the students to present their project to classmates. Projects should be safe, clean, and easy for students to set up independently. Please do not send valuables or breakables to school. Unfortunately, we cannot store your project at school for the evening expo. All participants should plan on having their project at the STEM evening expo.

1. RULES and SAFETY GUIDELINES FOR EVERYONE:

- ***Put your name and grade level clearly on the top and front of your display.**
- *Projects should be student created, student friendly, and student driven. Parents can guide; students will create and learn.
- *Display something related to Science, Technology, Engineering, or Math.
- *Try to think creatively, you want your idea to be unique, like you are!
- *Do not feel intimidated by a big “experiment”! YOU are a scientist, and feel free to further explore a grade level Science standard. For example, “sinking and floating” might be a grade level standard or concept that you may want to expand upon.
- *Ideas can be from very basic, like “The Five Senses”, to very complex data analysis and collection, statistics and results.
- *Find a topic that you are EXCITED about and do a project on this topic! Maybe you love volcanoes, butterflies, gravity, or the ocean!
- *Only visit the Internet for research with an adult, using kid-friendly and safe websites. Here are some websites to get you started on your research: [Science Buddies](#), [Kid-friendly research websites](#), [Google for Kids Safe Search](#)
- *Use your own ideas and work. Only one student per project please.
- *Put your project on a three-sided display board. Display boards can be found at JoAnn Fabrics, Michaels, Target, Wal-Mart, Staples, the Dollar Tree, etc. Please let us know if you need help obtaining a display board. Get these early, because if you wait until the week of the fair, you may not be able to find a display board locally.
- *No science or math kits from stores.
- *No expensive or non-replaceable personal property.
- *No live animals.
- *No matches, fire, or flames.
- *No dangerous chemicals, or chemicals which are flammable or otherwise potentially unsafe. No toxins or chemicals that can be dangerous.
- *Electricity projects should use momentary switches or other switches that automatically turn off when you let go of them.
- *No electricity passing through uninsulated wire.
- *No parts too fragile to be handled.
- ***Please no glass brought to school.** Please find plastic beakers or bottles as needed for your display.
- *No uncontained messes. Please clean up after yourself if you do make a mess.
- *Please limit the messes and try to stay away from liquids that are not extremely well contained.
- *Do not use anything that would have to be plugged into a school electrical outlet.
- *All STEM Fair project ideas should be age level appropriate, for ages 13 and under.

2. STEM FAIR ENTRY CATEGORIES:

1. Experiment Exhibit

If you have chosen an Experiment, you should use the Scientific Method (see info in the packet). Find something to investigate that involves observation or experimentation and make sure that it's something related to science, mathematics or technology. Don't be afraid to make mistakes. Some of the best discoveries happen when your experiment doesn't turn out as expected. You must show your work on a three-sided display board.

2. Poster or Research Display

Display interesting facts or research you have done about an event or topic related to science, mathematics or technology. Use as much of the Scientific Method that makes sense for your project.

3. Your Own Invention Idea or Engineering Idea

Don't be afraid to make mistakes! You will learn from each version of your invention!

4. Google Slides Presentation (using the scientific method)

Create an online slides STEM presentation using the scientific method. You will need to bring your device with you on the expo night to display your project!

3. QUESTIONS TO ASK BEFORE THE STEM FAIR:

1. Is my project original, imaginative, and creative?
2. Is my project complete?
3. Will lots of others likely choose this topic? Consider something a little more specific.
4. Can people understand what the project is about?
5. Can I explain my project to others?
6. Is my display neat and easy to read? Is it well displayed?

Additionally, for Experiments:

6. Did I follow all of the steps of the scientific method?
7. Is my question(s) clear?
8. Are the steps I took clear?
9. Did I explain my procedures?
10. Can I explain the conclusion? What did I learn from this project?

4. THE SCIENTIFIC METHOD – Five Steps:

REQUIRED FOR EXPERIMENTS & GUIDELINE FOR INVENTIONS & POSTERS, please use as much of the Scientific Method as possible!

1. FORM A QUESTION

A good way to form a question is by observing/watching something. You might see something and ask why it happens or how it works.

***Example:** You see that the flowers in your front yard are growing and blooming better than the flowers in the backyard. You might ask how the flowers in the front do better than the ones in the back. You have formed a question based on an observation.*

Remember, you should not be able to answer your question with a yes or no.

***Example:** Instead of asking if the flowers do better in the front than the back (a yes or no question), you should ask HOW the flowers in the front do better than the ones in the back.*

If you are interested in finding out why something happens or how something works, you will need to do some research.

2. RESEARCH

You will need to find information about your topic. You can start by looking in books, magazines, or on the internet. The more information you learn about your topic, the easier it will be to design your experiment.

***Example:** In the example above, the question was how the flowers in the front yard do better than the ones in the backyard. Research will help you find out what usually makes flowers grow. If you learn from your research that sunlight and water make flowers grow you can come up with a hypothesis (or guess) about why your flowers grow differently. Then you can design an experiment to test your hypothesis.*

3. HYPOTHESIS

Now you are ready to make a guess about what will happen in your experiment.

***Example:** I learned by researching that sunlight and water make flowers grow. So, if I take some flowers from the backyard and move them to the front yard I think that they will grow and bloom better than the flowers that stay in the backyard. My hypothesis is: I believe flowers in the front yard will grow better than the flowers in the backyard because they will get more direct sunlight.*

4. EXPERIMENT/TEST

Finally, you are ready to test your hypothesis to see how things went with your prediction. Try to take your time in order to create an experiment that truly tests your hypothesis. Sometimes, breaking down your test into steps helps.

5. CONCLUSION/SUMMARY/ITERATION

You can now tell everyone what your conclusion is! If your hypothesis was correct you can describe how you proved this. If your hypothesis ended in a different result, that's okay too. You can describe what you have learned and how you might change or improve the investigation next time. Talk about what you learned from this process!

Make sure to organize your data/results so that others can understand your hypothesis, how you tested it and the results. It might help to show your results in a graph, chart or table. Pictures help too.

Remember to bring in your STEM project to share with your classmates the week of January 20-24. Talk to your teacher to decide when the best day and time will be to share.

**Thank you for participating in the STEM Fair this year!
We are very proud of ALL of you!**