2024 STEM FAIR STUDENT HANDBOOK

Wellington Elementary PTA Presents
2024 STEM FAIR
Friday, May 17th
5:30-7:30pm
Wellington Elementary Gymnasium

Come to this free, family-friendly event to see student projects and participate in hands-on activities and demonstrations!
This event is fully funded by your Wellington Elementary PTA.

Registration form: https://forms.gle/8jWMYGyvqkDrmgHXA

STEM Fair Volunteer Opportunities:
https://www.signupgenius.com/go/20F0B48A4AF2CABFF2-49129701-wellington

For any questions, please contact:
stemfairwellingtonpta@gmail.com

Everyone is Encouraged to Do a Project!
Investigate the fields of **S**cience, **T**echnology, **E**ngineering, and **M**ath by completing an original STEM project. You can make observations or conduct an experiment to find an answer to the questions "how something works" or "why something happens." You get to choose the topic and share your findings through a display at the fair!

The 2024 Wellington STEM Night is open to all STEM enthusiasts – grades Kindergarten through 5th. This STEM Fair is a student showcase of curiosity and experimentation. Submissions will not be judged. Each

participating student will receive a token of recognition for their hard work and creativity.

Overview

REGISTRATION DETAILS:

- All students must register to participate in the STEM Fair by Friday, May 3rd.
- The first 50 students who register will receive a free tri-fold display board for their project.
- A confirmation of your registration will be sent within 24 hours of registration receipt.
- Please fill out a separate registration form for each student you are registering.

STEM FAIR DETAILS:

- The STEM FAIR is on **Friday, May 17, 2024 from 5:30-7:30pm in the Wellington Elementary GYM**. Registered students are expected to attend all or part of the STEM FAIR to share and explain their project.
- All project display boards must be brought to school by **Thursday, May 16, 2024 by 4:15pm.**
- The project display boards will be set-up by the STEM Fair team on Friday afternoon. However, students may bring additional display and project supplies to the **"STEM Fair Set-up" on Friday, May 17, from 4:30-5:30pm.** Each student will have approximately 2' x 3' table space for their board and additional supplies.
- **The STEM Fair is NOT a drop-off event**. Students must attend the fair with an adult.
- All project display boards and additional display and project supplies **must be picked up by 8:00pm on Friday, May 17, 2024**.

How to Get Started

1. Review this packet, especially the “General Guidelines” to get a clear understanding of what is allowed.
2. Brainstorm ideas! You can search for STEM project ideas that interest and are exciting for you in a lot of different ways! Check out the “Ideas for STEM Fair Projects” section in this packet.
3. Have a grown-up help you finalize your idea and register your project before May 3.
4. Conduct your experiment or investigate your question!
5. Prepare to display your project on a tri-fold poster board, approximately 28” tall by 40” wide. The first 50 students who register will receive a free display board!
6. Make sure a grown-up can help you the night of the STEM Fair. They are expected to remain at the school for the duration of the event.

General Guidelines

- Projects may be individual, group, or classroom projects. Only one individual project per student.
- Students can enter projects on any subject relating to science, technology, engineering, or math, or any combination of the five areas. Some examples of project categories include:
    - Biological Sciences Chemistry
    - Environmental and Earth Sciences Math
    - Computer Sciences Engineering
    - Physical Sciences Statistics
- May be focused on discovery ("how something works" or "why something happens") or an investigation to solve a scientific question.
- Students may enter "works in progress*". Don't worry if your experiment isn't totally complete – tell us what you have learned so far!*
- It is not necessary to spend a lot of money to have a successful project. You can use common, inexpensive household materials for great projects!
- Clearly communicate what you observed or tested by having a neat and easy to follow display. *(Please see **Constructing Your Project Display.)***
- The STEM Fair is a student showcase of curiosity and experimentation. Submissions will not be judged.
- Any foods or liquids must be properly contained.
- On the night of the Fair, you must keep the area around your table clear.
- Have fun! Remember: learning something new is important!
- **Live animals, dangerous chemicals, explosives, drugs, hypodermic syringes or needles, or open flames may not be included in any exhibit.**

Preparing a STEM Project

1. **Select a Topic**

   A STEM project is an experiment you perform or observations you make to find an answer to a question - “how something works” or “why something happens”. Choose a topic that you are interested in.

2. **Gather Background Information/Research Your Topic**

   You can get information about the subject of your STEM Fair project from books, magazines, the Internet, people, libraries and companies. Keep notes about what you’ve learned and where you’ve gotten the information and use them in your presentation.

3. **Use the Scientific Method, if possible.**

   Use the scientific method to answer a question about your topic, that is:

   - State the **question** you are answering. What are you trying to find out?
   - State your **claim/hypothesis**—your guess about what the answer will be.
   - Decide on your **variable** (something you will change or vary) or observations that will help you find your answer.
   - Describe your **procedure** (what you did)
   - Decide on how you will measure or describe your results. Try to use measurements to describe your **evidence/observations**- for example, report that the plants grew “1 cm”, rather than that they were “bigger”.

4. **Record the Results of Your Tests, Measurements, and Observations**.

   Do your test, observations, or experiment as described (see above). *Remember to include your results, observations, or measurements on your presentation board!*

5. **Interpret Your Results (Summarize and Make Conclusions)**

Describe what happened in your experiment. You can use tables, graphs, or charts to summarize the results of your measurements or observations. Do your results support or disprove your hypothesis? It is alright if your results disprove your claim/hypothesis – this happens all the time in science. *Make sure you state your conclusions on your display!*

6. **Construct an Exhibit or Display**

   Your display or exhibit should be neat and easy to see (does NOT have to be typed). Describe your project—show what you did, how you did it, and what your results were. Be sure people can understand what you did. Make it fun!

7. **Come to the STEM Night, share your project and have FUN!**

Ideas for STEM Fair Projects

Sometimes picking a project is the hardest part! Here are some ways to find a project idea that interests you.

1. **Use Your Experiences**
   Remember a time you noticed something and thought, “I wonder how that works? Or, “I wonder what would happen if…” then turn that into a project. Or think about a problem that you or someone you know experienced. Engineers and innovators often use science, math, and technology to solve problems in their everyday lives!
2. **Check the Library**
   The Wellington Elementary library has a great science section! The school librarian, Mrs. Beavo, has a basket of books near the front of the library all about Science and STEM project. If you’re still looking for more ideas, ask our school librarian for suggestions. You can even visit the public library and talk with the librarians about book and online resources for potential STEM Fair projects.
3. **Surf the Internet**
   Use a computer with a web browser and search for “Science/STEM Fair Projects” on a topic that interest you. For example: aviation, marine biology, electricity, pollution, electric cars, composting, or hydroponics.
   Here are some great resources for Science Fair project ideas:
   - **sciencebuddies.org**
   - **sciencefairadventure.com**
   - **spaceplace.nasa.gov/science-fair**
4. **Think About Current Events**
   Look at the newspaper. Current events may give you ideas for projects. For instance, people need to grow food, but in many parts of the world, there isn’t enough rain to grow crops. This might lead you to a project on growing plants without much rain—which plants grow okay with little water?
5. **More Ideas**

- What material are the best insulators and conductors?
- Are dogs colorblind?
- Do soap bubbles last longer on warm days or cold days?
- What is the best method, other than heat, to melt ice?

- How do plants react to different kinds light, colors and neighbor plants?
- How does sound travel?
- How does color influence heat absorption from sunlight?

6. Try Putting Different Words In These Blanks

What is the effect of _____ on _____?

Examples: humidity germination of seeds
temperature the volume of air

How or to what extent does the _____ affect _____?

Examples: humidity growth of fungi
color of a material its heat absorption

Which or what _____ (verb) _____?

Examples: detergent makes the most bubbles

What Makes a Good Project?

1. **You are interested in the topic!!**

2. **You can do an experiment or make observations to find an answer to a question.** While K-2 grades will focus more on discovery and observation, a good STEM project for grades 3-5 is an experiment—that means it's a test to find an answer to a question you have.

   For example, if you are interested in bugs and you saw some ants moving real slowly once on a cold day, you might test to see what effect temperature has on the rate at which bugs move. You'd get some bugs, find a way to make their container a little colder than normal and somehow measure how fast they move. Then you'd make their container a little warmer than normal and measure how fast they move then.

3. **You can do it with only a little or no help from adults.** Once you decide "what" and "how" you will do your project, having too much adult help takes away some of your fun and you won't learn as much. Your project doesn't have to be perfect! Discuss with your parents and teachers where you really need their help.

4. **It doesn't hurt or scare people or animals, including you.** It's not only a bad idea; it is also against the rules of our STEM Night and of the school district. You also may not use dangerous materials in your project experiment. You should ask a teacher or parent if you are not sure.

5. **It's a <u>GREAT</u> project if…** Your test results or observations make you wonder about other things**.** Doing the project, or reading or seeing what happened makes you think of other questions you are curious about.

Example STEM

Project Display