Waterloo ELementary School

STEAM Fair
December 7, 2023
6:00-8:00 pm

Science, Technology, Engineering, Arts, and Mathematics

Congratulations on your decision to participate in this year's STEAM Fair!

Waterloo STEAM Fair:

We want to inspire, engage and prepare our Waterloo students to be the next generation of inventors, explorers and innovators who will lead the U.S. through achievement in Science, Technology, Engineering, Arts, and Mathematics.

Waterloo STEAM Fair:

This STEAM Fair is a great opportunity to showcase your science and engineering knowledge and creativity! Pick a topic that interests you!

Waterloo STEAM Fair:

In this presentation,, you will find several resources (organizer, resource page, etc.) to help you successfully complete your STEAM Fair project.

STEAM SUBMISSION

Students will choose to do a research project or an investigation.

A ***research project*** is a project in which you research (read information about your topic from many different sources) a question(s) you want to answer about your topic.

OR

An **investigation** is a project in which you select a problem (question) which you would like to investigate.

STEAM SUBMISSION

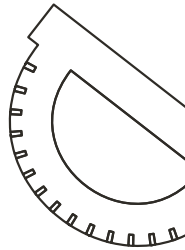
Students will be tasked with **submitting three components** of their STEAM Fair project.

1) **Journal** for research project or investigation

2) **Google slides** (no more than 3 displaying your research or investigation, findings, and pictures or illustrations

3) **Display/Presentation:**: Presentation explaining your project, the result, and your experience.

TIMELINE:



10/6

Choose a Topic

Choose a topic & Complete the **Registration form** by October 6th

12/1

Conduct Investigation

Complete your experiment or research project

12/6

Entries are DUE!

Submit/Upload your STEAM Fair Project (all 3 components) & drop off projects at Waterloo

12/7

STEAM Fair!

December 7th STEAM Fair Night from 6-8pm.

TIMELINE:

Timeline for STEAM Fair Projects:

Bold print indicates an **official due date**, the rest of the timeline are *suggested* dates for completion, in order to help students manage their time efficiently.

Reminders will be sent through Canvas prior to the due dates.

TIMELINE:

Timeline for STEAM Fair Projects:

Completed by October 6th:

1. Choose a topic, Research Topic, and Form a question
2. **Registration Forms are due by October 6, 2023**

Suggestion: by Week of November 27th:

1. Develop procedures
2. Gather materials
3. Conduct investigation
4. Collect data (pictures, charts, tables)
5. Analyze and Display Data (graphs, pictures)
6. Make conclusions

TIMELINE:

Timeline for STEAM Fair Projects:

Suggestion: by December 6th:

1. Complete Science Fair Journal
2. Google slides (no more than three)
3. Presentation of Science experiment or research project (use visuals, color, be neat, BE CREATIVE!!!)
4. Submit the three components of your science fair project
5. Drop off project to Waterloo

TIMELINE:

Timeline for STEAM Fair Projects:

Week of December 4th:

- **December 6th : STEAM Fair Projects are due!** All components of your science Fair project must be submitted/dropped off at school by this date.
  - Complete Science Fair Journal
  - Google slides (no more than three)
  - Presentation of Science experiment or research project (use visuals, color, be neat, BE CREATIVE!!!)
- Submit the three components of your science fair project
- December 6th to 7th: Grade level classes will have the opportunity to conduct a tour of the STEAM Fair submissions,

TIMELINE:

Timeline for STEAM Fair Projects:

Week of December 4th:

December 7th: STEAM Fair Night from 6-8pm. All students, parents, staff, and community members are invited. During the evening presentation a slide show of student work will be presented and awards for the winners will be announced.

GUIDELINES:

STEAM Fair Guidelines:

- All science/stem projects must be completed by the STUDENT
  - Parents may assist minimally if necessary.
  - Plastic or other ready-to-assemble models are prohibited, unless the model is in conjunction with a research project.
  - Exhibits may consist of a demonstration model, an investigation, a working mechanism, charts, diagrams or collections with a scientific objective.

GUIDELINES:

STEAM Fair Guidelines:

- In the interest of safety, *Please remember that projects may not involve live animals, harmful chemicals, fire, or any other potentially hazardous materials.*
- Projects may be constructed by an individual or small group.
- All completed projects must include three components: journal, Google slides, and a presentation.

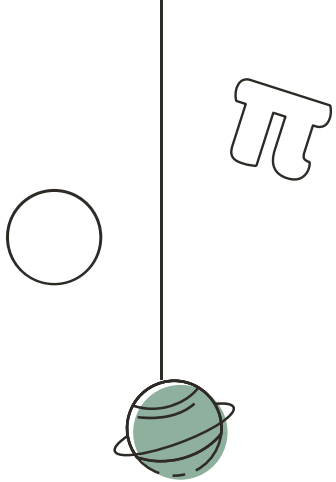
GUIDELINES:

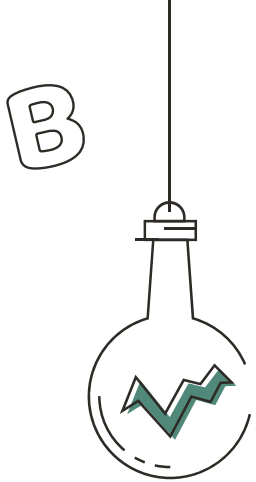
STEAM Fair Guidelines:

- Awards, certificates, and prizes:
  - We will be selecting a 1st place and runner up for each grade.
  - All participants will receive a participation certificate.
  - We will have “door” prizes for students that participate in the STEAM fair.

“Scientists have become the bearers of the torch of discovery in our quest for knowledge.”

—Stephen Hawking





Let's get started!!!

Let's get started:

Starting Your STEAM Fair Project:

Begin with picking a topic for your investigation, research, or engineering project!

- Make sure you select a topic that is interesting to you!
  - What kind of things do you like to do? (Examples: exploring, hiking, collecting things, going to museums, the zoo, aquarium, science center, fishing, swimming, bird watching, etc.)
  - What things (animals, plants, humans, elements of nature and science, etc.) interest you?
  - What scientific ideas are you curious about?
  - What are your special skills or talents?

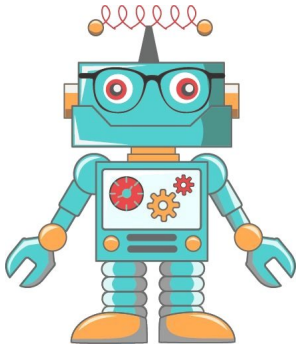
Let's get started:

Starting Your STEAM Fair Project:

Begin with picking a topic for your investigation, research, or engineering project!

- Think about questions or problems you have at home or at school.
- Talk to people to get ideas. Think about your questions ahead of time and take notes or tape record your discussion. (Scientists, parents, guardians, relatives, teachers, doctors, nurses, resource teachers, etc.)
- Visit Museums, science centers, zoos, or aquariums websites for ideas.
- Visit your local library and media center websites for science books and magazines or check the internet (with a parent's permission).

STEAM Fair Project Ideas



STEAM Project Sample Questions

CHeck out this link for more STEAM Fair project ideas:

50+ Totally Awesome STEAM Projects to Boost Creativity

STEAM FAIR Project Idea

“The important thing is to never stop questioning.”

—Albert Einstein

STEAM Fair Project:

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1) **Journal** for research project or investigation

2) **Google slides** (no more than 3) displaying your research or investigation, findings, and pictures or illustrations

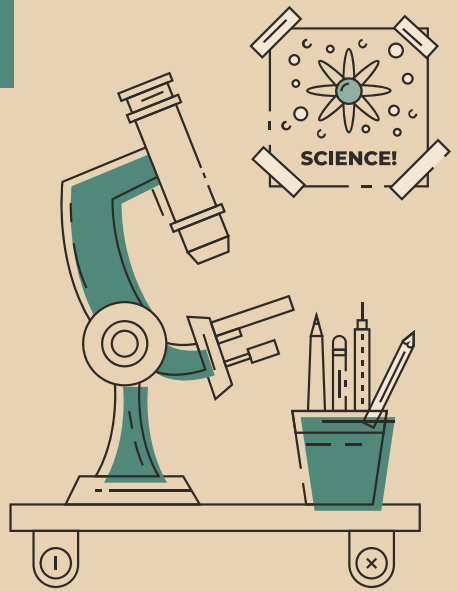
3) **DIsplay/Presentation**: explaining your project, the result, and your experience.

A ***research project*** is a project in which you research (read information about your topic from many different sources) a question(s) you want to answer about your topic.

OR

An **investigation** is a project in which you select a problem (question) which you would like to investigate.

01



Component #1: Research Journal

Component #1 : Research Journal

You have chosen your topic. Now it's time to do your research.

Research:

- After you have selected a topic, it's time to read about it. Check a variety of sources: books, magazines, and the internet so you can decide if you want to do a research project or an investigation.

- A research project is a project in which you research (read information about your topic from many different sources) a question(s) you want to answer about your topic. (Refer to page 9)

Component #1 : Research Journal

You have chosen your topic. Now it's time to do your research.

Research:

- An investigation is a project in which you select a problem (question) which you would like to investigate. In order to investigate your topic/question you must follow the Scientific Method. Use the "Investigating a Science Question" template or "Working Through the Engineering Design Process" template to help you plan and organize your project.

- Keep yourself on track with the "Suggested Student Timeline."

Component #1 : Research Journal

Research:

- Students can edit the attachments.
  Primary Journal **Intermediate Journal**
  Research Journal **Blank Journal**

- ***Please Note:*** Students do not have to use this format. As long as all of the components are included, students can submit their journal in picture/caption, typed, or handwritten.

- If a student is unsure of an acceptable format, please contact Ms. Gardner for approval.

- Students ***working with a partner(s) may submit one science*** research journal for the group.

02

Component #2: Google Slides

Component #2 : Google Slides

We would like to display a google slide presentation during the STEAM and offer teachers to show the presentation in their classrooms. Each participant should submit 1 to three slides.

Google Slide Checklist:

You should start planning your displays as soon as you begin your projects. Some of the items that could be included in your google slides are:

- ✔ Title & your name (as a header on the first slide)
- ✔ Pictures taken during the experiment
- ✔ Pictures/illustrations of any equipment or material used in the experiment
- ✔ Charts, graphs, tables, or other visual aids
- ✔ Arrange your graphics, pictures, data, and information to fit the space available.
- ✔ Your slides should showcase the work you did in your experiment

Component #2 : Google Slides

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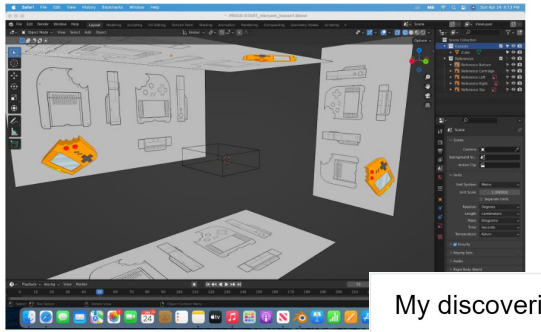
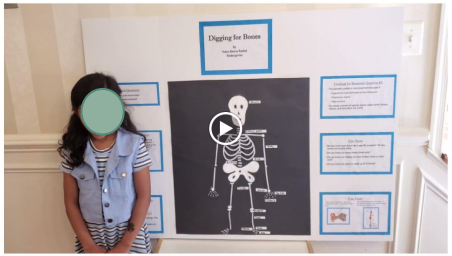
Google Slides:

Lesson 1: Setup Reference Art in Blender



Digging for Bones



My discoveries

1. Table salt had perfect square crystals.
2. Epsom salt crystals look like snowflakes.
3. The scent in the epsom salt didn't make a difference.
4. The mixed crystals looked like flowers.

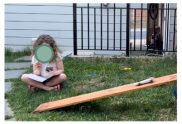
The AMAZING Race!
Finding the fastest car for the Pinewood Derby

MATERIALS: pinewood derby cars with different weights, scale, test race track, measuring tape, stop watch

Pinewood derby cars must weigh less than 5 ounces or 142 grams.

The test race track needed to be smooth and straight. The distance was measured. The distance was 1 meter 69 centimeters.

Each car was timed from start to finish on the test race track.



02

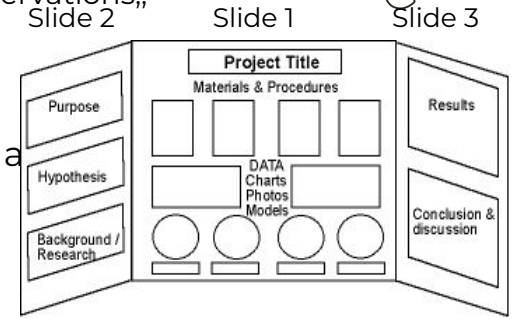
Component #3: Display Presentation

Component #3: Display/Presentation

DIsplay/Presentation Checklist:

You should start planning your displays as soon as you begin your projects. Some of the items that could be included in your google slides are:

- ✔ Pictures taken during the experiment
- ✔ Data notebook or background research notebook
- ✔ Pictures/illustrations of any equipment or material used in the experiment (that is not excluded by guidelines)
- ✔ Journals
- ✔ Title & your name (as a header on the first slide)
- ✔ Components if Investigation: (Example: Question, Hypothesis, Procedure, observations,, Results, Conclusions)
- ✔ Charts, graphs, tables, or other visual aids
- ✔ Statistics, where appropriate
- ✔ Arrange your graphics, pictures, data, and information to fit the space a
- ✔ Your slides should flow the same as the experiment



Component #3: Display/Presentation

Components of Your Display/Presentation: :

COLORS AND TEXT:

1. You can use the labels that come with your board or create your own. Labels created on the computer can be very effective.

2. Use colors that are appealing. If you have a white background, make your text a bright color(s). Try backing your text with a colored slide to make your words come alive.

3. Make your lettering for the title and headings large enough to stand out.

Component #3: Display/Presentation

Components of Your Display/Presentation: :

DISPLAY YOUR DATA:
You may display your data in a table or graph. Make sure your graph reflects the kind of data you have collected.

- A line graph demonstrates change over time.
- A bar/picture graph demonstrates a comparison between two or more things.
- A circle/pie graph compares parts to the whole.

Graphs and tables should be neatly done. Use computer generated graphs and tables or make them yourself. Use a ruler and colored pencils or markers to make them really eye appealing.

Component #3: Display Presentation

Components of Your Display/Presentation:

1. **Topic and Question** - The title can be the question in a "catchy" form. If your title is different from your question, then make sure you also include your question.
   Ex. Your question might be, "Which bath soap cleans the best?" but your title might be "Splish Splash I Was Taking A Bath."
2. **RESEARCH**
3. **HYPOTHESIS**
4. **ABSTRACT**
5. **EXPERIMENT**
6. **CONCLUSION**

Component #3: Display Presentation

Components of Your Display/Presentation:

ILLUSTRATIONS - These can be photographs that you took or you found on the web
that enhance your project. They can also be containers or labels of products you used
in your project.

Actual Model or Experiment- This is the actual equipment you did at home or a model of
your topic.
Ex. If your question was "Does age affect lung capacity?", you might make a model of the human lung or have the actual equipment you used to test this experiment.

Component #3: Display/Presentation

Components of Your Google Slides:

ILLUSTRATIONS:

Sometimes your results can be shown by photographs or pictures. Photographs and pictures also enhance a display, especially if you don't have the actual experiment because you used something that can't be displayed (i.e. pets, family members). You may also use computer generated graphics or photographs off the internet. Check to see if you have permission to use them.

FINISHING TOUCHES:

Make sure you proofread all your written work.

Include all three of the components for project

Keep your slides neat and organize.

BE CREATIVE!!!!!

Component #3 : Presentation

We would love to have each student be able to present their science fair project live and in school building.

Tips for making a great Science Fair presentation:

- Get Prepared: Have any pictures, materials, or the slides set up prior to presentation.
- Practice: You will always sound clearer and feel more comfortable the more you practice. Think about what you want to say.
- Take your time: Enjoy the moment and take this opportunity to show off how hard you have worked and everything you have learned.
- We want to hear you. Face the audience, speak clearly, and with confidence.
- HAVE FUN!!!

SUBMIT YOUR PROJECT!!!

Almost done!!!!

It's time to submit your STEAM Fair Project:

- Be sure to save each component using the following format: **Grade-LastName-Title**

- **All STEAM Fair Entries May submitted online using the STEAM Fair Entry Form**
- Please complete the top portion with your personal information and then select ONE of the TWO options for your entry submission at the bottom.
    - **OPTION 1:** Upload a **FILE** for your entry.
        - Document
        - Image
        - PDF
        - Screen Shot
    - **OPTION 2:** Copy and paste a **LINK** to your entry.
      Don't forget to double check your link to make sure it works!

LINKS & RESOURCES:

01

Register

STEAM Fair Registration form

02

STEAM Questions

Guidelines for STEAM Questions

03

Books

STEAM Resource Book Titles

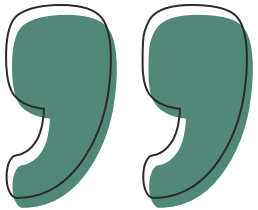
04

Project Submission

STEAM Fair Entry Form

“Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.”

— Marie Curie



Be Creative,
Have Fun,
& Enjoy Science!

Thanks!

DO YOU HAVE ANY QUESTIONS?

Ms. Gardner
kelly_gardner@hcpss.org
Reading Specialist

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