



Magrath Elementary School Student Science Fair Guide Thurs., Feb. 15th, 2024



A family friendly guide to planning, preparing and presenting a school based science fair project for grades 4, 5 and 6 students.

Who? Any student in grades 4 through 6 may enter our school based fair. Students at this age are prepared and ready to tackle these different types of projects with as much autonomy and independence as possible (though they will still need your support). They are also eligible to enter the Lethbridge Regional Science Fair (Sci-Fusion) sponsored by SATC each spring in Lethbridge.

What? Science Fair projects are an opportunity to explore areas of science, technology, math and engineering that interest your child. This guide will explain the three main types of projects and assist your student in planning. Projects can be completed individually or in partnerships, but they must be solely the work of the students (with parental support and supervision).

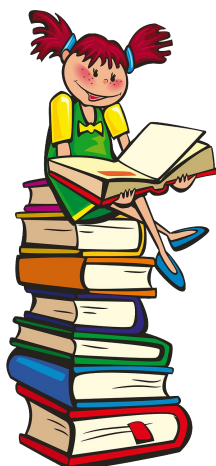
Where? The school based science fair will be held in the black box theatre. Projects will be displayed to the students, and public viewing will be available. Invitations to judge projects will be extended to staff and community members. An award ceremony with prizes will be held at the Celebration assembly on Friday, January 27th, 2023. There is no cost to enter or compete in this event. Any student who wishes to enter their project in the Lethbridge Regional Science Fair (March 2023) will be supported.

When? The MES School Science Fair will be held Thursday, February 15th, 2024. Students who choose to participate will be excused from their classes for that afternoon, and the rest of the student body will have the opportunity to visit the fair. Sci-Fusion (the Lethbridge Regional Fair) typically occurs on a weekend in late March at the University of Lethbridge, and students in Grades 7-12 can have their projects selected to compete in the Canada Wide Science Fair in May.

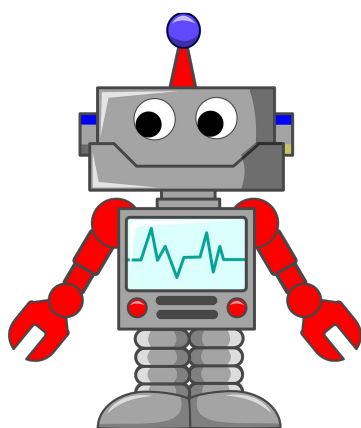
Why? MES has a proud heritage of supporting student growth through project based learning. Science fairs offer children hands on opportunities to explore topics of interest to them in the different fields of STEM, to gain public speaking skills and experience, and enjoy the process of learning in a very interactive way.

How? Turn the page to start planning your project today...

3 Types of Science Fair Projects



A study - this is a project where you choose a topic that really interests you, do a lot of reading and research to learn as much as you can, and then create a report and often a model to share with others all that you have learned. Examples of things you could study include volcanoes, the solar system, weather patterns, rock collections, dinosaurs, etc!

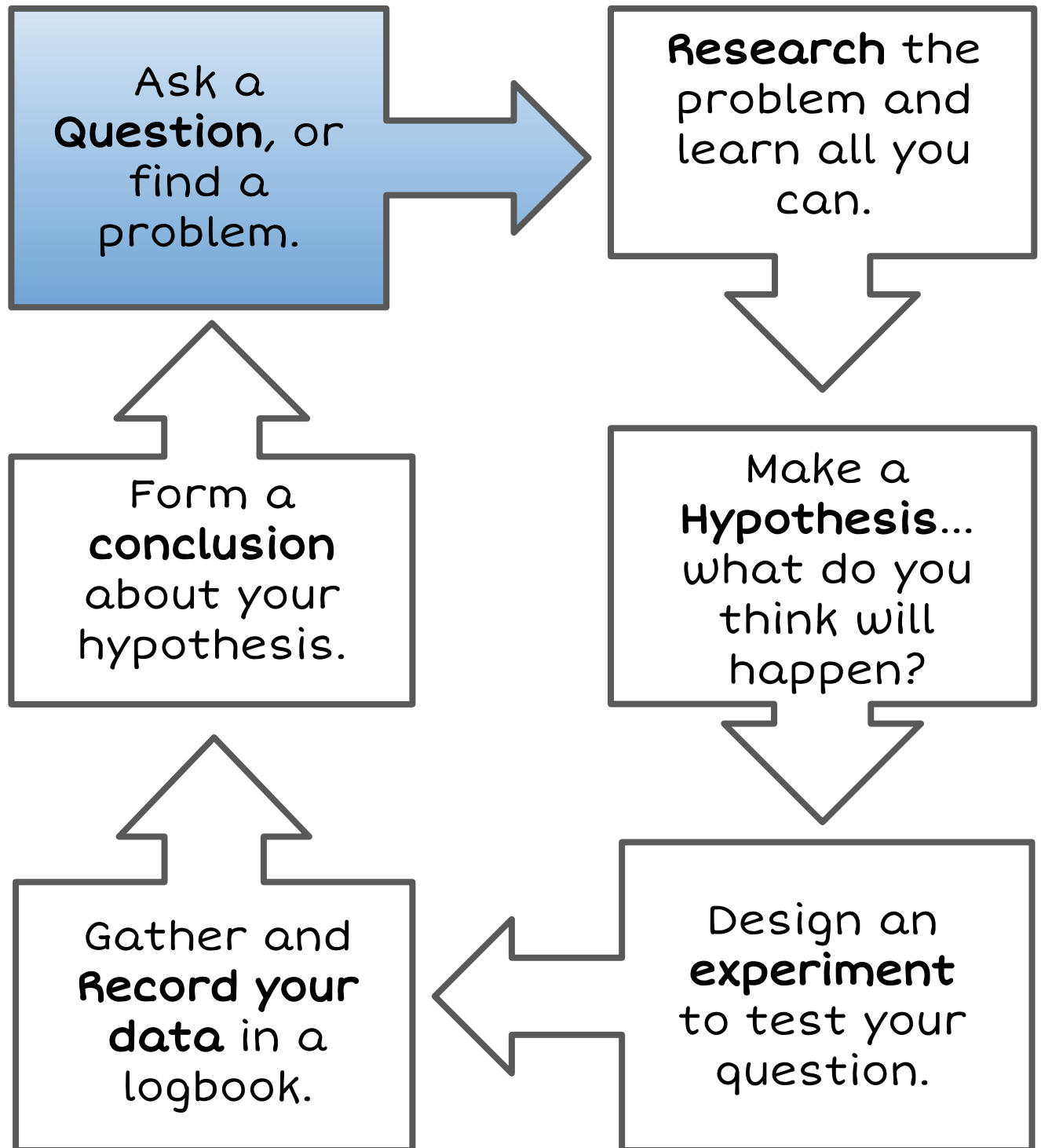


An Innovation/Invention - These projects involve researching and testing (or even designing) a very specific question about a device, model or technology, and sometimes require an engineering or computer based approach. Examples range from creating or programming simple robotic devices, to designing a potato battery, the most efficient paper airplane, or creating a homemade stethoscope.



An Experiment - These tend to be the most successful projects at a science fair. They require you to ask a specific question, develop a hypothesis, and conduct the experiment to gather data and form a conclusion. This is the basis of the scientific method. You might ask, "Which toothpaste removes the most plaque?" or "Which paper towel is the most absorbent?", etc.

The Scientific Method



So, what is a good project question?
Here are some examples.
You could try one of these...

The Cause and Effect Question:

What is the effect of _____ on _____?

Sunlight
Temperature
Insulation
Soda brands
Ramp height

The growth of plants
Strength of plastic
Effectiveness of a solar oven
Sugar consumption
The acceleration of a toy car

The "How Does" Affect Question:

How does _____ affect _____?

Music
Salt
Height
Sunlight
Hand sanitizer

Animal behavior
The melting of ice
The length of a jump
The fading of color
The spread of germs

The Which/What and Verb Question:

Which/what _____ (verb) _____?

Brand of toothpaste
Type of paper towel
Type of seeds
Brand of diaper
vegetables

Makes
Is
Do
Prevents
power

Teeth cleaner
The most absorbent
Birds prefer
Leaks
A lightbulb

Now it's your turn to be the Scientist!

(use this space to start planning your project)

My Question/Problem: _____

Areas of Research: _____

Books I found on my topic: _____

Websites I found on my topic: _____

Things I learned while researching my topic: _____

Now it's your turn to be the Scientist!

(use this space to start planning your project)

My Hypothesis (I think...will happen...because): _____

Materials I will need to gather: _____

Variables (factors that change or stay the same in an experiment):

My controlled variables (things that will stay the same): _____

My independent variables (this is what changes/what I am testing):

My dependent variables (this is what results): _____

My procedure (Take lots of pictures!):

1st _____

2nd _____

3rd _____

4th _____

5th _____

Now it's your turn to be the Scientist!

(use this space to start planning your project)

My Data (use this space to build a table or graph to show your results):

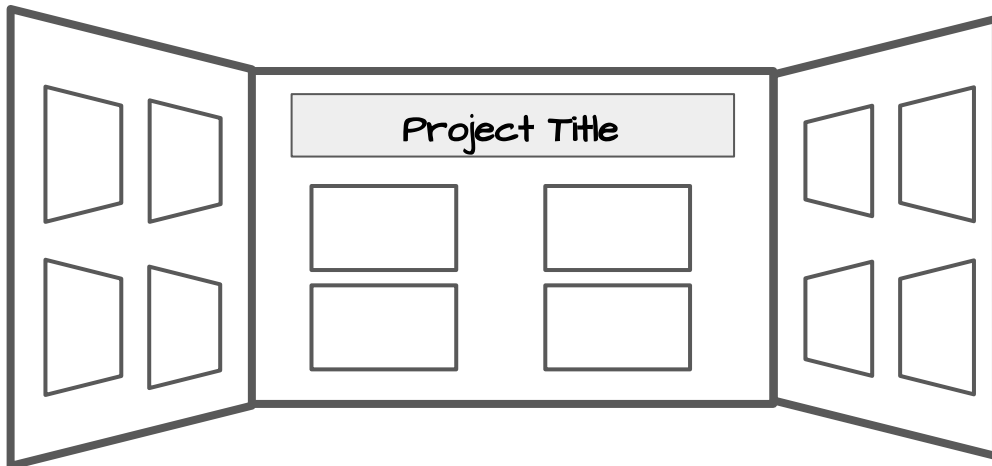
My Observations (things I noticed): _____

My Conclusion (what did I learn?): _____

Application (How does this apply to real life?): _____

Building Your Project Display

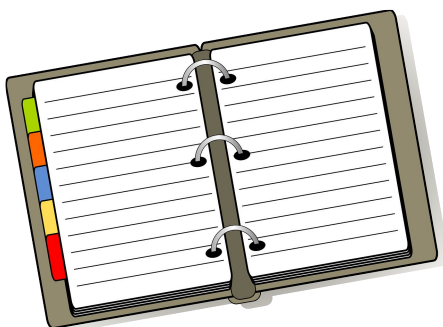
Now you want to design a poster board to highlight your work:



Your project board is meant to showcase your hard work and research, and it can include any of the following:

- Project title
- Project purpose
- Problem/Question
- Hypothesis
- Variables
- Materials
- Procedure
- Observations
- Charts/Graphs
- Conclusion
- Application
- Books and Resources
- Pictures, lots of pictures!
- Name/Grade/Class

Remember to make your project board neat, clean and fun to look at, but the science you have to share is what's most important.



Logbook: It's a really great idea to also compile these items in a small notebook or science journal, including any raw data as you are doing your experiment. Many science fairs give extra points or prizes for young scientists who practice keeping this important type of logbook.

What will the judges be looking for?

Think of a judge as another scientist who wants to hear what you've discovered!

Here's some tips to help you:

1. Relax, have fun, and speak clearly. They really want to celebrate your hard work, so proudly talk about your project.
2. Tell them why this project matters to you.
3. Answer their questions honestly - and it's okay to tell them you don't know all the answers - yet!
4. Highlight the most important scientific content:
 - a. Hypothesis
 - b. Data
 - c. Observations
 - d. Show them pictures!
 - e. Don't forget that logbook
 - f. What did you learn?
5. Don't be afraid to ask for their feedback...they might have some great ideas for how to make your next project even better.



Some websites for further information:

The Alberta Science Network
<https://albertasciencenetwork.ca/>

Discovery Education Website: Great information and ideas for projects
<https://sciencefaircentral.com/>

Science Buddies: This site has a topic selection tool to help narrow ideas
<https://www.sciencebuddies.org/science-fair-projects/topic-selection-wizard/background-info>

Neuroscience for Kids: Kid-friendly explanations of different project aspects
<http://faculty.washington.edu/chudler/fair.html>

Canada Wide Science Fair: Grades 7-12, but good info to build towards
<https://youthscience.ca/science-fairs/cwsf/virtual-2022/>

Magrath Elementary School 2024 Science Fair and STEM Olympics

Student Registration

Name: _____



Partner (if applicable): _____



Grade: _____

Class: _____



Project Type (Circle One):

Study/Research Project

Innovation/Invention

Experiment

Tentative Project Title/Topic: _____

I hereby give permission for my child, _____, to participate in the Magrath Elementary School 2024 Science Fair.

Signature

Date

- I certify that my child's project is solely their own work and the work of their partner (if applicable)
- I have supervised the project for reasons of safety
- I give permission for my child's picture to be used for promotional purposes

Signature

Date

Science Fair Judging Rubric

Student Name: _____ Grade: _____

Project Display	
1. Does the project have either 1) a testable question, or 2) a clear research focus?	0 1 2 3 4 5
2. Does the project display reflect a sense of organization, effort or neatness?	0 1 2 3 4 5
3. Does the project include either 1) graphs and data, or 2) pictures and visuals?	0 1 2 3 4 5
4. Did the presenter include either 1) a notebook or logbook of their experiment, or 2) references?	0 1 2 3 4 5
Scientific Method and Research	
5. Is there evidence of either 1) a well thought out experimental process and research method, or 2) research sources included?	0 1 2 3 4 5
6. Is there evidence that either 1) variables are identified and included, or 2) the topic was well researched and studied?	0 1 2 3 4 5
7. Does the conclusion answer the original question or reflect the focus of the topic?	0 1 2 3 4 5
Student Presentation	
8. Does the student speak clearly and answer questions to the best of their knowledge and ability?	0 1 2 3 4 5
9. Does the student demonstrate an excitement or passion for the project?	0 1 2 3 4 5

Total Score _____/45

One thing I really loved about your project...

One way you could improve your project...

Judges Initials _____