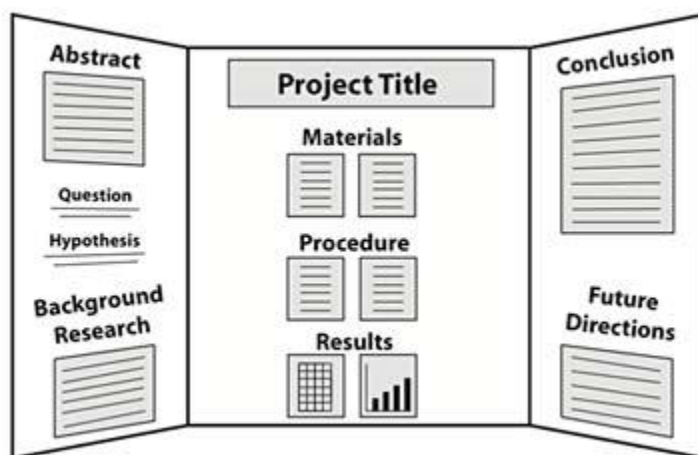


SCIENCE FAIR & SCIENTIFIC METHOD OVERVIEW

Here are step-by-step instructions on the format of your project. You will need to prepare a display board to communicate your work to others. Any type or size **tri-fold display board** is acceptable. The below illustration shows an **example** of how your project may be displayed. Information on the board can be typed, adhesive lettering or neatly hand-written. Please be sure to include your name on the front or back of your display board.



Project Title: What is the idea behind your science project? What are you trying to find out?

Steps of the Scientific Method

Observation/Ask a Question: The scientific method starts when you ask a question about something that you observe. Identify the “what if” question. Exactly what are you trying to figure out? Keep it simple so that it is easier to keep track of your results and maintain consistent conditions throughout the experiment. And, in order for the scientific method to answer the question it must be about something that you can measure, preferably with a number.

Hypothesis: A hypothesis is an educated guess about how things work:

"If ____ [*I do this*] ____, then ____ [*this*] ____ will happen."

You are making a prediction about what you think will happen in your experiment. It is important to be as specific as possible and to state your hypothesis in a way that you can easily measure to see if you are correct. It does not matter if your hypothesis agrees with your results. Many times, results are not what a scientist expects!

Test Your Hypothesis by Doing an Experiment: Your experiment tests whether your hypothesis is true or false. It is important for your experiment to be a fair test. You conduct a fair test by making sure that

you change only one factor (independent variable) at a time while keeping all other conditions (controls) the same.

- Include detailed procedures for the experiment
- Include a list of the materials and equipment you will use
- Be clear about the independent variable (part of the experiment that changes to test your prediction) and controls (parts of the experiment that do not change).
- Be specific about how you plan to measure your results.

You should also repeat your experiments several times to make sure that the first results weren't just an accident.

Data/Results: Once your experiment is complete, you collect and write down the specific information (measurements) or data that resulted from your experiment. Some of your data should be described in numbers. For example, indicate the exact measurement that something has increased, such as “1 centimeter”, rather than stating “it got bigger”. You may want to include a graph or chart that will make a picture of your results.

Conclusion: Once your experiment is complete, analyze your results to see if your hypothesis is correct. Again, it does not matter if your hypothesis agrees with your results...do NOT change your hypothesis! Just discuss if your hypothesis was correct or incorrect. Think along the lines of, “here’s what I thought was going to happen, and here’s what actually happened.”

Scientists often find that their hypothesis was incorrect, and in such cases they will construct a new hypothesis starting the entire process of the scientific method over again. Even if they find that their hypothesis was correct, they may want to test it again in a new way.

Presentation: Be prepared to explain your experiment to an evaluator (evaluators will consist of members from our local science community) and answer their questions. You should be able to address the question and the results/conclusion in one or two sentences. In case asked, you should be able to explain the steps of your experiment and be able to clearly state the one independent variable you changed and how it impacted the dependent variable (what you measured). The evaluator will only ask age-appropriate questions and just wants to see that you have an understanding of the scientific method and your experiment.

Additional Helpful Information:

There are many helpful sites you can locate on the internet that provide additional instructions on how to conduct an experiment and present your project board. One we particularly like that provides very specific step by step instructions, examples and definitions is:

http://www.sciencebuddies.org/science-fair-projects/project_scientific_method.shtml#overviewofthescientificmethod

****Please Note – Our science fair does NOT require a written report****

If your project is messy, please consider taking photos of the project instead of bringing to school! Additionally, if your child’s project requires an electrical outlet, please let us know. However, we are not responsible for any of the items included in your presentation.