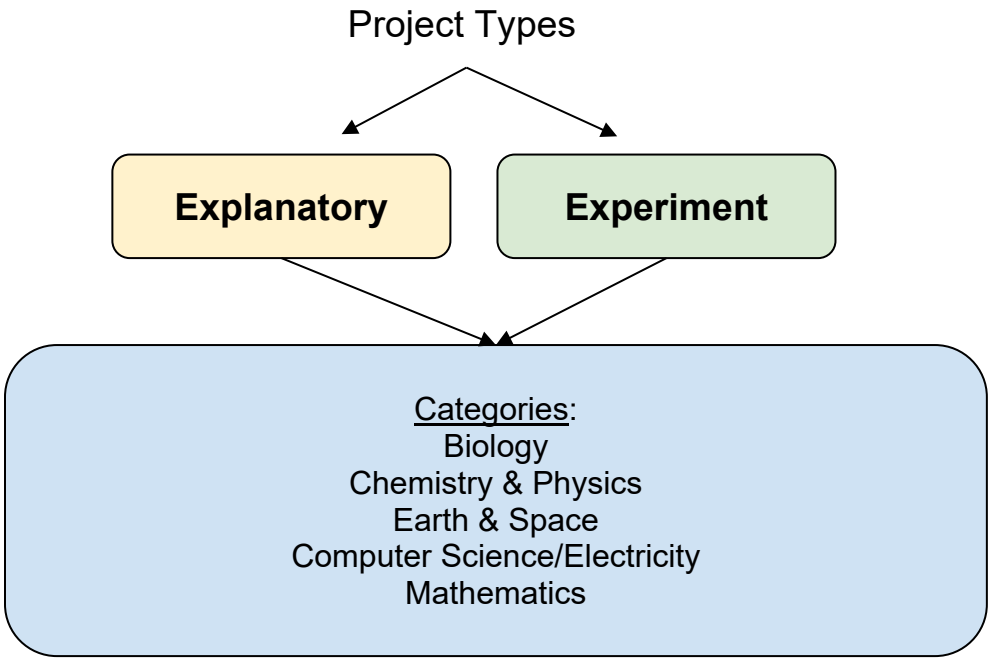
Copper Beech Science Fair Info. Packet

Basic Guidelines:

The most important part of this project is that it should be fun! While parents/guardians are welcome to act as assistants (helping to obtain supplies, supervising, etc.), this is really meant to be the student's project. Students may either work alone or in teams of two or three.

Safety Note: No chemicals or explosive demonstrations are allowed at the science fair. Students must be supervised by an adult if they are using chemicals (such as those found in kitchens & bathrooms) or fire. No vertebrate organisms may be harmed during experimentation.



Typically, both types of projects are presented using a **trifold board** with some accompanying materials. Details describing each type of project, as well as some helpful hints, are listed below.

Project Type; Option 1- Explanatory:

In this type of project, students create a presentation on a science topic. It can either be a topic that you already know about and want to learn more about or one that is completely new to you that you want to study. A good idea is to pick something that interests you.

After you select your topic, you can research it by using websites or reference books. Once you are an expert, you will design a presentation that will teach others about your topic. The format of the presentation is flexible but try to keep in mind what you would enjoy if you were the one who saw your presentation for the first time. Presentations may include (but are not limited to):

- Posters
- Demonstrations
- Interactive exhibits
- Models
- Art/music/poetry

This is your chance to be creative and share with others the most interesting things you learned while completing your project. Don't forget to give your presentation a title that will spark people's interest!

Project Type; Option 2- Experiment:

In this type of project, students design and execute a science experiment of their choice and then present their results. The best way to start is to find a question you are interested in exploring. While it may be tempting to look for a project idea online or from another source, this project will be more fun if the question comes from you!

Here are some things to consider when planning and executing your project:

Picking your topic for experiments

1. Think about what topics you are curious about.
2. Come up with a **testable** question about that topic.

Some examples include:

- Do new tennis balls bounce higher than old ones?
- Does talking to plants make them grow taller?
- Is it harder to shoot a basketball with one eye closed?
- Does the shape of an object affect how fast it falls?

Planning your experiment

Once you have your question, you need to figure out a plan to test it. Some things to consider are:

1. **Controlling variables***:* Are you being careful that you are only investigating your target question? For example, if you are testing "if new tennis balls bounce higher than older ones", you need to use the same make of tennis balls or you won't know if any differences you find are due to a different brand and not just age.
2. **Collecting enough data**: You need to consider if your data is enough to make a convincing argument that your conclusion is valid. For example, testing the bounce heights of only one new and one old tennis ball is not as convincing as testing ten of each. **Bonus tip**: Take photos or videos while you collect your data. It will help you show what you did later.

Making conclusions about your experiment based on your data

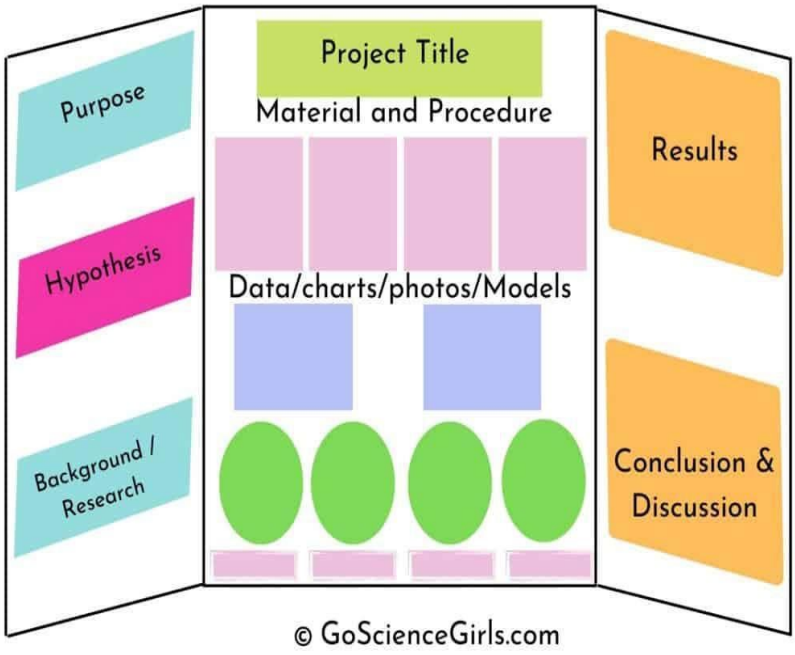
You need to make sure that you are reporting what the data shows, not just what you think will happen. For example, let's say you think new tennis balls should bounce higher but, in your tests, a few of the older balls bounced higher than some of the newer ones. You cannot ignore this data. You need to report the mixed result (and maybe discuss some reasons why you saw what you did).

Designing your science fair board for an EXPERIMENT project

How you present your findings is flexible, but it should include the following features

1. **Title***:* A "catchy" phrase describing your experiment
2. **Question**: The question that you will try to answer with your experiment
3. **Procedure***:* A description of what you did. If you think it will help, you may use visual aids (pictures, sample set-ups, etc.)
4. **Results:** Make sure you present your results in a way that can be easily understood. Visuals such as tables, graphs, samples, or pictures can be helpful.
5. **Conclusion:** Think about what you learned. How will you answer your question based on your data? Sometimes the conclusion is that more experiments are needed to answer the question. Make sure you explain why you are making the conclusion based on what you discovered throughout the experiment.

Below is an example of what your final display could look like. What you display and how you display it is flexible and may vary depending on your experiment.



Left Panel

This is where the story of the experiment or investigation should be chronicled in precise steps. Typically, this panel includes your question aka hypothesis, variables, materials, and procedure.

Expert tip! Learn how to edit your text down to the essentials. Through creative use of color, type, and graphic elements, you can make your ideas pop and bring your project to life. Space elements evenly across your layout, to achieve a balanced, consistent look.

Main Panel

Treat the center panel of the tri-fold board as center stage. Come up with a catchy title and display it prominently. The title should be the largest text on the board. Don't be afraid to make it big and bold!

Expert tip! Label all graphs, charts, and tables. On graphs, make sure you label the x and y axes. Be sure every photo has a caption beneath it. Write descriptive captions for photos.

Right Panel

This is typically where your results and conclusion are displayed. You may display your results using tables, charts, graphs, and pictures. Use a ruler, yardstick, or T-square to measure and cut evenly.

Expert tip! Proofread and spellcheck all text before sticking it on your display board. Use black or dark colors for type and make the type large enough to read from four feet away. As a general rule, use 24 pt. type for headings, 16 pt. type for text blocks. Use subheads and bullet points rather than long paragraphs of dense text.

Support:

As a benefit to our families, we will be offering a kickoff event at CB in March to answer questions and help students get ideas for and plan their project. Informational slides will be available for families that cannot attend.

Timeline:

The suggested timeline listed below is designed to provide a framework for your project and to help keep you on track.

Date	Task
1/26	**Science Fair registration opens!** Register for the Science Fair here. Register for the Science Fair Info & Prep Session here.
1/26-2/26	Begin researching your topic of interest for a presentation or creating questions that will lead to an experiment.
2/26-3/24	Decide between project types. Either a presentation or an experiment. Start gathering resources. Register for the Science Fair Info & Prep

	Session. Register here by March 24.
March 25 from 6-7:30 p.m.	**Info/Prep Session at Copper Beech.** Volunteers will be available to help you put the final touches on your project, brainstorm ideas if you haven't started yet, or answer questions you have to make sure everyone is ready for the Science Fair.
4/21	**Registration Deadline!** Register for the Science Fair here.
4/28	**Finalize Project details!** You can update your project information using the Google form receipt up until this date.
5/4	Complete the final touches on your display
5/5	**Science Fair at Copper Beech**

Helpful links and resources:
The Copper Beech Library and Abington Free Library are wonderful resources for research or experiment guidebooks. Ask a librarian for help finding books that are age-appropriate and can help inspire you to find the right presentation topic or experiment for you.

- ✓ Science Buddies: the best place to start!
- ✓ 1000 Science Fair Projects with Complete Instructions
- ✓ Science Fair Project Resource Guide: Getting Started, Choosing a Topic, Completing the Project and Displaying Your Project
- ✓ Hands-on Science Resources for Home and School
- ✓ How to Do a Great Elementary Science Fair Project and Board Layout
- ✓ Science Fair Central: Project Ideas, Project Steps and Presentation Tips
- ✓ ScienzFair Project Ideas
- ✓ Exploratorium: Dive into activities, interactive exhibits, video content, and more. Exploratorium creates tools and experiences that help you to become an active explorer: hundreds of explore-for-yourself exhibits, a website with over 35,000 pages of content, plus much more.

Inspirational media:

1. Ada Twist Scientist (read by an astronaut in the ISS) & Netflix show
2. Brainchild Netflix show + resources
3. Smologies podcast
4. Shortwave podcast