

Science Fair Handbook 2021-2022 School Year



A One-Room
Schoolhouse

Building faith, knowledge, and character

A One-Room Schoolhouse is proud to welcome you all to its second annual Homeschool Science Fair. Questions can be directed to info@aoneroomschoolhouse.com

Why a Science Fair?

The goal of the Homeschool Science Fair is for students to have fun with science. Students need opportunities to experience science for themselves by asking questions and discovering answers. Everyone can do science, and a science project is the best hands-on way to enjoy and learn about science.

For students to learn problem solving, the best practice called “Scientific Method” is used. You can see information on the Scientific Method on <https://aoneroomschoolhouse.com/blog>

Science Fair Information:

1. **Registration:** Please register by submitting form located at <https://aoneroomschoolhouse.com/blog>. REGISTRATION CLOSES ON February 1, 2022.

2. **Choose a topic:** If your child/ children are interested in doing a project, help them choose an appropriate topic. A simple, well researched question with a nice display is key to a good project. Parental help is needed for direction and encouragement. However, learning with the child will be enhanced if he/she participates fully in the project.

Using the resources available on the <https://www.sciencebuddies.org/> website, especially the topic section wizard will help you and your student choose a topic. They also have a section to where you can purchase the items needed for each project.

3. **Display the project:** Please present your project on a display board with relevant information. Each student who participates is to include the elements of the scientific method on their board.

4. **The Format:** The format of the science fair at A One-Room Schoolhouse is judged with awards given. Each participant will have a chance to present their project to 2-3 judges. Each student will receive a certificate of commendation at the end of the fair and a small gift. Small prizes will be awarded for 1st , 2nd , and 3rd place in each of the following age groups: Kindergarten to 1st grade; 2nd grade to 3rd grade, 4th grade to 6th grade and 7th grade to 12th grade. If fewer than three participates are in a group, the groups may be consolidated.

5. Participate in this fair if you are comfortable in the environment provided. If you would prefer to participate virtually, please provide that information when you register.

6. If wearing a mask is right for your family, then wear one. If wearing a mask does not work for your family, then do not wear one.

7. If you are sick the day of the fair or 24 hours prior, please do not come. Please inform the Science Fair organizers so you can let them know if you would like to participate by one of the following ways a) Someone else can bring your board and set it up. It will be judged and your certificate and/or award will be mailed to you. b) Zoom call into the judges to present your project and board. Your certificate and/or award will be mailed to you.

8. Each student will be assigned their own table. This will provide distance between each participant.

9. Sanitation stations will be provided at the fair.

Science Fair Rules

1. Each project will be classified by grade level.
2. Each student may enter only one project. There will not be duplicate projects. You will be notified if this becomes the case with your student.
3. Individual projects are encouraged. However, students can work with a maximum of one partner on their science fair project. Both students should register separately with the same project title. Please mention the name of your partner on your registration form.
4. Parents and other responsible adults may advise the students when doing the project. However, parents should allow the students to do the actual work. The best projects are the simple ones, where students can demonstrate command of the subject matter and the experiment.
5. The three-sided display boards (no larger than 36x48) are available through many stores and online retailers.
6. Electrical switches and cords needed for exhibits must be in good working condition.
7. Please avoid the display of expensive or fragile items. Valuable items essential to the project should be simulated or photographed.
8. A One-Room Schoolhouse assumes no liability for loss or damage to exhibits. All students must agree to be careful and respectful of the work of student scientists when viewing the Fair exhibits.
9. NO harmful animal or human experiments are ALLOWED. Parents must carefully monitor any experiment that is performed as a part of a project.
10. Students should bring all the material required for the project.
11. A space of about 5 feet wide will be provided for the display board, experiment/model, and any record book.
12. NO OPEN FLAMES, or LIVE ANIMALS, or DRY ICE are allowed to be displayed on the day of the Science Fair. You may take pictures or take a video and display it at the fair.
13. We have limited electrical outlets. So please mention in the form if you need one. Also, mention any other special needs for the project on the form.



Getting Started

Choose a topic that you find interesting! You should be excited about your project!!!

Start with a question related to hobby, travel, or surroundings that you have been wondering about, like..... How does plant a grow?

How is a rainbow formed?

Why does a cut apple change color?

Choose a Question

Choose one question that will narrow the focus of your investigation. This will be the question that you are trying to answer with your project. For example, using the topic “plant growth,” one question could be, “How does sunlight affect plant growth?”

Another question could be “Which plant food works the best?” or “Can plants grow in water?” You can choose from many questions in any topic. Below is a sample of science questions to be investigated.

- Why does the earth have seasons?
- How can you tell if a substance is an acid or a base?
- How are tides formed?
- Which laundry detergent is best?
- How does a camera work?
- How does it rain?
- What is the best conductor?
- How does an airplane fly?
- How does an electromagnet work?
- How do Air Balloons work?
- What color light is best for plant growth?
- How does blood get from the toes to the heart?
- How do muscles and bones work together in movement?



Research

Once you have a question to work on, do some research. You can get information from books, encyclopedias, pamphlets, television, field trips, interviews, or the Internet. Look for information from several different sources. Become an expert on your topic!

Plan Ahead

Sometimes science experiments don't work. If you plan and conduct your experiment well in advance of the science fair and your experiment does not work, you will have an opportunity to retry or change your experiment. So, start early.

What if my experiment fails?

This happens sometimes, but *don't worry*, you should still present your work. Present what you did on your display board. In the conclusion section of your presentation, suggest ways to investigate *why* your experiment did not work. Experimental failure is common for scientists who usually repeat the experiment and if the experiment still does not work, they ask their question in a different way or redesign the way the experiment was conducted

Displaying the Project

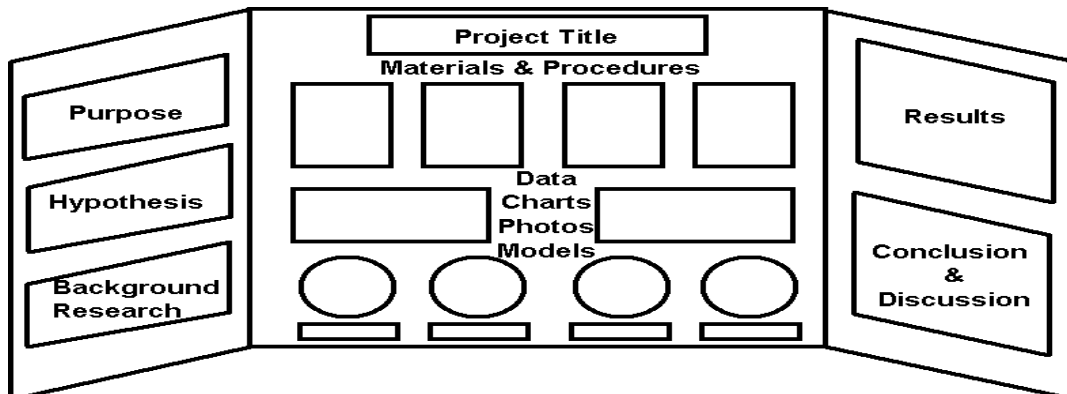
Your project board display is a particularly important part of your project since it explains to others what you have done and learned. The quality of your work will be judged on your written display as well as your ability to explain your ideas, methods, and what you have learned.



Displaying materials in front of your display board

If you have made a model, a demonstration, or a collection, these should be displayed in front of your poster board, unless they are fragile or valuable. In those cases, please mount photographs of your model, invention, demonstration, or collection on your board. If you must bring fragile or valuable items to the Fair, ensure that you do not leave your project unattended.

Ideas of poster displays:



The Scientific Method for Experiments

1. Identify the problem (Purpose)

This is stated in the form of a question. (What information could be found by researching the question?)

- Look in the books or websites
- Get advice
- Make observations

2. Develop a hypothesis (Hypothesis)

A hypothesis is an *educated* guess. Or: *What* would be the answer to the question in mind?

- Use the words “I predict if.... and the...”
- Form the hypothesis and state it clearly so that it can be tested.

3. The material used for experiment/investigation

Mention all the material used to complete the experiment

4. Plan and conduct an experiment (Procedure)

- List each step that will be done or has been done.
- Number each step in order and write down everything that has been done to repeat the experiment by reading the procedure.
- Control the variables.

A variable is something that can change or vary during an experiment. Remember that everything should be the same each time the test is conducted, except for the one variable being tested.

5. Record the results after testing the hypothesis (Results) Keep detailed records of methods and results

- Make observations.
- Collect data and record it in a journal (notebook).
- Make tables, charts, or graphs.
- Write a summary of *all* the observations.
- Draw pictures/take photographs to show the results and/or procedures.

6. Develop a conclusion (Conclusion)

- Decide what the data tells about the hypothesis.
- Decide how different is the hypothesis based on the results.
- What new questions come up based on the results?
- Communicate the results to others.



so that others will be able