

7th Annual Science Fair Information Packet For Roxborough Primary Students



Primary Science Fair Dates

December 10th: Registration Deadline

January 31st: Drop off Display Boards in the Library from 8:15– 9:00am
(No Late Entries!)

February 1st & 3rd: Judging during school hours

February 4th: Family Night 6:00pm

The goal of the Science Fair is to support students' interest in conducting scientific research and experiments, to give students an exposure to the scientific process at an early age, and to have fun with science!!!

Please review the information in this packet which includes important guidelines (including some changes from previous years) and helpful hints to have a successful Science Fair experience!

Thank you,

The Roxborough PTIC Science Fair Committee



"Brought to you by Roxborough PTIC"
Parent Teacher Involvement Committee = "People To Inspire
Children"



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Table of Contents

I.No Child is Too Young to Participate!

II.Why Participate in the Science Fair?

III. General Information

IV. How Do I Get Started and What is Required?

V. What is the Scientific Method?

VI. How does the Judging Work?

VII. What if I don't want to be Judged?

VIII. Places to Get Valuable Information

IX. What is My Role as a Parent?

X. Checklist to use as you do your Project

I. No Child is Too Young to Participate!

So you think the Science Fair sounds like fun, but it all just seems like too much for a young child? We can tell you from experience that no child is too young to participate! Even if your child does a simple experiment and puts some information on the display board, they will gain a wealth of experience and have a great time participating in the fair. Every participant gets the opportunity to speak to a judge and gets a personalized certificate, ribbon and prize. The judges have different expectations for different age groups and young children are not expected to memorize all of the steps of the Scientific Method or to understand complex scientific principles. It's all about asking a question and finding an answer. It can be as simple as "Which bubble gum blows the biggest bubbles?" or "How many licks are in a Tootsie Pop?" Science is about exploration and discovery and younger children are certainly experts at this! We encourage you to explore with your child and give them an opportunity to have a positive early experience with science.

II. Why Participate in the Science Fair?

Science is an important subject in our kids' education. The Science Fair provides an opportunity for children to experience science in a fun, hands-on way. It also provides an opportunity to build self-esteem as every participant is recognized with a certificate and ribbon. There are even prizes!

"Children are naturally curious. Science education feeds that curiosity and provides students with valuable concepts, life skills, and career options. Science helps give kids a greater appreciation for the world, a healthy dose of skepticism, strong problem-solving skills, and research know-how." http://www.tryscience.org/parents/wsm_2.html

III. General Information

- ❖ The main purpose of the fair is to have fun!! Your experiment does not have to be complicated for you to have a great experience.
- ❖ You should learn that the *Scientific Method* is used for doing an experiment—you do NOT need to know the exact words, but should have an understanding of the process.
- ❖ You can opt out of judging if you would not like to speak with the judges.
- ❖ You need to do an experiment to get full points in judging. This means asking a question and testing to get an answer. This is different than just demonstrating how something works.
- ❖ The Science Fair will be in the Library of each building this year. Students are *not allowed to bring in equipment*. Photos on the display board are a great way to show what you did. Remember, you are being judged more on your understanding of the experiment rather than the experiment itself. Classes will tour the displays, but students can ask individual teachers to show their experiments in class if they wish.
- ❖ When you drop off your display board in the library before school, you must leave the building and return at the start of school to line up with your class as usual.

IV. How do I Get Started and What is Required?

- ❖ Get an early start. You may start with one idea and end up going down another path. Or you may choose a topic that requires a good deal of time such as growing plants. The more time you have the better!
- ❖ Choose something you are interested in (hobbies, sports, etc.) and want to learn more about.
- ❖ Search the Internet, go to the Library or ask one of us if you need guidance!
Science Fair Committee Chairs:
 - Donna Hoffmann dmcann@aol.com
 - Maggie Hunt maggshunt@comcast.net
 - Gina Pochocki ginapochocki@comcast.net
- ❖ You are required to submit a completed registration contract, do an experiment using the scientific method, prepare a 3-sided display board using the display template as a guide. If you want to be judged, you will need to come to a scheduled judging time during school hours.

V. What is the Scientific Method?

The scientific method is the procedure scientists use to do an experiment. There are five basic steps:

1. Ask a Question—After you have decided on a subject, you need to ask a question. This is the question you want to answer by doing your experiment. It is what you will use as your *title* on your display board and should be as specific as possible.
Example: Say I have decided that my experiment will involve plant growth. A question I could ask is “How do plants grow?” This is a very general question; a more specific question would be “What is more important in the growth of a plant, light or water?” With the second question I can create an experiment to test different levels.
2. Research—By doing research you will find information already known about your subject.
In my example, I would need to have some background knowledge about plant growth before I could set up my experiment—I would need to know that plants use water and light to grow.
Gaining knowledge will help you with the next step of formulating a hypothesis.
3. Form a Hypothesis/ “Guess”—A hypothesis is an educated guess. Use your research to help you make a guess about what will happen in your experiment.

In my example, I could state my hypothesis as, "I believe that water is more important than sunlight for a plant to grow."

4. Conduct an Experiment—This is where you gather *materials* / "stuff" you will need, plan out a *procedure* / "directions" (like a recipe—a step by step set of instructions), and make *observations* / "what do you see". An experiment is different than a demonstration—you must do something that is testable/ measurable.

In my example, I would need materials such as cups, soil, seeds, water and sunlight. My procedure could look like this:

1. Put 1 cup of soil in 2 cups.
2. Place seed under 2 inches of the soil.
3. Put one plant in dark closet.
4. Put one plant on window sill.
5. Water plant in closet every day.
6. Do not water plant in window.

I would also keep records (*data*) of how much water I gave each plant and how much if any the plants grew. I could record what they looked like and take pictures or make drawings. When making your observations it is important to just write what you see. Don't try to explain it—that's part of the next step. Your experiment can also be repeated so you can make sure that your results are accurate.

5. Reach a conclusion / "what do I think about what happened?" —Here is where you compare your hypothesis to what actually happened. Remember, IT IS OKAY FOR YOUR HYPOTHESIS TO BE WRONG! Some of the most interesting scientific discoveries have been the result of something going wrong. It is more important that you understand what happened and come up with explanations and ways to change the experiment next time. (You will not lose any points in the judging process for your hypothesis being wrong.)

In my experiment, say the plant in the window grew more than the one in the closet. My hypothesis would have been wrong and that's okay—maybe I didn't learn enough before I made my prediction, maybe there was a lot of moisture in the room, maybe I had a bad seed. What's important is that I think about what could have happened. Maybe next time I could use more than 2 cups.

A good tip is to keep a notebook with all of your information.

For more info about the scientific method, go to

<http://www.factmonster.com/cig/science-fair-projects/understanding-using-scientific-method.html>

VI. How Does the Judging Work?

- ❖ A large part of the scoring comes from your display board and having things in the right place—Make sure to use the display template at the end of this document when putting your board together. You can type or handwrite your information, but just make sure that it's neat. If your child can't yet write, have them dictate to you.
- ❖ If the student wants to be judged, they will also be interviewed by one or more judges. This experience is meant to give the student a chance to explain what they did and to show their *understanding of their experiment*. The interviews will be held during school hours and the students will be alone. Parents will have an opportunity to see everyone's board at the Family Night.
- ❖ The student is welcome to have a notebook or journal they have kept during the experiment to reference during the interview.
- ❖ It is important that the student do an experiment, not just a demonstration. An experiment involves trying different things to get different outcomes not just showing how something works. In my example above, a demonstration would have just shown how plants grow instead of testing the effects of water and sunlight.
- ❖ Be creative! Some of the best projects we have seen have come from questions the kids asked about something they wanted to understand. Don't be afraid to do something that hasn't been done before!
- ❖ Be excited about what you have learned; try to connect what you have learned in your experiment to other things and have explanations for what may have happened or not happened.
- ❖ Students are judged against their peers and the judges have different expectations for different grade levels.
- ❖ The judges are members of our community; some have backgrounds in science, some in education, and some are just very enthusiastic about the science fair!
- ❖ The judges use their scores and the interview to come up with students that place. They talk to each other to come to a consensus. But remember, whether you place or not, you still get a ribbon and a certificate!

VII. What if I don't want to be judged?

You are more than welcome to submit a display board and not be judged. You will be given a score on the written content on your board, you will not speak to any judged. You will not be eligible to place, but you will still receive a personalized certificate, ribbon, prize, rootbeer float party and be entered into our raffle

VIII. Places to Get Valuable Information

- ❖ The internet has many great sites to get help. Some examples are:
 - www.sciencefairsanity.com

- www.easy-science-fair-projects.net
- www.easy-kids-science-experiments.com
- ❖ There are also a lot of great books with ideas and helpful information. The public library can help as well as the school libraries.
- ❖ Also feel free to contact one of the committee chairs for information or if you need help in any way!

IX. What is My Role as a Parent?

- ❖ Remember when helping your child that the main goal of the science fair is to understand the process of the Scientific Method and what happened in the experiment.
- ❖ Help your child choose something interesting to them—it doesn't *have* to be complicated—just make sure that your child understands what they are doing.
- ❖ Assist your child in acquiring the right materials, getting the right resources, and managing their time.
- ❖ Let your child do as much as possible! They won't really understand their experiment if they just watch you do it! If they can't yet write, have them dictate to you instead of just writing it yourself. Encourage them to be the scientist and view yourself as their assistant (kids love that!).
- ❖ Make sure to let your child know that it is OKAY TO BE WRONG! Making mistakes is how we learn and make new discoveries sometimes.
- ❖ Help your child practice interviewing so that they feel comfortable during the judging process—ask questions about what they did, have them explain their experiment.
- ❖ Have Fun! Science is about exploration and discovery—what could be more fun?!

X. Primary Student Checklist–To be used as a Guideline

- Choose a Subject—make sure it is something you find interesting!
- Ask a Question about that Subject
 - This will be the title on the Display Board
 - Make sure you can do an experiment to answer your question
 - The more specific the better
- Research
 - Find out information about the subject you have chosen.
- Hypothesis or “Guess”
 - Do research before you guess, so it can be an informed guess.
 - What do you think will happen in your experiment?
 - This should not be something that you already know
- Procedure or “Directions”
 - This is a numbered ‘step by step’ list of what you will do in your experiment
 - Make sure to list your materials/“stuff” with exact sizes and amounts
- Experiment
 - Use your procedure to do the experiment
 - Make Observations/ “What do you see”
 - Record what happens–write, draw pictures, take pictures etc.
 - Use as many details as possible
- The Data/Results–“What Happened?”
 - Try to organize the information you collected during the experiment–you can put it in a table or chart or order pictures
- The Conclusion–“What do I think about what happened?”
 - Was your guess right?
 - Try to figure out why the guess was right or wrong
 - What could you do next time to change the experiment?
 - What did you learn?
 - Can you relate what you learned to other areas?
- Display Board—Please use the Display Template in this packet
 - Title (In form of a question)
 - Name
 - Grade
 - Teacher
 - Hypothesis/ “Guess”
 - Conclusion/ “What do I think about what happened?”
 - Data, Charts, Graphs
 - Photos, Drawings
 - Procedure/ “Directions”
 - Materials/ “What did you use in your experiment?”
 - Background Information/Resources
 - Observations/ “What did you see?”
- Interview Practiced

- Make sure you understand your experiment
- You should understand that doing an experiment uses the "Scientific Method"
You do not have to know the exact words "Hypothesis, Procedure, Data, Experimentation and Conclusion", but you should understand what these mean and how you went about doing your project
- Try to have explanations for what happened
- Try to relate your experiment to other areas