

Revised!

Trace Elementary Science Fair 2014 Handbook



Welcome to the 2013-2014 Trace Elementary Science Fair!

Congratulations! You have decided to participate in the Science Fair! On the pages that follow, you will find details about the types of projects that can be done, where to research, and how the project will be judged. But first, an overview of the next few months:

1. **Jan 8:** Flyers with registration information will be in the (Jan 8) Wednesday envelopes. Get them back to your teacher as soon as possible!
2. **Jan 20:** This handbook will be available on the PTO website and distributed to registered students beginning the week of Jan 20.
3. **ASAP:** Get working on your project!
4. **Jan 20:** Confirmation forms will be sent to registered students the week of Feb 11 (to finalize the number of boards needed).
5. **Feb 3:** Students who confirm they are doing a science project will be given a tri-fold standing board to display their project. The board will include a space number to guide set-up the day of the science fair.
6. **Feb 27:** Science Fair Projects need to be delivered to the multipurpose room by 8:30 AM.
7. **Feb 27:** Science Fair, 6:30pm. All students who have created a display board are encouraged to attend, present their project to the judges, and be eligible for a prize!

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First, the Rules!

1. Students can enter only one project in the science fair.
2. Groups of up to 3 students may work on a project together.
3. Students can get advice and help from adults, but the student should be doing the actual work on the project.
4. All projects must be displayed on the display board provided by the PTO.
5. Students do not have to attend the science fair and explain their project to the judges, but since this is an important part of the project it is included in the scoring.
6. First, second, and third prize ribbons will be awarded at the end of the science fair for each grade level. Additional prizes may be awarded in addition to the ribbons
7. Items that are expensive, fragile or irreplaceable should not be displayed with your project (take a picture instead!).
8. The following may NOT be used in your project:
 - illegal substances
 - explosives, open flames
 - dangerous chemicals
 - any other safety hazard, whether part of your experiment or the experiment itself
9. Sorry, NO VOLCANOES!

And now on to the fun stuff!

Wait, you think science is not fun?

Honestly, *seriously*, this is probably because you haven't seen a part of science that interests YOU. This is your chance to change all that!

Does someone in your family drink decaf coffee? Ever thought about how they get the caffeine out? Chemistry!

Do you watch the weather report on the news? How do they predict the weather? Physics!

Do you know someone with cancer who was made better for a while or cured with medicine? It takes biology to discover the medicine (and then biologists, chemists, and engineers to make the medicine).

Ever thought about the dust on your floor? Do you know what is in a dust ball? Dirt, lint, *bugs*? Biologists can figure it out!

Liking science starts with being curious about the world around you. Finding out more by investigation and experimentation requires creativity just like your art class. Go ahead...give it a try!

Choosing a project

For our science fair we'll have 5 types of projects:

- Collections (open only to K-2)
- Demonstrations (open only to K-3)
- Models
- Experiments
- Inventions

1. Collections

For students Kinder-2nd grade only. Collections of rocks, seashells, leaves or other items from nature.

- They should be labeled with the name of the rock (research time!), where it was found/came from, etc.
- Think about how you can be creative in this project – group the items by color, shape, or use a map to show where they came from.
- Explain on your board why you chose this collection
- These must be primarily attached to the board (a few on the table is ok) – if this is not possible, please use pictures.

2. Demonstrations

For students Kinder-3rd grade only. A demonstration is:

- Re-testing an experiment that has already been done by someone else
- Demonstration of a particular scientific principle or fact, such as the law of gravity, the law of motion, magnetism, etc.

3. Models

A model involves building a model (of an apparatus or of something found in nature) in order to illustrate a scientific concept or principle.

- Model of an apparatus. Students should be able to explain the importance and use in detail.
 - Examples: build and show the function of a radio, a greenhouse, Hover craft, sun dial, solar panel, pinhole camera, super coiling or wind vane
- Model of nature. Students should be able to explain the importance and function in detail.
 - Examples: Make a model of the eye, of the ocean floor, of a cross-section of skin, earth/sun eclipse. Each should show the cross-section, cut-away, etc. as needed to show all of the important parts.

4. Experiments

In this project you use the scientific method to propose and test a hypothesis. Design an experiment to investigate a question, record and report the results, and draw conclusions based upon the results.

- Examples

- How do preservatives in bread impact the growth of mold?
- Why do different fabrics have different insulation properties?
- What is the influence of salt on the properties of water?
- What type of light bulb lasts the longest? What is the best value?
- Will chilling an onion before cutting it keep you from crying?
- Are night insects attracted to lamps because of heat or light?
- What type of plastic wrap best prevents evaporation?
- Does the shape of an ice cube affect how fast it melts?
- How are different soils (clay, sandy, etc.) affected by erosion?

5. Inventions

In this project you should find a problem and design/create something new (and original!) to solve the problem. Keep a journal – record the problem, your ideas and the steps you take to solve the problem. Even if you do not succeed in creating an invention to solve the problem, you can still present the information from your journal on your board. If the invention is successful, present that as well.

Where to go for project ideas

You probably have a good idea already if you have been looking around you with a curious mind. (How does that work? Why does that happen?)

But if you need some help to get started, here are some places to go:

1. San Jose Public Library
2. Trace Elementary Library
3. The following websites:

- www.sciencefair-projects.org
- www.all-science-fair-projects.com
- www.super-science-fair-projects.com
- www.sciencebuddies.org/science-fair-projects/project_ideas.shtml
- www.billnye.com
- www.exploratorium.edu/science_explorer/index.html
- www.homeworkspot.com/sciencefair

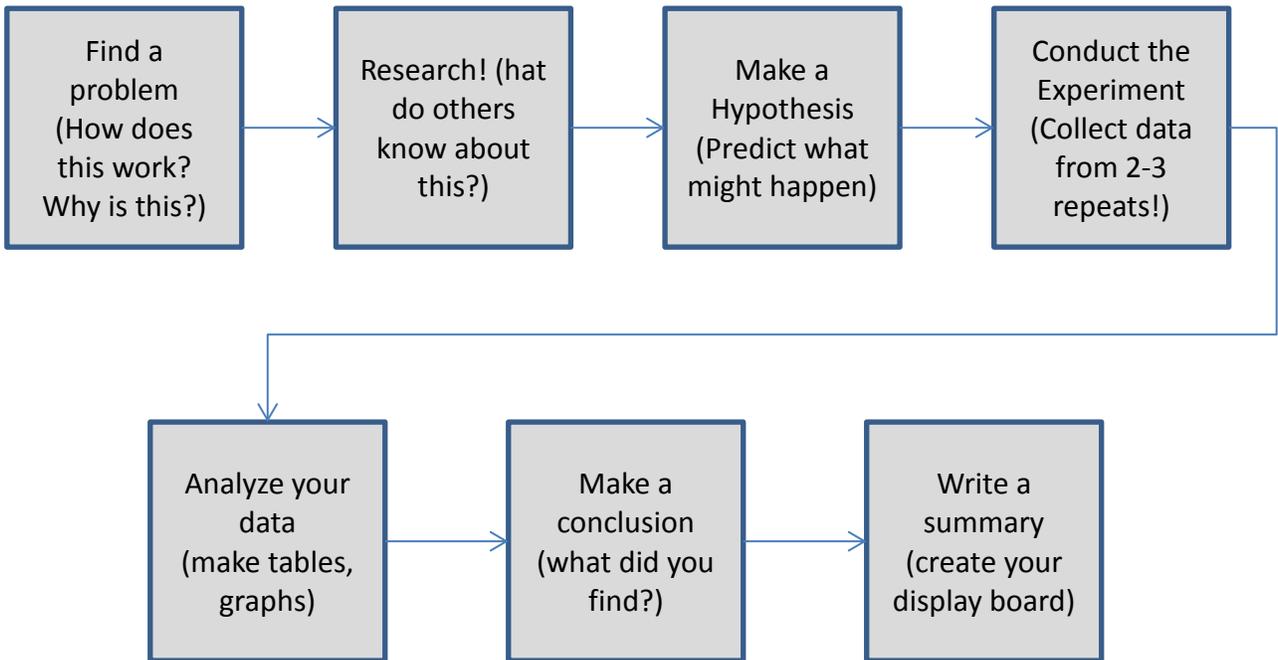
- www.newtonsapple.tv
- www.reekoscience.com
- www.sciencefair-project-idea.com
- www.sciencemadesimple.com/science.html
- www.buzzle.com/articles/elementary-science-fair-projects.html

The next step

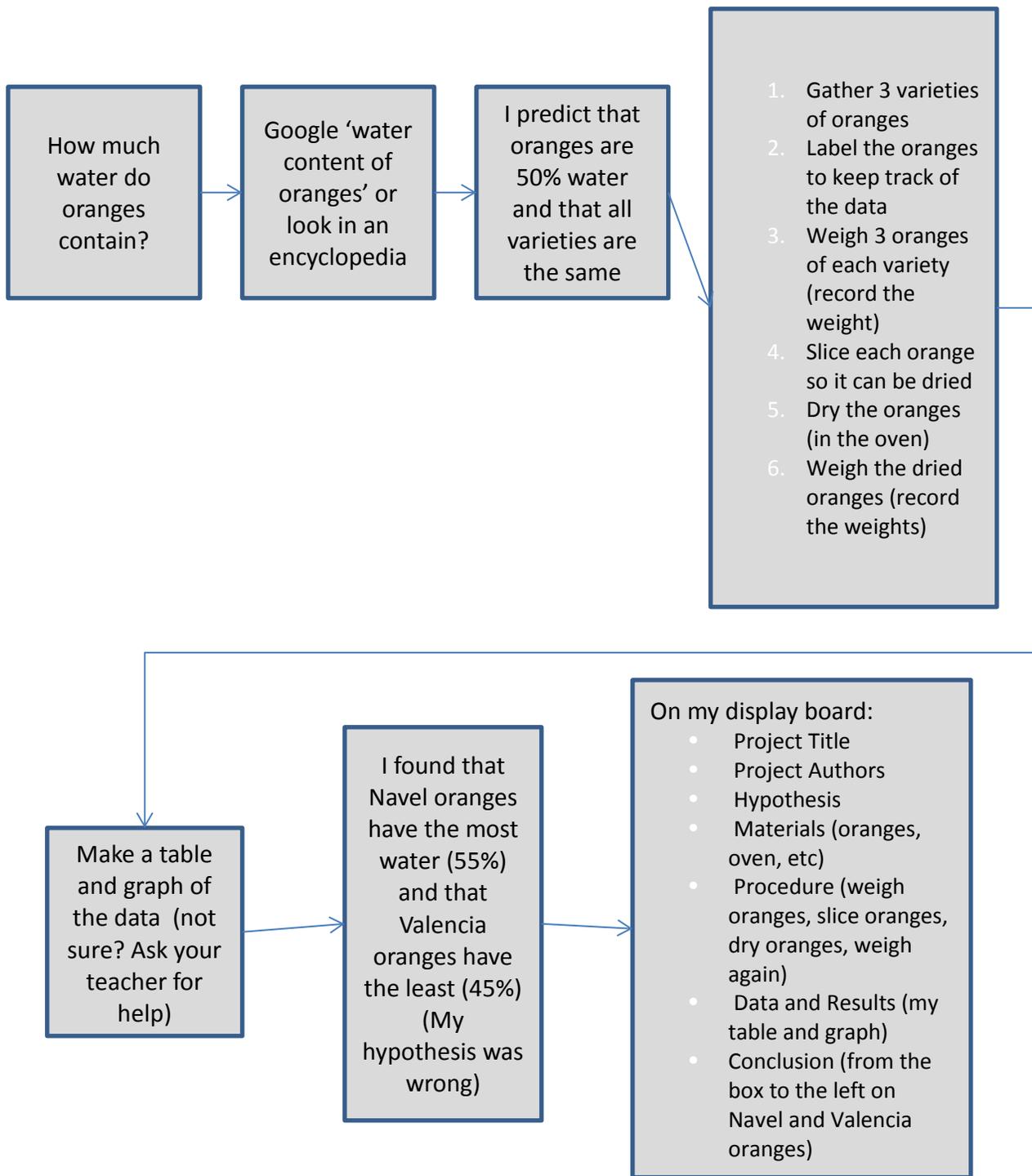
Talk to your family or your teacher about your project idea. Brainstorm with them about ways to make the project unique (just your own). The judges love this!

Ready to start?

Now let's talk about the scientific method! No – it isn't scary or bad, just a plan that helps you know what comes next.



Hmmm, is that hard to understand? An example is on the next page. Still not clear? Ask your teacher or a classroom helper.



Great! You are on your way! Before we finish, take a look at the attached pages to see what the judges will be looking for in your project.

Have lots of fun and we will see YOU at the Science Fair!