

## [Fry Elementary Science Fair General Guidelines](#)

All Fry students and their families are invited to participate in the science fair on the evening of Thursday, April 6<sup>th</sup>, 2016. In preparation for the fair, each student can develop one project to present, with the help of parents. Students may work individually or in teams of up to four people. Please remember that all science fair work, individually or with teams, will need be done after school hours. These guidelines should answer any questions you may have on this fun and educational process.

### [What is a science fair?](#)

A science fair is an event where students show the science projects they have done. Science fairs provide opportunities for kids to creatively explore an area that interests them - to do science themselves! Thinking of a project, asking a question about an area or field of study, determining a way to test the answers to their questions, and creating a colorful display are all ways to get students excited about science and learning. Illinois's newly adopted science standards (Next Generation Science Standards, [www.nextgenscience.org/illinois](http://www.nextgenscience.org/illinois) ) emphasize six key practices that all students need for 21st century skills. These practices include asking questions, planning and conducting investigations, using data to draw conclusions, making models, and obtaining, evaluating and communicating information. All of these skills can be practiced through a science fair project!

### [How do I come up with a Project and Title?](#)

Coming up with a science project is so fun and exciting yet it is also one of the most challenging aspects of the project. This should help!

What has been your favorite topic in science class?

What are you interested in?

What do you have questions about?

## Project Ideas - two main categories

1. [Investigative or research projects](#) - To make the process easier if working on an investigative project, the following are guidelines, Primary students (K) use a process called Guess, Test, and Tell. First and second graders may use the Predict, Test, Observe, and Explain method. Students in grades 3-5 can take the project a step further using a formal process of Hypothesis, Background, Materials and Methods (experiment), Results (data collection), and conclusion.

1.1 Investigatory or Investigative Projects: involves using the scientific method of scientific method to create a hypothesis and to prove or disprove this hypothesis by conducting an experiment.

1.2 Research Projects: is a scientific report on a topic. The student will research the area of interest and write a report on their findings and opinions, for example a review on the different types layers in the earth's surface or the effects of El Nino on weather patterns.

2. [Demonstrations, models or collections](#) - A display project is great for K thru 2nd. A display project would explain or show an area of science, for example, dinosaurs of the Jurassic Period, planets of our solar system or a vinegar and baking soda volcano.

2.1. Demonstration Projects: this type of project proves a scientific principle by recreating an experiment. Often, the demonstration will involve manipulating different variable to see what happens with change.

2.2 Models: A model science fair project involves building a model to demonstrate a principle or concept examples of which include, the mentor and diet coke or the baking soda volcano.

2.3. Collections or museums: are basically a collection of items. For example it could include collecting leaves from your area and comparing them with leaves from a different area and discussing why they are different or perhaps a museum of different geological rocks.

### [Helpful tips to get started](#)

- ✓ A testable question is a question that can be answered by conducting an experiment, usually it begins with Can? How can? Does? What if? Or which one?
- ✓ Visit [sciencebuddies.org](http://sciencebuddies.org) to get ideas for a project. Students can complete a survey to help you identify your areas of interest and pick a project - Yay
- ✓ Explore science books, articles and magazines, chat about them at dinner with your family!
- ✓ Check out the experiments on Science Bob, [sciencebob.com](http://sciencebob.com) or Steve Spangler Science, [stevespanglerscience.com](http://stevespanglerscience.com) and see if you can come up with your idea?
- ✓ Important: the simpler the better and Enjoy!

### **Research your topic and write your background**

Next you need to research your area. Find out all you need to know about your topic. Read books, find magazines or newspapers, talk to people you know involved in your research area, do online searches to help you find more information. Once you have researched your topic write a small background/introduction for your project.

### **State your hypothesis!**

Since you've done a bit of research, you probably have some ideas about how your experiment will turn out. Make a guess and write it down. State your hypothesis in a way you can prove it or disprove it.

### **Do your experiment!**

Now you need to check your hypothesis to see if it is correct or not. (A little sneaky hint here: being wrong is ok...sometimes it's easier to check it that way) Set up your experiment so that you are changing only one thing and the rest of it stays the same. The thing you change is called your variable because you are varying or changing it.

Suppose you are doing Raisin Elevators for your project, using raisins and carbonated soda pop, and you want to compare different types of soda pop. To do the experiment in a scientific way, you will need to make sure that you have exactly the same amount of soda in each cup, that each cup is the same as the other cups, and that you put the same number of raisins in each cup. The only thing you change is the type of soda. Coke in one, Sprite in another, Sierra Mist, etc. In this experiment, your variable is the soda pop. Make sure everything else stays the same, as much as possible.

### **Record your results**

Record the results of your experiment using charts, graphs, photographs, or measurements. Feel free to record your data in more than one way. We recommend using a tri-fold poster board to display this information for the night of the science fair.

### **Draw your conclusions!**

What happened with your experiment? Did it turn out the way you thought it would or were you surprised? What did you learn? Write it down. It doesn't have to be long. Just think about it and state it in a clear way. For example, suppose you did a project titled, "How do landslides happen?" Your hypothesis might have been, "I think landslides occur on hills and mountains when prolonged rain follows a long period of dry weather." For your experiment, make sand castle shapes and then pour varying amounts of water on each. Suppose you saw that the soil could hold up with the smaller amounts but not the larger amounts, so your conclusion might be stated as, "My hypothesis was correct. I thought that long amounts of rain would cause landslides and when there was a lot of water it did cause the sand hill to slide

### **Have lots of fun!**