

# Peterson Elementary Science Fair General Guidelines

All Peterson students and their families are invited to participate in the science fair. 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. Creating a science fair project usually encourages even more questions about science and closer attention to things around them. During the fair, kids can explain their work to other kids and to parent volunteers acting as judges. They can also look at all the other projects and ask other students about their work.

## *Where do I start?*

Thinking of your science fair project can be fun and challenging. First, think of an area that interests you or that you are curious about. You will be spending some time working on your project so make sure that it is something YOU are curious about.

Depending on grade level, we encourage slightly different types of projects. 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. However, what is really fun when doing a science fair project is to ask a question that leads to an experiment. This process of answering questions by creating an experiment that narrows down cause and effect is called- The Scientific Method. This is what science is all about!

For older students, here are examples of how to change a display project into one that asks (and hopefully answers) a question. How high is Venus in the

night sky?, Why did dinosaurs get so big in the Jurassic Period but then smaller during the Cretaceous?, What is the limiting reactant in the vinegar and baking soda volcano? Now some of those questions are a bit tough, but hopefully you can see the difference between a display project and one that explores a question.

It is perfectly fine and even encouraged for ALL Peterson students (K-5) to ask a question for their science fair project! Even kindergarteners are able to explore their world by asking questions about it!

### ***Pick your project!***

Ask a question that leads to an experiment. Remember that an experiment compares or measures things. For example, suppose you have asked the question, What will make radishes grow the biggest? Well, then you need to think for a minute about what “biggest” means. Did you mean the heaviest? The longest? The largest diameter around? Perhaps you really meant heaviest. Then you could put your radishes on a kitchen scale and weigh them. You may need to work on your question and ask it a few different ways before you figure out the best way to ask it so that it leads to a measurable answer.

### ***Research your topic!***

Next you need to research your topic. Find out as much as you can about it. Read books, find magazines or newspapers, talk to people you know, do online searches to help you find more information. Suppose your project is, Which paper towel really lasts longer? It would be a good idea to do some research on how paper towels are made. Perhaps write to the different paper towel companies and ask about their equipment or where their paper comes from. You could even try to make your own paper towels and test those against the national brands.

### ***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 measure or check.

### ***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.

***Gather 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. A tri-fold poster board is a great way 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 Fun!***

\*This guideline sheet was originally provided by the STEM parent group at White Eagle Elementary. Thanks!