Science Fair Project Example

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 want to do.

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 really narrows down cause and effect is called The Scientific Method. This is what science is all about! You can be an explorer and present your findings.

Science Fair Project Ideas

- Do different brands of popcorn leave different amounts of unpopped kernels?
- What percentage of an orange is water?
- Does temperature affects the rate at which seeds sprout?
- Does salt or sugar affect the growth of alfalfa seeds?
- Does a pineapple grow best in sand, soil, or water?
- How does a guitar make high and low sounds?
- What makes a parachute work?
- How does an elevator work?
- What material do plants grow best in?
- Does heart rate increase with exercise?
- Can objects be identified by smell?
- Does sound travel better through solids, liquids, or gases?
- Do different types of bread mold at different rates?
- Can most people tell the difference between a brand name and generic soda?
- What type of birdseed do birds prefer?
- Does flower seed grow better by using plain water or sugar water?
- Is smiling contagious?

How do you get some answers? (The Scientific Method)

Ooooh… the Scientific Method… Does it sound a little scary? Well, it's not. It's just the way that scientists get from asking a question to finding an answer. Here's a short outline of how it works. First, ask your question. Then make a guess—hypothesis. Take a look with experiments—observations. Write down observations—data. Make a picture of what you observed—charts, graphs, tables, or photographs. Decide what it means – Conclusions.

Pick your project!

Ask a question! This is probably going to be the title of your science fair project. Need some help with getting ideas? Ask a question that leads to an experiment! Remember that an experiment compares things. It is important to ask the question in a way that you can compare or measure things to get an answer. You might 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 your topic. Read books on it, find magazines or newspapers, talk to people you know, do online searches to help you find more information. If there is a TV documentary on Discovery Kids channel or Bill Nye the Science Guy DVD on your topic, watch it and pay attention to where they got their 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. If you are a 5th grader, you could really get a lot of information about your topic. 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.

If you are in Kindergarten and you are really interested in dinosaurs, you could do research by going to the Field Museum to see Sue and the Rockford Dinosaur museum to see Jane (T-Rex fossils). Talk to the guides at the museum to find out more information. Take pictures of both to see how they are the same and how they are different.

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.

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.

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.

Science Experiment Example

Example #1: A project on Germs

Question: I wonder….Why is it important to handle food properly?

Hypothesis: I think food has to be handled in a special way so that it doesn't get rotten. Rotten food makes people sick.

Investigation: See what happens when germs are fed. Germs are teeny-tiny organisms and that live everywhere – in our homes, at our school, indoors, and outside! They are so small that we can't see them unless we use a microscope. Some germs are good for us, but others can make us sick, especially if we get too many in our food covered and stored properly. Cold food should stay cold, and hot food should be kept hot so germs can't grow. In this experiment, we'll see what happens when we feed a type of germ called **Yeast**.

Note: Yeast is one of the good germs and is safe to use.

Materials:
1 packet of active dry yeast (the regular kind used in baking)
1 cup of very warm tap water (105 -110 degrees F/43-45 degrees C
2 Tablespoons of sugar
1 empty bottle
1 large balloon (blow it up and deflate it several times to stretch the rubber)
Spoons for stirring
Slice of moldy bread sealed in a clear plastic container (for visual inspection only)
Bottle of sour milk, sealed with recloseable top
Fresh Milk (this works fastest if either the milk or lemon juice is warm)
Lemon Juice
Small cup

Experiment #1. Create Carbon Dioxide
Put the yeast and the sugar into the warm water.
Gently stir until the yeast and sugar dissolve (mix well) into water.
Carefully pour the mixture into the bottle
Stretch the balloon over the mouth of the bottle
Look closely… notice that bubbles are forming and the mixture is starting to =get foamy.

What happened?
After few minutes, the balloon will be blown up. Where did the Air come from that fill the balloon?

Here is what happened: When the yeast feeds on the sugar, it produces bubbles of gas called carbon dioxide (CO2). The longer you wait, the more CO2 will be produced until the yeast has eaten all the sugar that it can.
If all these bubbles were forming in your stomach, how do you think you would feel? Do you think you might get stomachache? Or may be feed need to burp?

What more should I know?
Why we used sugar with yeast? Why not salt? Why warm water not cold? Does CO2 really make you sick?
We use yeast in baking because of the bubbles that form when the yeast is fed. The bubbles fill the dough with tiny pockets of air that give our bread and cake the light, fluffy texture we're so used to. Tortillas and matza are made without yeast, so they are flat breads, not fluffy breads.
The yeast made CO2 because it had warm water and sugar to eat. The gas in the balloon demonstrates how germs can produce surprising results if they have the right conditions to eat and grow. The CO2 formed by the yeast won't make you sick, but other germs could make you sick. You can't see germs, so be Safety smart and take steps to keep your food safe! Keep cold food cold by setting your refrigerator to 40 degrees F/4 degrees C, no higher!!

What about that moldy bread?
Look carefully at the moldy bread. What do you see? The green fuzzy puff is a type of germ called fungus (fungii). The fungus grows on the bread when microscopic seed called spores (seeds of fungii) land on the surface of the bread and are allowed to grow. These spores live and feed on the bread. You can protect your fresh bread from mold by keeping the bag tightly sealed so spores can't land on the bread. You can also store it in the refrigerator or in the freezer. Mold doesn't like to grow in the cold. Some molds are used to make beneficial medicine (such as penicillin to cure diabetes), but the mold on your bread could make you sick. Be Safety Smart and throw out any moldy bread!

Experiment #2: Watch Fresh milk go sour
Pour a little warm fresh milk into a small cup.
Add a big squirt of lemon juice. Lemon juice is mostly citric acid, similar to the lactose acid that forms when bacteria east lactose sugar.
Stir the liquid. See what happens to your milk/lemon juice mixture. Does the liquid stay smooth, or does it get a little lumpy? The citric acid causes the milk to sour instantly, and small clumps called curds form in the milk. Does it Smell? Note the smell in your journal!

Safety Smart Tips

- Germs are all around, but they don't grow like crazy unless the conditions are just right. If you keep your hot food hot and your cold food cold, germs have less chance to grow because many germs don't like to be very hot or very cold.
- Covering or wrapping food is another way to keep germs out of our food.
- Don't be fooled by the "5 second rule". If you drop food on the ground, be Safety Smart and throw it away. Even if you grab that favorite snack within five seconds, there could be unhealthy germs on the food. Germs can attach to food instantly, faster than you can shout "5 second rule"!

Example #2:

A project on soil erosion

Question: How do landslides happen?

Hypothesis: I think landslides occur on hills and mountains when prolonged rain follows a long period of dry weather.

Experiment: make 6 containers of soil or sand built into the same sand castle shape and then pour varying amounts of water on each. (Perhaps 1/4 cup of water on the first, then 1/2 cup, then 3/4 cup, up to 1 1/2 cups on the last one.) Suppose you saw that the soil could hold up with the smaller amounts but not the larger amounts,

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.

Science Fair Resources

Visit the YOUNG Website and click on —LMC Book Search to see what books we have to support your question. Talk to Mrs. Ranucci in the LMC for science books.

Book Suggestions:

- Janice VanCleave's A+ Science Fair Projects by Janice VanCleave
- Janice VanCleave's Guide to the Best Science Fair Projects, by Janice VanCleave (YOUNG LMC, Aurora Public Library)
- Janice VanCleave's Guide to More of the Best Science Fair Projects, by Janice VanCleave (Aurora Public Library)
- Janice VanCleave's A+ projects in Earth science : Winning Experiments For Science Fairs And Extra Credit, by Janice VanCleave (Young LMC, Aurora Public Library)
- Janice VanCleave's electricity : Mind-Boggling Experiments You Can Turn Into Science Fair Projects, by Janice VanCleave (Young LMC)
- The Complete Handbook Of Science Fair Projects, by Julianne Blair Bochinski (Aurora Public Library)
- Step-by-Step Science Experiments in Astronomy, Janice VanCleave (Aurora Public Library)
- Discovering Sciences: Solids, Liquids, and Gases, Atoms and Molecules, Chemicals and Materials, Energy and Work, Electricity and Magnetism, Force and Motion— by John Farndon & Ian Graham (YOUNG LMC)
- Science fair projects : Forces and Motion, by Kelly Milner Halls (Aurora Public Library)

Helpful Links

- http://www.ipl.org/div/kidspace/projectguide
- http://www.lewiscenter.org/users/mhuffine/subprojects/Department/ss.php
- http://school.discovery.com/sciencefaircentral/scifairstudio/handbook/display.html
  http://sciencebuddies.com
- http://super-science-fair-projects.com/elementary-science-fair-projects.html
- http://www.all-science-fair-projects.com

More Helpful links:

1. Science fair Project Ideas from Education.com – Lots of ideas for science fun at home, at school, and ideas for science fair projects.

2. National Student Research Center- http://youth.net/nsrc/webs.html

3. Make sure to check out the e-journal of Student Research: Science! It contains scientific investigations done by students across the country for the last ten years! You may find a good idea/problem for your own project!

4. Science fair Central – some topic ideas!

5. Kidspace – The Internet Public Library – References just about anything, including information on science fairs

6. All Science Fair Projects – Over 500 free science fair ideas!

7. Science fair Projects world– A large collection of Hundreds of Free Illustrated Science Fair Projects Ideas and Science Project Experiments for Elementary School, Middle school, and High School. All projects are illustrated with high Quality diagrams and easy to follow instructions.

Science Bob's Science Fair Ideas – Ideas to get you started!