

The **WASATCH SCIENCE FAIR**

will be "clueless" without you participating!

Thursday, January 24, 2008

3rd - 6th Grades

**Entry Forms are due in the office by:
2:00 p.m. on Thursday, January 17th
NO EXCEPTIONS!**

This ensures proper organization of the fair so there will be a space for every participant. Please plan ahead for this!

If you have questions about the Science Fair, please contact:

Tawnicia Stocking - 6th Grade Teacher

Phone: 374-4910 x 2862

E-mail: tawnicia@provo.edu

P.A.W.S. will have display boards available for purchase in the main office.

White = \$2.50 Colored = \$3.00

ALL ENTRIES WILL BE JUDGED ACCORDING TO THE SCIENTIFIC METHOD USING EXPERIMENTATION AND SHOULD INCLUDE A JOURNAL AND A DISPLAY BOARD.

Christmas vacation is a great time to get started on your Science Fair Project.

Don't procrastinate! January 24th will be here before you know it!

Please make sure that you do a **SCIENCE PROJECT WITH EXPERIMENTATION** NOT a **Science Report** that only tells about scientific information.

EVERY GREAT SCIENCE FAIR PROJECT BEGINS WITH A GREAT QUESTION THAT REQUIRES AN EXPERIMENT TO FIND THE ANSWER.

(Remember that if you can find the answer to your question on the Internet, it is NOT a science fair project with experimentation. The results of your experiment should answer your question.)

QUESTIONS FOR A SCIENCE FAIR PROJECT	SCIENCE REPORT (PLEASE DON'T DO THESE!)
How does the amount of soap affect cleaning time when washing dishes?	Atoms and Molecules
Does the pan size affect baking time when baking bread?	Our Friend the Sun
Does cold water freeze faster than hot water?	How Butterflies See
Does a change in temperature affect the time it takes mealworms to change into beetles?	Coke vs. Pepsi Poll or ANY POLL - UNLESS YOU HAVE USED AN EXPERIMENT!

- ⊖ The Science Fair is NOT the place to demonstrate your experiment. Please explain what you did and found out when you completed the experiment at home.
- ⊖ Exhibits need to be prepared by the student! Teachers and parents may participate only in an advisory capacity. Judges will give special attention to displays using children's language and drawings. Avoid using technical terms that you (the student) don't understand!!!
- ⊖ Accessory equipment, either borrowed or purchased, will not bring a better score. Your score is based on your scientific thought, your process and the final project accomplished by YOU!

Science Fair Checklist

- ⊖ Think about an interesting topic
- ⊖ Decide on an experimentation question
- ⊖ Think of a "Catchy" title
- ⊖ Fill out the Science Fair Entry Form and turn it in to the office no later than: 2:00 p.m. on Friday, January, 18th. (Remember to have your parent sign it.) This ensures proper organization of the fair and a place for your project.
- ⊖ READ this information packet
- ⊖ READ the public health rules
- ⊖ Gather materials
- ⊖ Follow through with the experiment
- ⊖ Make a final copy of journal
- ⊖ Prepare the display board
- ⊖ Set up your display board

Bring project board, journal and any display items to be set up on Wednesday, January 23rd 3:15 - 4:00 p.m. We will also continue set-up between 7:30 a.m. - 8:30 a.m. on Thursday, January 24th.

What Should I Be Prepared for on the Day of the Fair?

- ⊖ Please come dressed in professional looking attire.
- ⊖ Have your display board set up either the night before or EARLY that morning.
- ⊖ Be prepared to answer questions from the judges. (This should be quite easy if YOU are the one that did the work on your experiment.) It is still nice to practice ahead of time with questions from your family members.
- ⊖ Bring some homework items or a good book to read during judging.
- ⊖ SMILE and Enjoy!

General Public Health

Science Fair Rules (Safety First)

****Photographs and illustrations are considered equal to or better than actual project or demonstration materials as long as you make labels so people know what is being shown.**

Plants, (except b. below), molds, vertebrates, environmental pollutants and items listed below which are used in an experiment cannot be exhibited, but the project may be demonstrated through photography, illustrations, and/or diagrams.

Proper attention to safety is required of all science fair participants. Anything hazardous (or potentially hazardous) to the public is prohibited in your display. Specifics are outlined below.

- a. No glass containers should be used for demonstration at the fair.
 - b. Water should not be used for demonstration in quantities over one cup.
 - c. Live organisms pathogenic to man, live vertebrates and invertebrates (i.e. cultures of bacteria or fungi) are prohibited.
 - d. Plants will be allowed if they fit on the table within the project display board. Plants must be pre-watered. Poisonous or toxic plants are prohibited.
 - e. Vertebrate animals, living or dead, and their parts, are prohibited from display. (i.e. a project about teeth - SO, TAKE PICTURES!)
 - f. Food, either human or animal, may only be displayed in sealed containers.
- **THE PUBLIC MUST NOT SAMPLE ANY FOOD.**
- g. Do not display syringes or any similar devices.
 - h. Any flames, open or concealed, are prohibited.
 - i. Hot plates are prohibited.
 - j. Do not use any highly flammable display materials.
 - k. Dangerous chemicals including caustics and acids are not allowed. (Please ask Mrs. Stocking if you would like to display vinegar and citric acid - because this will depend on how it is being used.) The kitchen chemicals of: sugar, salt, and bicarbonate of soda may be displayed in quantities of less than 1 Tablespoon.
 - l. Highly combustible solids, liquids or gases are prohibited.
 - m. Do not use tanks containing combustible gases, including butane and propane, both of which are prohibited.
 - n. Bare electrical wires and exposed knife switches may be used only with circuits of 12 volts or less.
 - o. Please furnish your own extension chords with proper load-carrying capacity. You must tape down extension cords so that the public doesn't trip. (The school will provide the correct type of tape for the floor.)
 - p. Exhibits need to be prepared by the student! Teachers and parents may participate only in an advisory capacity. Judges will give special attention to displays using children's language and drawings. Avoid using technical terms that you (the student) don't understand!!!
 - q. Accessory equipment, either borrowed or purchased, will not bring a better score. The score is based on a student's thought process and the work 'they' accomplished.

SCIENTIFIC METHOD USING EXPERIMENTATION

1. **Select a Topic:** Find something that is interesting to you. You might think about earth science, life science, computer science, engineering, physical science, consumer science, or product testing. (Just a hint: product testing isn't winning awards at the next level.)
2. **Form a Question:** Your question should state what you want to find out as a result of your experiment. DO NOT try to answer more than one question.
3. **Do Research:** Gather information about your project so you can state an informed hypothesis. Books, magazines, the Internet, people, companies, and products are all great resources.
4. **State Your Hypothesis:** The hypothesis is your prediction of what will happen as a result of your experiment. So, state your hypothesis before you begin your experimentation. Make your best guess, but base your answer on the information you gathered. Remember that a hypothesis does not have to be right. More scientists are WRONG in their hypotheses than are right. A wrong hypothesis can lead to further experimentation.
5. **Gather Materials for Experimentation:** Gather all the materials that you will need to do your experiment and make a list of EVERYTHING you use.
6. **Write Your Procedure:** Write a detailed description of how you will conduct our experiment. Check to make sure you will be controlling ALL variables (making everything the same) except the ONE thing in the experiment that will change or be different - the variable that you are testing.
7. **Conduct the Experiment:** Be sure to conduct your experiment at least TWO TIMES to make sure your results are accurate. This can be done at the same time or separately, whichever works best for your experiment.
8. **Gather Data:** While you are conducting your experiment, be sure to write down everything that is happening. IT IS A GREAT IDEA TO TAKE PICTURES OF YOUR EXPERIMENT, ESPECIALLY IF IT INVOLVES PATHOGENIC OR ACIDIC MATERIALS THAT CAN'T BE SHOWN WITH YOUR DISPLAY. IT IS A GREAT IDEA TO HAVE YOU IN THE PICTURE WHEN APPROPRIATE TO PROVE THAT YOU DID THE WORK. When you have concluded your experiment, put your data into a chart. Then show the information in a graph. The chart and graph will make it easier to analyze your data.
9. **Analyze the Data:** Explain in word form the results of your experiment using the data you have collected. Be sure not to state your conclusion here.
10. **Come to a Conclusion:** The conclusion is stating whether your hypothesis was correct or not.

WHAT SHOULD BE IN YOUR SCIENCE JOURNAL?

The science journal should have a cover. (An example journal will be in the main foyer after the Christmas break.) Students should do their own work! Parents and teachers should only help in an advisory capacity. Each of the following components of the journal should be found on a separate page and in this order:

1. **Title Page:** The title page should include the title of the science fair project, student's name and grade, and the date of the science fair.
2. **Table of Contents:** List the components of your report and what page they can be found on in your journal. All pages need to be numbered.
3. **Introduction:** The introduction should tell why you decided to do this experiment.
4. **Question:** This part should include the one question that you hope to answer by doing your experiment. It can also include information that helped you form the question and/or why you want to know the answer.
5. **Research:** Tell about the research you did that helped you form your hypothesis.
6. **Hypothesis:** State your hypothesis and explain why you think your prediction is valid.
7. **Materials List:** Include a complete materials list. Don't leave anything out. If you used it, list it.
8. **Procedure:** This should be a very detailed explanation of EVERYTHING you did to conduct your experiment.
9. **Data:** This is where the information you gathered in your experiment is placed on a chart and then graphed for easier analysis.
10. **Analysis:** This will be the written description of your data and what it means. What happened? What steps were most important: You can also include any additional information that you found interesting as a result of your experiment such as what observations were expected or unexpected.
11. **Conclusion:** State whether your hypothesis was correct or not and then include what you learned, what you would do differently next time, or any suggestions or additional questions to investigate.

WHAT SHOULD BE ON YOUR SCIENCE DISPLAY BOARD?

The science display board should be sturdy and able to stand by itself. (An example board will be in the main hall after the Christmas break.) Each display board should include a PROJECT TITLE and Subtitles for each section listed below (question, hypothesis, etc.). Pictures are nice (especially when you are doing an experiment with items that you can't display i.e. mold or acid), but are not required. You should do your OWN work! Parents and teachers should only help in an advisory capacity.

**Note that some things that should be in your journal are NOT included on the display board!

1. **Title**: Use a "catchy" title that will draw attention to your board. Make it large enough that it can be read from a distance.
Subtitles: (should be smaller than the main title)
2. **Question**: State just the question.
3. **Hypothesis**: State just your hypothesis.
4. **Material List**: Include your complete materials list.
5. **Procedure**: This should be a shortened version of what you did for your experiment.
6. **Data**: This should be the chart and graph that show the information you collected as you conducted your experiment.
7. **Results /Analysis**: State briefly the results of your data.
8. **Conclusion**: State whether your hypothesis was right or wrong.
9. **Name and Grade Level**: Please make this only large enough to be seen easily while standing right in front of your project.

(This is what a Science Fair Board should look like and contain)

<p><u>Question</u> State your question here.</p> <p><u>Hypothesis</u> State your hypothesis here. (Remember to do this BEFORE your experiment takes place.)</p> <p><u>Materials List</u> List all materials you needed to complete the experiment. If you used it, put it.</p>	<p>"Catchy" Title</p> <p><u>Procedure</u> Explain what you did for your experiment in such a way that someone else could recreate the experiment again.</p> <p>(include pictures)</p>	<p><u>Data</u> This includes a table where information is recorded during the experiment and an appropriate graph that shows the data in a visual form.</p> <p><u>Analysis</u> Briefly tell what the data shows, and what you found out.</p> <p><u>Conclusion</u> State whether your hypothesis was right or wrong.</p>
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White Boards: \$2.50 - Colored Boards: \$3.00