

Cover sheet

Science Fair Pages for web site approval:

Feb 2013

www.fcusd.org/oce

PTO:

Science Fair: (in this order please)

1. Science Fair Flyer
2. Project Selection Hints
3. Idea list
4. **Registration Form**
5. Parent Volunteer Form
6. Parent Involvement
7. Experimental Project Packet
8. Invention Project Packet

Any questions please call Nikki 858-837-2618



Oak Chan Elementary

SCIENCE FAIR

April 30th. 2013

6-8 p.m.

Dear Parents,

Our school will be having a **Science Fair** this spring! We hope that, with your enthusiastic encouragement, your student will participate in the fair by preparing a project. This will be an exciting experience for your child!

We are confident the following benefits will result from your child's participation in the Science Fair:

- ⌚ Reinforcement of grade level science, literacy and math skills
- ⌚ Fostering curiosity, awareness, and creativity
- ⌚ Increased scientific knowledge
- ⌚ Learning research techniques
- ⌚ Having fun with science!

Parent support and assistance are essential to your child's success.

* 4th and 5th graders should be doing almost the entire science project by themselves.

* 3rd graders should be able to do many parts.

* Projects will be judged. Each grade will be judged separately.

* Projects are due **April 30th**. Time and place TBA.

* Deadline for registration is **Monday, March 11th @ 3 p.m.**

* Projects will be done at home.

* Registration forms, guidelines and support materials will be available (in a day or two) on the Oak Chan School web site at: <http://www.fcusd.org/oce>. Click on PTO; select "science Fair".

Topics will be reviewed by the Science Fair Committee and may need to be revised to ensure a successful experience. An approval form will be sent to you via e-mail.

Invent experiment and have fun!

Some Project Hints

1. Choose a Topic that Interests YOU

The topic that you choose for your science fair project should be one that is of interest to you. If you have ever tried to do something that did not interest you, chances are that you did not do your best. It is much easier to do your best when you are actually interested in the topic you are studying.

2. Do your own work

When you are at the fair, and are asked to speak about your project, how can you talk about it if you didn't actually do it yourself? Getting help on a few specific aspects of your project is okay, there is nothing wrong with that, but it has to be YOU who does the project, not a parent. The amount of parent "help" will differ from grade to grade.

3. Give yourself plenty of time

For your project to be the best you can make it, you must allow yourself plenty of time to get it done. A good project can't be done the night before the fair or even a few days before. A good project requires weeks of planning and experimentation to be successful. Try to leave yourself 6 weeks from start to finish.

4. Your Project doesn't have to be complex

The purpose of a science fair is to help you (the student) to learn about a specific topic. Often times, students choose very difficult and tedious projects because they think that it will help them to do better at the fair. In theory, it is a good idea, but more often than not, the student becomes overwhelmed with the project and ends up not learning very much about it. It is better to pick a simpler project and be able to speak confidently on Science Fair Day than to choose a difficult one and be unsure.

5. Practice your presentation

When you make your presentation, it is important that you are prepared and know what you are going to say before you have to say it. By rehearsing your presentation, you get an opportunity to 'work the bugs out' and become comfortable talking about your project. You should start out rehearsing alone, and then find volunteers to be an audience and present it to them. You will be calmer and more composed if you are prepared and know what you are going to say.

For project ideas and inspiration visit:

*Oak Chan School web site

*http://www.sciencebuddies.org/science-fair-projects/project_ideas.shtml

*Select the "Help me find a project" tab

*<http://pbskids.org/designsquad/>

Idea List

Physical Science

- What color of liquid absorbs the most heat?
- * Which color container absorbs the most heat?
- Which color of container cools off the quickest?
- Does temperature affect the height at which different balls bounce?
- * How constant is the temperature in my refrigerator?
- What effect does light have on dyed materials?
- How do different materials absorb sound?
- String telephones - what materials work best in conducting sound?
- What are the effects of washing on dyed materials?
- Splat - a study in droplet patterns.
- What effect does swimming pool water have on hair?
- How well do various fabrics absorb dye?
- How does the tail affect the flight of a kite?
- Study of the velocity of water through different tubes (same size, different materials)
- * Study of the velocity of water through different tubes (same material, different sizes) Are the dyes used in various inks the same?
- How do you make an egg float?
- * Which is heavier? Fresh or Salt Water?
- Measure the calories in a peanut
- How accurate is the temperature knob on my oven?
- How strong is a spider web thread?
- What shutter speed is needed to photograph a moving fan?

Miscellaneous

- Can the game of "Rock. Paper. Scissors." be used to demonstrate statistics?

- Are people's left and right feet the same size?
- Performance of paper airplanes.
- * Which colors and materials cool the fastest?
- * How do matches work?
- * Does cold air sink? Warm air rise?
- * Are TV commercials louder than regular programming?
- * How many visible colors in sunlight?
- * How does light bend?
- * What affects static electricity?
- * Do all fluids weigh the same?
- * Do all gasses weigh the same?
- * How much does air weigh?
- * Will an ice cube melt faster when crushed up?
- * Do coins corrode more in salt or fresh water?
- * How does vinegar affect egg shells?
- * How does a shadow change throughout the day?
- * Create and test a sundial with a clock.
- * What concentration of bleach is needed to kill mold?
- * Can I make my own perfume?
- * How much salt will dissolve in a cup of water- and what about sugar?
- * How can I clean oil out of water?
- * Effects of washing on dyed materials
- * Which fabrics are most fire-resistant?
- * Can salt water be de-salted by freezing?
- * Strength of different woods
- * Ink evaluation with paper chromatography
- * Chlorine levels in our drinking water
- * Testing sugar in soft drinks
- * Comparison of vitamin A content in frozen, canned and fresh peas
- * Testing various orange drinks for vitamin C levels
- * How fire affects roofing materials
- * Does the moon always rise at the same time?
- * Make a clock using honey.
- * How do you detect a hard-boiled egg?
- * Which toy car rolls the farthest?

Life/Earth Science

- How does terracing affect erosion?
- Water retention of different soils.
- * What type of leaves produce the best leaf rubbings?
- Can plants grow without soil?
- Are some plants allelopathic: able to kill or retard the growth of nearby plants?
- * Does proximity to high voltage lines affect the growth of plants?
- * Does gold dust have any affect on the germination of radish seeds?
- Do hydroponic plants grow taller than plants raised in soil?
- Do earthworms affect plant growth?
- Do electric or magnetic fields affect seed sprouting of plant growth?
- Does temperature affect the growth of plants?
- * Do plants react to different kinds of music?
- * Do plants grow better with tap water or distilled water?
- * Speed of clouds using photography
- The effects of water on different types of Wood
- * Can you give a plant too much fertilizer?
- Which mulch covering works the best?
- Does the phase of the moon affect the germination of seeds?
- * Do seeds sprout better in cold or hot climates?
- Compare the moisture content of five varieties of apples
- * Do earthworms help plants grow?
- Can you grow a plant upside down
- How much weight can a growing plant
- Do mirrors affect the way plants grow?
- * Does artificial vs. natural light affect plant growth?
- * Testing different potting soils.
- * Does aspirin keep cut flowers fresh?
- * Does aspirin keep certain types of cut flowers more fresh than others?
- * Is the seed useful to plants after they have sprouted?
- * Do plants need air?
- * Are rocks classified according to hardness, color, density?
- * Do pyramids preserve food?
- * Do large apples have more seeds than small apples?
- * Do different types of apples have different amounts of seeds?
- * What is the best condition for the growth of mold?
- * How much dust falls on your lawn in a month?
- * How clean is our air?
- * How acid is our rain?
- * Do roots always grow down?
- * Under which color cellophane do plants grow best?
- * How does gravity affect the growth of seeds?
- * Under which thickness of plastic do radishes grow best?
- * How does the amount of light affect the growth of marigolds?
- * Do avocados ripen more evenly with the stems left on?
- * Which banana has the most sugar - green, yellow, or brown?
- * How do vines grow?

Human/Animal Behavior

- Can I make frogs jump with static electricity?
- Can I determine how a bird eats by looking at its beak?
- Do the phases of the moon affect hamster behavior?
- Do insects prefer one color over another?
- Which color liquid do hummingbirds prefer?
- What food does a hamster prefer?
- Can an earthworm detect light and darkness?
- * How far does a mealworm (or snail) travel in one minute?
- * The speed of snails on different surfaces
- The effect of household pesticides on earthworms
- Are dogs colorblind? or Are cats colorblind?
- Do goldfish grow larger in a larger tank?
- The effects of light on fish feeding
- Can mice see colors?
- Can mice distinguish shapes - associate them with food?
- How many grams of food does a rabbit eat per day?
- Reading and remembering with different colored paper - which works best?
- How teeth react to different liquids
- Are taste buds weaker as you get older?
- Effects of coffee on a person's steady hand
- How important is the sense of smell in tasting foods?

Engineering

- Make two different compasses that work?
- What materials conduct electricity best?
- Conductivity of various liquids
- How does increasing the number of batteries affect the speed of a motor?
- Do oil additives reduce friction on engine parts?
- How many rotor blades give maximum lift

for a helicopter?

- Robots
- Using electromagnets to power a car
- Testing different water turbine blades
- Make a compass from a suspended magnet
- Do adults know U.S. geography?
- * Do adults know math concepts?
- Do adults know science concepts?
- Does body language tell you when a person is lying?
- Is there a relationship between AP course students and SAT scores?
- Can you recognize whether a person is male/female from pictures of bare feet?
- Does practice "running" a maze help us learn other mazes?
- * Can people identify flavors of Kool-Aid when blindfolded?
- Do males and females have different abilities in estimating object sizes?
- Who has a greater body density - boys or girls?
- Can insects pull more than their body weight?
- * Ant control - natural Vs. chemical repellants
- Will a chicken lay more eggs with rock music playing?
- How does our vision affect our taste?
- The relationship between age and your response time
- Can you recognize your own profile?
- Effects of caffeine on blood pressure
- Hot tubs and their effect on blood pressure
- Effects of foul smells on blood pressure
- Lung power of different age groups
- To what extent can a person tell what a substance is by feeling its surface?
- What types of magnets are stronger?
- Do electric or magnetic fields affect seed sprouting of plant growth?
- How temperature affects the amount of electricity given off by a solar cell
- The strength of a magnet Vs. distance
- Do magnetic fields affect the sound quality on a recording tape?
- Storing the sun's energy
- * Power from rising air
- Power from the waves

Consumer Products

- * Is there a difference in mass between differently colored M&M peanuts?
- The effectiveness of pre-wash products.
- Shampoo evaluation
- What detergent has the longest lasting suds?
- Water solubility of suntan lotions
- Which popcorn pops the most?
- What detergent cuts grease best?
- Which firewood gives the most heat per dollar?
- Which solar panel is most efficient?
- Which candle is the best buy?
- Which light bulb is most efficient?
- Which toothpaste is most abrasive?
- The frequency and length of TV commercials during a one-hour program
- Meat, fat, and moisture content of hot dogs
- Leaky faucets - how much do they cost us?
- Which uses more water, a shower or a bath?
- * Which container or wrapping preserves food best?
- * Which paper towel is most absorbent?
- Which diaper is best?
- Do parking meters keep the right time?
- * Which brand of tissue is the strongest?
- What brand of raisin bran contains the most raisins?
- Which stain remover works best?
- * What detergent removes grass stains best?
- * Can a roof overhang cut summer cooling costs?
- A comparative study of various packing Materials
- * How much money can a pool cover save?
- Which battery is the best buy?
- How much does it really cost to run a refrigerator?
- Water proofing agents - which is best?
- The effects of deodorants on clothes
- * The effectiveness of different wood Preservatives
- * Comparison of locks - which is best?
- Which nails have the best holding power?
- * Which breads mold the fastest?
- How long are yellow lights at various intersections?

For project ideas and inspiration visit:

[*http://www.sciencebuddies.org/science-fair-projects/project_ideas.shtml](http://www.sciencebuddies.org/science-fair-projects/project_ideas.shtml)

*Select the "Help me find a project" tab

*<http://pbskids.org/designsquad/>

Return the registration form to your teacher as soon as possible, but no later than March 11th @ 3 p.m.

SCIENCE FAIR REGISTRATION FORM

Please return to classroom by **Monday, March 11th**

NAME _____ GRADE/TEACHER _____



___ My project needs an electric outlet. ___ My project involves liquid. It is _____.

PARENT NAME & E-MAIL: _____

- ALL FUTURE COMMUNICATION WILL BE DONE VIA E-mail

THE ORIGINAL SCIENCE QUESTION (KNOWN AS A PROBLEM) MY PROJECT WILL ANSWER (SOLVE) IS:

MY project will be (please check one):

-  **EXPERIMENT**- You will conduct an experiment to find the answer to your question/problem. Using **The Scientific Method** will take you through the correct process of asking a question, doing some preliminary research, making a hypothesis (your best guess at how it will turn out), planning and conducting your experiment, and analyzing your results.
-  **INVENTION**- Everyone is an engineer! You will use science, math, and creativity to dream up and design an object or a process to solve a real life problem. **The Engineering Design Process** will take you through all the necessary steps: asking a question, brainstorming, planning, creating, testing, and making it even better.

PARENT INVOLVEMENT

Parents' involvement in their child's science fair project should be a positive experience for both parents and their children. Parents should guide their students without actually doing it for them. This is your child's project and (s)he will have a greater feeling of self-esteem if (s)he knows that (s)he did it on his/her own. Remember this is a learning experience for your child and you have already gone to school. Hard as it might be, students learn best when they learn from their own successes and failures. Here are some positive ways in which a parent can help their child:

BE INFORMED: Read the material that comes home from school. Become familiar with the [Scientific Method](#) for experiment projects and the [Engineering Design Process](#) for Invention projects.

PICKING OUT THE TOPIC: Guide your student in picking out a topic without actually picking it out for them. The project will be more meaningful if the idea comes from your child. However, you may want to point out the limitations of experiments that may be too difficult to do based on either time restraints or the limitations caused by space, climate, or other external factors. You may also want to guide them if they have picked out a topic that is too broad. Their topic should be interesting and one that meets their individual learning style. You want your child to think like a scientist/inventor and utilize the [scientific method and Engineering Design Process](#). Therefore, their project should be expressed in the form of a question that can be tested.

What is an acceptable science fair project?

- Something that answers a question to which they do not know the answer
- Something they can figure out themselves
- Something they can change somehow, add another variable, and then predict the outcome. That's an experiment!

What is NOT an acceptable science fair project?

- Reproducing results found on the web is *not* an experiment; it's a reproduction.
- A demonstration is not an experiment (i.e., volcano).

HELP YOUR CHILD ORGANIZE HIS/HER TIME: Your job is to help your child organize his/her project. Use the calendar with realistic deadlines. Remember the experiment might take several weeks to complete. The display itself also takes some time to put together. If your child has to also do a research report, this may also take some time.

RESEARCH: In order to formalize a hypothesis and complete a science fair paper, your child will have to do research. You may have to make sure they get to the library or supervise their searching on the internet. If you allow your child to use web sites for research; verify the site is "correct" and then let them use the research found there. *Remember:*

- Anyone can create a web site; this does not mean its information is correct!
- Make sure the web site is run by a large, recognized group such as a college or organization.
- DOT "org", "gov" or "edu" are generally trustworthy for accuracy of content.

Make sure that your student puts the information they find in their own words.

A **Report** is part of the process.

- It does not have to be typed
- Type the report *as your child wrote it or dictated it to you*. If the sentence structure is off, ask them if it needs correction. **Guide** them to the correction.
- Use their words; children say things in unique and fun ways.

CONDUCTING EXPERIMENT: After your child has carefully planned the experiment (s)he will do, make sure your child has all their supplies (s)he will need. Offer support if things don't work out and encourage them to try again, perhaps in a different way but resist the temptation to do it for them. Brainstorm ways to revise the experiment.

SAFETY FIRST: Try to encourage your child to pick projects that need little parental input. However, you may need to supervise certain experiments especially if heat or sharp instruments are used.

COMPLETION OF PROJECT: Your student might need your "eye" to proofread their display and paper one last time before it is turned in. Make sure you they have already done this on their own before you help them. And certainly, if they ask your opinion as to whether one color goes with another, or what type style still looks better, feel free to offer your opinion (if they ask).

The project does not have to look store bought. It needs to be made by them, so that they truly get better every year they participate. Project costs should average around \$20 in materials.

Encourage your child's artistic side with the display. For example, you can show how the use of color and shapes can be used to show the importance of a part of the display.

VOLUNTEER IN THE SCHOOL (if applicable): Many schools utilize parent volunteers in actually setting up and taking down the science fair. Look for notes from your school indicating whether they are looking for volunteers or not.

MAKE IT FUN: If you've done all of the above, this project should be a positive experience for your child. Take pictures as (s)he works at home so you have a record of your child's emerging independence as a learner. Remember, an experiment doesn't have "work" for a project to be successful. As long as your child is learning, even if it is from mistakes, it is a worthwhile project.