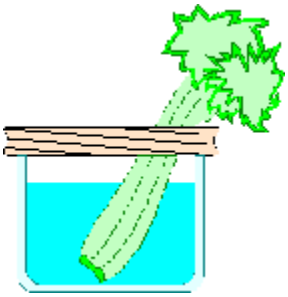
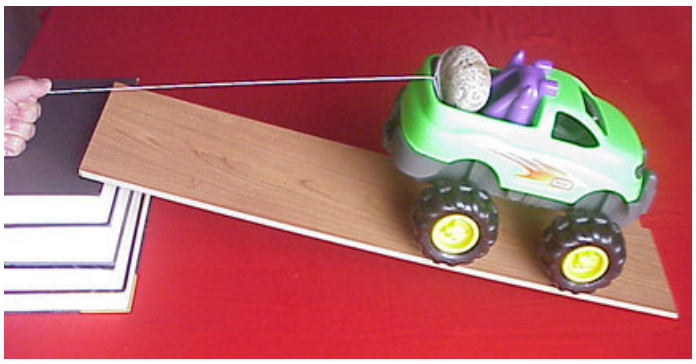
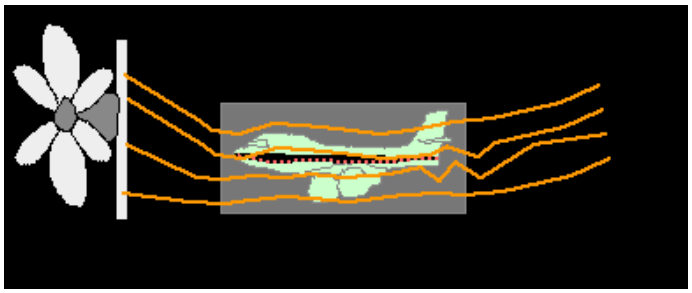
Science-O-Rama

Cumberland School's Fourteenth Annual K-3 Science Fair in memory of Eunice Chen

Thursday, April 1, 2010
6:00-8:00 P.M. in the Multi







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Kindergarten, 1st, 2nd, & 3rd STUDENT PACKET

Sign-Up Form Due WEDNESDAY, FEBRUARY 10

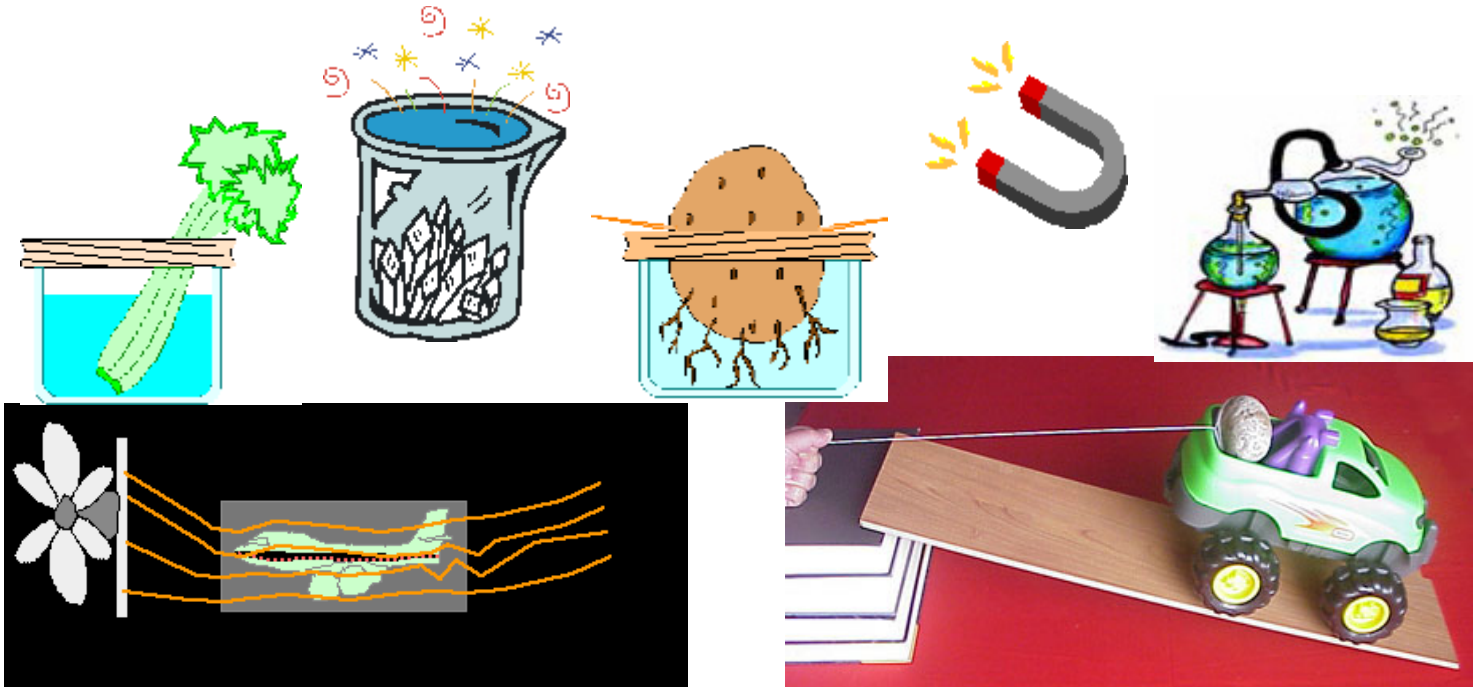
FOR ADDITIONAL INFORMATION, CONTACT THE SCIENCE FAIR COMMITTEE: ANNA OREN OR CRAIG HORNE

Science-O-Rama

Escuela Cumberland

DÉCIMOCUARTO FERIA ANUAL de las CIENCIAS en memoria de Eunice Chen

Jueves, 1 Abril del 2010
6:00 - 8:00 P.M. en el Cuarto Multi



Kinder, Grados 1, 2, & 3

PAQUETE para el ESTUDIANTE

ULTIMO DIA DE INSCRIPCION:
MIÉRCOLES, 10 DE FEBRERO DEL 2010

Traducido por Maribel Gonzalez

Do you want to be in the Science Fair?
Here's what to do…

(1) Think of a question or problem that interests you. For example: How fast do plants grow? How do animals eat? How does a plane fly?

(2) Learn something about your question or problem (from teachers, books, parents, friends, the Internet, etc.).

(3) Find someone (parents, teachers, older siblings, etc.) who can help you with your project and discuss your ideas with him/her.

(4) Fill in the Sign-up Form (last page of this packet) and turn it in to your teacher by Wednesday, February 10, 2010.

(5) Work on your project and prepare your display according to the steps described on the following pages.

(6) On Thursday, April 1, bring your display to school in the morning. Keep it in your classroom until setup time. Put YOUR name and your TEACHER'S name on your project. Set up will be in the afternoon in the Multi-purpose Room.

(7) Come to the Science Fair Thursday evening and bring your parents and friends. The fair is open from 6:00-8:00 p.m. The recommended time for Kindergarteners and First Graders is 6:00 to 7:00 p.m. and for Second and Third graders is 7:00 to 8:00 p.m. This is to help keep the Multi from being as crowded as in previous years. DO NOT take your project home that night. You will pick up your project during recess on Friday.

Parents may also come on Friday at 8:00 a.m.before school starts and before the classes go through the Multi to view the projects.

(8) Have fun with your project! Everyone gets a ribbon and a certificate!

Note: While participation in the Science Fair is NOT REQUIRED for most classes (please check with your teacher), it is a wonderful opportunity to find out something about your world that interests you. You will get a chance to practice learning about your world in a systematic, scientific fashion (more details in the following pages). It is also a lot of fun!

Tips for Parents 2010:
Assisting Your Child Scientist With An Enjoyable Project

Selecting a project: Keep it simple! The best project is interesting for your child, but not too complicated or difficult. As one of our teachers put it nicely, "the projects should be done by *child scientists*, with *adult assistants.*" If you are using plants, allow five (5) weeks for them to grow.

Making a display: Most kids enjoy doing a science project at home with mom or dad. For the very little ones (K and 1st grade), choose a project where the child can show what happened by drawing a picture. Use the Scientific Method to organize the project. Even for older kids, a picture is worth 1000 words. Simple bar graphs are a great way to show information. In addition, a brief sentence or two is often sufficient to state how the child did the experiment, what happened, what they were trying to find out, etc.

It's O.K. for a parent to help with the writing, but please, use the child's own words. Even a kindergartner can copy a sentence in his own printing, or at least print headings for the display. Likewise, a parent can give their child suggestions on how to make the display look nice, and encourage the child to do neat work. There's no need for the display to look polished or professional. A hand-lettered display made by a child, with all its quirks and imperfections, is authentic and charming. The children are so proud of things they have done themselves, and learn so much by doing!

Materials: This year, all participating students will receive their display boards from their teachers as a part of a grant from Synopsis. Thank You to Mrs. Yordan for writing the grant application. As for materials for the project itself, many experiments involve things that most people already have in their house, garage or kitchen. It's usually not necessary to buy a bunch of fancy materials.

Safety Reminders:

1. All **liquids** must be securely contained.
2. **DO NOT** display anything **hazardous**. (Use diagrams, drawings and photographs instead.) **No flammable, combustible, caustic or dangerous materials** are allowed. (No solid model rocket engines or strong acids, for example.) **No flame**, open or concealed, is allowed. (No candles or Bunsen burners.) Devices producing **temperatures over 120 °F** must be adequately insulated.
3. **Electrical Devices** must be safe. **Bare wire and exposed knife switches** may be used only on circuits of 12 volts or less, otherwise, standard enclosed switches are required. Voltage over 12 volts must be out of reach and protected by an overload safety device. **Batteries** with open top cells (wet) are not permitted.
4. **Bacterial or fungal cultures** (including bread mold and stinky cheese) must be secured in an airtight container. Photos or drawings are preferred to live displays.
5. **Live animals** permitted only with permission of the student's teacher, and only within an appropriate enclosure. Animals' basic needs (food, water, bedding) must be met.

Displays considered unsafe will not be allowed in the Fair!

Last, but not least: The Science Fair is not a competition; there is no judging. Every participant is a winner, and everyone gets a ribbon and a participation certificate. Making a Science Fair project can be a really fun way for parents to help their children explore science. So good luck to all, and enjoy the Fair.

Science Fair Project Guidelines

1. Experiment

An experiment can be a test made to demonstrate a known scientific fact. It can also be a test to determine if a hypothesis (your educated guess of what will happen) is accurate. See Page 6 of this handout for more information.

Project/Problem: What scientific question will you be attempting to answer?
Research: Learn about your question.
Hypothesis: What do you think will happen (answers the above question)?
Procedure: How will you test your problem?
Materials: What materials will you need?
Data: Show your results in a graph or display.
Conclusion: What did you learn?

2. Model or Demonstration

A model is a small object usually built to scale that represents some already existing object. A demonstration is an illustration or explanation of a scientific principle that shows how and why something works.

Project: What scientific question are you trying to demonstrate or model?
Research: Learn about your question.
Materials: What materials will you need?
Procedure: Write a description of what you plan to do. How will it be displayed?
Conclusion: What do you hope to teach others with your demonstration or model?

3. Collection

A collection is a grouping or gathering of various objects which must be scientifically related and demonstrate that you have learned something through the process of collecting and categorizing. Items should be categorized and labeled correctly using scientific names when available.

Project: *What will you collect?* What scientific question will your collection illustrate?
Research: Learn about your question.
Materials: How will you obtain the items for your collection?
Procedure: How will you organize and label your collection? How will your display illustrate your research and collection?
Conclusion: What do you hope to learn and teach others with your collection?

The Scientific Method

For projects which involve experiments

Use the following five steps of the scientific method when conducting an experiment

1. Identify the problem

Think about what area of science interests you. Narrow your focus down to a specific question.

2. Collecting Information

Research your topic. Take notes on information that you think will be important for your experiment.

3. Develop a hypothesis

A hypothesis is an *educated* guess. It takes into account the research you have done and also your opinion of what you think will happen. What do you think will happen when you perform your experiment? The hypothesis answers your question.

Example: Plant food "B" will cause the lawn to grow faster.

4. Plan and conduct an experiment

First, make a plan for how you will do your experiment and a list of all the materials you will need. Conduct your experiment and observe what happens. In your experiment, make sure that you are only changing one variable at a time. This means that everything should be the same among the tested items (conditions remain constant). The only difference (variable) would be the procedure or item being tested in that part of the experiment. Keep a journal to record what you did and your observations – changes, growth or other results of your experiment. Photos or illustrations of the progress of your experiment are good ways to display what you did and what your results were.

Example: All lawns being tested should be treated the same (conditions remain constant): the same type of grass soil, temperature, sunlight, water feeding times, etc. The only difference (variable) would be the plant food fed to the lawns. Make a chart of the weekly lawn growth.

5. Display results.

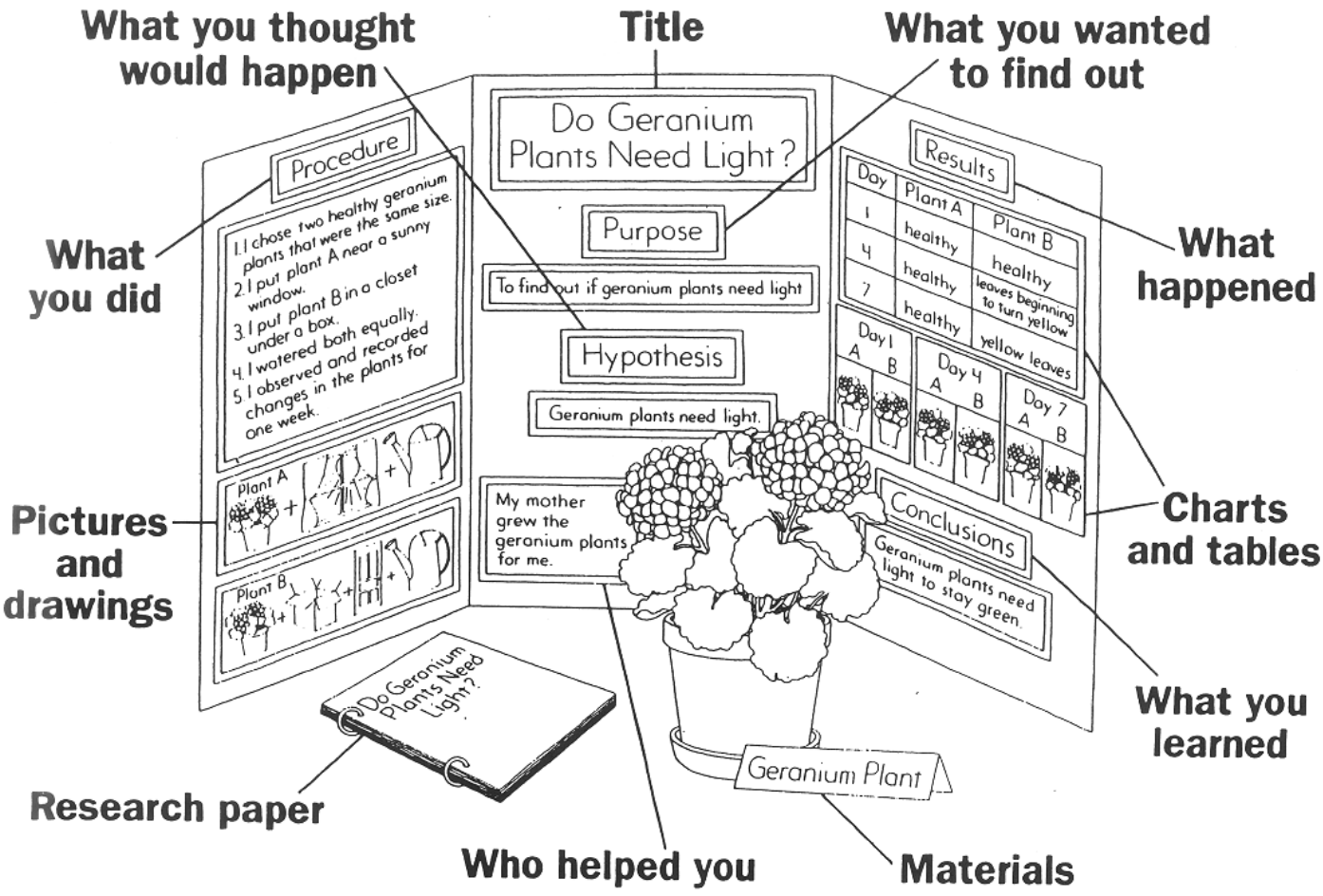
This could be a picture or a graph or a table showing your results.

6. Draw a conclusion

Analyze the results of your experiment. Draw a conclusion based on your results. Was your hypothesis correct? Why or why not? Your conclusion should tell what you learned by conducting the experiment. Remember, an experiment is *not* a failure if the hypothesis is proven wrong!

Example: The lawn fed with plant food "A" grew faster than any of the other plant foods tested. My hypothesis was not correct, even though plant food "B" cost more and promised better growth. Plant food "A" contained more nitrogen than "B." I learned that not all plant foods are the same and that advertising is not always true.

Displaying a Science Fair Project



Science Fair Project Resources

Books: Books on science experiments and science projects are available in libraries, including Cumberland's and in bookstores. Here are a few titles.

101 Great Science Experiments: A Step-by-Step Guide, by Ardley, N.

Science Fun: Simple Experiments and Projects, by Nevins, D.

365 Simple Science Experiments With Everyday Materials, by Churchill, E.R., Loeschnig, L.V., and Mandell, M.

Science Fairs Made Easy!, published by the Chicago Academy of Sciences

Science Fair Supplies and Materials: There are many stores that carry science fair materials, including craft stores, supermarkets or hardware stores depending on your project. Here are some stores that carry science and laboratory supplies or equipment.

The Science Shop (laboratory supplies and equipment and science fair and science kits and books)
1043 Di Giulio Ave
Santa Clara, CA 95050
http://www.scienceshopusa.com/

Morrison School Supply (crafts and basic science fair supplies and kits
560 E. El Camino Real
Sunnyvale, CA 94087
http://www.morrisonschoolsupplies.com/

Michaels (crafts and basic science fair supplies and kits)
http://www.michaels.com/

Web Sites: Science web sites for kids are available.
www.scifair.org
www.lhs.berkeley.edu/kids/kidshome.html (Lawrence Hall of Science at Berkeley)
www.nwf.org/kids/ (National Wildlife Foundation)
www.sciencebuddies.com/ (how to do science fair projects)
www.EnchantedLearning.com
www.seaworld.org/ (Sea World/Busch Gardens Animal Resource)
www.nationalgeographic.com (National Geographic)
www.mobot.org/MBGnet/sets/ (Biomes, site for Missouri Botanical Gardens)
www.ran.org/ran/kids_action/ (Rain Forest information)
www.hhmi.org/coolscience/ (Hughes Medical Center site of science for kids)
www.brainpop.com
www.madsci.org
www.geocities.com/Athens/1850/listscience.html (experiments included)
www.nyelabs.com or www.billnye.com (Bill Nye, the Science Guy)
www.cotf.edu/ete/modules/msese/earthsysflr/rock.html (resource about rocks)
www.exploratorium.edu
www.terimore.com/ (site costs money for project blueprints, but has lists of great ideas)
http://school.discovery.com/sciencefaircentral (Science Fair Central)
www.all-science-fair-projects.com/ (science fair ideas and how to do them)
www.scienceproject.com
www.ipl.org/div/kidspace/projectguide/ (science Fair Project Research Guide)
http://sciserv.org (International Science Fair)
http://othello.mech.northwestern.edu/~peshkin/scifair/chias_ideas.html (list of ideas)
www.energyquest.ca.gov/projects/ (projects to try)
www.juliantrubin.com/fairprojects/physics/optics.html (ideas and sample projects)

PROJECT IDEAS

Please note there are many other possibilities – These are just a few ideas to help you get started!

Kindergarten and First Grade:

1. How many of each color is there in a bag of M&M's? Make a simple bar graph by pasting a colored paper square for each M&M counted.
2. What kind of juice cleans pennies best? Why?
3. What foods are acids? Test with homemade red cabbage juice.
4. What materials dissolve in water? With some, like sugar, will more dissolve in hot water than in cold water? Try others—salt, baking soda, etc.
5. Why do people sprinkle salt on ice when making homemade ice-cream? (Try comparing the temperature of the ice water before and after)
6. Do sugar crystals grow faster in tap water or distilled water? Why?
7. Do plants grow better with tap water or distilled water?
8. Which banana has the most sugar - green, yellow or brown? (a more difficult project)
9. Does adding sugar, aspirin or lemon-lime soda to the water make cut flowers last longer?
10. How does the color of light affect plant growth? How about temperature?
11. Does it matter in which direction seeds are planted?
12. How does exercise affect your heart rate? Why do you think your heart reacts that way?
13. Does a blindfolded person walk in a circle?
14. Why will more air inside a basketball make it bounce higher?
15. Does a baseball go farther when hit by a wood or metal bat? Why?
16. Does sound travel best through solids, liquids or gases? Why?
17. Which boat shape is fastest? Which shape holds the most weight? Make boats of paper, clay or wood. Test in a bathtub.
18. What is static electricity? Punch out paper circles with a hole punch. Rub an air balloon against your clothes. What happens when you hold the balloon next to the paper circles? Why?

Grades 2 & 3:

1. How do people make anti-freeze for cars? Hint: Does salt water boil sooner than plain water?
2. How much of a piece of fruit is water?
3. Does colored (or muddy) water heat up faster in the sun than clear water?
4. What other crystals can you grow? Suggestion: Borax crystals (from grocery store's borax laundry booster) grow overnight. Bonus: Can you make an even bigger crystal by using one of your homemade crystals as a "seed" crystal?
5. Are all potting soils alike? Does the difference affect how well a plant grows?
6. Does leaf surface area affect plant growth? (this is a more difficult project)
7. Do living plants give off moisture? How do you know? If they do, why?
8. How do you know a green plant adds oxygen to its environment?
9. What are the effects of chlorine/bleach/fertilizer on plant growth?
10. Do roots of a plant always grow downward? Can you make a plant grow sideways?
11. Does the human tongue have definite areas for certain tastes? ("Map" your tongue.)
12. Is there a relationship between age and response time?
13. Do we read or remember differently with different colored paper? If so, which works the best?
14. Does a baseball go farther when hit by a wood or metal bat? Why?
15. How can one student use a lever to lift another student who is bigger?
16. What materials conduct electricity? (Try plastic, metal, glass, paper, rubber, etc.)
17. Can you make electricity out of magnets? How about out of a lemon?
18. Which bridge design is strongest? Compare an arch to a flat bridge.

K – 3rd Grade STUDENT TIMELINE

Dates	Check off when completed	
Feb 9th	_____	Choose a topic that YOU are interested in doing. For ideas you can read books, talk to your parents or talk to your friends.
Feb 10th	_____	Fill out the project approval form and turn it in to your Teacher.
Feb 10th thru Mar 18th	_____	Once you have received approval from your teacher, you can begin work on our project. If you are going to grow a plant for your project start now! _____ **Organize** everything you plan to do. _____ **Research** your idea. _____ If you are doing an experiment, **make** a hypothesis (an educated guess on what you think will happen. _____ **Write** out your procedure. _____ **Gather** your materials. _____ **Perform** your experiments. _____ **Record** your observations. _____ What did you learn or find out by doing this experiment. _____ See if your hypothesis was correct. Remember, there is no right or wrong.
Mar 20th	_____	Begin work on your display. Present the information you collected in easy-to-read graphs or tables. If you did an experiment, reserve special areas of your display for your Problem, Hypothesis, Procedure, Results, and Conclusion. **If you plan to use photographs, allow enough time to print them.**
Mar 28th	_____	Prepare to talk about your project. Be able to explain what you did and what you learned.
April 1st	_____	Bring your projects to the Multi at 1:30 pm. Come to the Multi with your family and friends starting at 6:00 pm for K & 1st and at 7:00 pm for 2nd & 3rd.
April 2nd	_____	Pick up your projects from the Multi at 10:00 am.

Cumberland K-3 Science Fair Student Sign-Up Form

Return this form to your teacher by Wednesday, February 10, 2010.
Please Print Clearly!

Question/Problem (What I Want To Find Out): _____

_____

_____

Description of Experiment: _____

_____

_____

Materials Needed (this list will help you gather everything you need before you start your experiment): _____

_____

_____

If you sign up for a project but change your mind on what you want to do, it's okay. Do the new topic. Just have fun with your project! See you at the Science Fair on Thursday, April 1!

Keep the top portion of this form to remind you of your project plans.

Please TURN IN the bottom portion of this form to your teacher.

Cumberland K-3 Science Fair Student Sign-Up Form

Teacher: _____ Room No.:_____

Student Name (First & Last): _____Grade: ____

Question/Problem (What I Want To Find Out): _____

_____

_____

I have reviewed my project with my parent/guardian and have his/her support.

Student Signature: _____

Parent/Guardian Signature: _____

Grados K, 1, 2, y 3

FORMULARIO DE INSCRIPCION PARA EL ESTUDIANTE

Por favor devuelva este formulario a su maestro a partir Miércoles, 10 de febrero del 2010.

Título del proyecto:_____

Pregunta o Problema (¿Qué quiero descubrir?) _____

_____

_____

Descripción del experimento _____

_____

_____

Los materiales necesarios (esta lista le ayudará a colectar todo que usted necesita antes de que usted comience su experimento) _____

_____

_____

_____

Si usted firma para arriba para un proyecto pero cambia su mente en lo que usted desea hacer, es aceptable. Haga el proyecto que usted guste. ¡Sólo divertirse con su proyecto! ¡Veremos usted en la feria de las ciencias el jueves, 1 de abril!

Guarde la parte superior de esta forma para acordarse de sus planes de su proyecto

Por favor REGRESAR ESTA MITAD de esta forma a su maestro

Formulario de Inscripcion para Projecto de la Feria de las Ciencias para la Escuela Cumberland

Maestro: _____ Numero de Cuarto.: _____

Nombre del Estudiante: _____ Grado: _____

Título del proyecto: _____

_____

Pregunta o Problema (¿Qué quiero descubrir?) _____

_____

_____

He revisado mi projecto con mis padres ó guardián y tengo su apoyo.

firma de estudiante: _____

firma de padre o guardián: _____