



WOODLAKE AVENUE SCHOOL

ECO - EARTH SAVER SCIENCE FAIR

GRADES K - 5 PROJECT
GUIDE - 2010

ALL SCIENCE FAIR PROJECTS ARE TO REFLECT THIS YEAR'S THEME:

SAVE OUR PLANET

Before you or child worries about to do for the Science Fair, we suggest visiting the following web site. Any student, regardless of age or category will benefit from taking this INVALUABLE Science Interest Survey. By filling out the Science Interest Survey, your child will have a clearer perspective on what type of Eco Science area to pursue:

http://www.sciencebuddies.org/science-fair-projects/recommender_register.php?From=sidebar

Then, the investigation of possible topics will be much easier!!!! At that point, you may take some of the following steps:

1. Visit your local library or browse through their online catalog. By visiting their online catalog ahead of time, you may request books of interest prior your library visit. The following topics link directly to the Library of Congress' catalog:

CLIMATIC CHANGES--ENVIRONMENTAL ASPECTS
ECOLOGY--EXPERIMENTS
ENVIRONMENTAL EDUCATION
ENVIRONMENTAL PROTECTION--JUVENILE LITERATURE
ENVIRONMENTAL SCIENCES--EXPERIMENTS--JUVENILE LITERATURE
GLOBAL WARMING
NATURE--EFFECT OF HUMAN BEINGS ON--JUVENILE LITERATURE
POLLUTION--EXPERIMENTS
RECYCLING (WASTE, ETC.)
REFUSE AND REFUSE DISPOSAL--JUVENILE LITERATURE
SCIENCE--EXPERIMENTS

See also subdivision "Experiments" under headings of particular interest, such as "Air--Pollution," "Botany," "Biology," "Earth Sciences," "Natural History," "Oceanography," "Water--Pollution"

SCIENCE PROJECTS

ACID RAIN--ENVIRONMENTAL ASPECTS
AIR--POLLUTION
BIOLOGY--FIELD WORK
CONSERVATION OF NATURAL RESOURCES
DEFORESTATION
ENDANGERED SPECIES
ENVIRONMENTAL SCIENCES
GREENHOUSE EFFECT, ATMOSPHERIC
HUMAN ECOLOGY
MARINE POLLUTION



2. Visit your local bookstore to browse for ideas on topics/projects.
3. Explore through the Internet for ideas on topics/projects. Use varied search engines to do your exploration. By doing so, you'll find a comprehensive number of web sites, to select from.

The following web sites provide EXCELLENT resources. Check them out!!

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

<http://www.sciencemadesimple.com/>

<http://nces.ed.gov/nceskids/CreateAGraph/default.aspx>

http://www.sciencebuddies.org/science-fair-projects/ask_an_expert_intro.shtml?From=Tab

<http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Presentations/How-to-Create-a-Winning-Science-Fair-Display-Board.html>

<http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Presentations/Dos-and-Donts.html>

<http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Presentations/How-to-Deliver-a-Good-Oral-Presentation.html>

<http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Presentations/Judges-Criteria-for-Science-Fairs.html>

http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Presentations/Students_final_check.pdf

<http://school.discoveryeducation.com/sciencefaircentral/Parent-Resources.html#6.2.1>

<http://www.youngscientistchallenge.com/about/about.html>

<http://school.discoveryeducation.com/sciencefaircentral/Getting-Started/Choose-a-Project-Type.html>

<http://sciencefairproject.virtualave.net/>

<http://www.reachoutmichigan.org/funexperiments/agesubject/earlyelementary.html>

SCIENCE FAIR PROJECT CATEGORIES:

KINDERGARTEN: MODEL

MODEL:

A project designed and built by the student to demonstrate/explain an existing scientific principle or fact, such as: animal camouflage, land erosion, animal adaptation, plant structure, etc. It can also explain/demonstrate how something works, such as how recycled paper is made or how/why a bulb lights up. The topic and language selected, must be easily understood and communicated by the student.

You must remember to keep the following in mind:
What does the student hope to teach others with the model/demonstration?



FIRST AND SECOND GRADE: EXPERIMENT

EXPERIMENT:

Experiments test a theory/hypothesis. The testing is performed several times, using independent, controlled, and dependent variables, in order to prove/disprove the hypothesis.

THIRD, FOURTH, AND FIFTH GRADE: EXPERIMENT AND INVENTION.

EXPERIMENT:

See above

INVENTION:

Applying scientific principles to develop a new product, process, or method. You find something that exists today, and try to redesign it, in order to improve it. This category combines the experiment's requirements, with development of a functional model - finding products in daily life that could be improved upon - to create something more efficient. The final project is the demonstration of the steps you took, citing successes and/or failures, and a summary.

Only third graders have the option to work in teams (groups of 2 or 3), for either category provided they are in the same class.

However, teams are to keep in mind, that their projects have greater resources (time, effort, and thought spent on the projects), in addition to a deeper level of research, data collection, and analysis than someone acting alone. There must also be evidence of team collaboration among members, as well as project management. Each member should make a significant contribution to the overall project. These areas are evident in the quality of work presented, as well as in the interview process.

MORE INFORMATION FOR ALL CATEGORIES TO FOLLOW.....



RULES FOR ALL CATEGORIES:

1. Name, grade, and room number should only be written on the following:
 - A. Science Fair Entry Form (located at the end of this project guide)
This form is to be lightly taped on the right hand corner of your exhibit, so it can flipped over, concealing the information.)
 - B. On the back cover of your separately written report, journal, or logbook.

Note: If your project is chosen to be displayed in the auditorium, a color-coded Science Entry Form will be substituted in the place of the white entry form.
2. A Science Fair Display Board that clearly explains the model, experiment, or invention must accompany each entry/project.
3. Each Science Fair Display Board, must not be taller than 36 inches (three feet) high, nor wider than 24 inches (two feet), and free standing.
4. Each entry/project must be accompanied by a written report. This report is SEPARATE from the information on the display board. It is not adhered to any surface. The requirement for the report depends on the grade and category. ****See individual categories below**
5. All materials needed to set up the display (including possible extension cord) are to be supplied by the student.

6. The use of dangerous or hazardous chemicals, combustible solids, fluids or gases, flames, open containers of liquid, live animals, or expensive or fragile items are NOT allowed to be used as part of the display. The use of photographs is recommended, instead.
7. Use of kits is not allowed, regardless of age/category.

IF YOUR PROJECT IS CHOSEN FOR ADDITIONAL JUDGING:

All students who qualify for final judging are to present their project to a group of interviewers who will question them about their project. The interview will last approximately 10 minutes and will account for approximately 50% of the final score. Judges will be looking for an understanding of all of the components of the project. Remember to make your exhibit interesting, orderly, and complete.



MODEL:

The additional narrative writing should explain:

- Why that particular model was chosen
- What the student liked/disliked about working on it
- What the student might do differently, if given another opportunity

It is preferable the student write the display board and narrative report by him/herself, keeping in mind the rules for published work. However, if the student is unable to do so, then an adult may write it, provided the student dictates it.

EXPERIMENT:

The additional report writing should explain:

- Why that particular experiment was chosen
- What the student liked/disliked about working on it
- What the student might do differently, if given another opportunity

In addition, the report includes thoughts and reflections of the experiment's process. This collective writing is multi-paragraphed.

The following Scientific Method is posted on your Eco Science Fair Display Board. It helps explain your project. This is in addition to your written report.

****THE SCIENTIFIC METHOD:**

Scientists, like kids, are curious people who ask a lot of questions about the world around them, and then work toward finding those answers. The scientific method is the way scientists get from asking a question to finding an answer.

- | | |
|-------------------------|--|
| 1. Hypothesis | What you want to prove. What you think will happen in the final outcome. |
| 2. Materials | What things are needed for your project. |
| 3. Procedure | What you do, step by step. |
| 4. Observations | What you see at various stages, step by step. |
| 5. Data [Write it down] | Write down what happens during your experiment. This data |

includes charts, pictures, and/or drawings.

- 6. Results A summary of what happened during your experiment.
- 7. Conclusion Was your hypothesis correct? Did you prove or disprove your question?
- 8. Bibliography Where you got the idea for your experiment (book, internet)

Figure out what you'll need to use (materials), in order to help you test and measure your hypothesis.

Figure out a step by step plan (procedure) of what you'll be doing with these materials.

As you work on your experiment, you'll see what's happening (observation) and taking down all of that information (data), along the way. This data will include charts, pictures, and/or drawings.

YOU'RE FINISHED WITH YOUR EXPERIMENT ONLY WHEN YOU'VE TRIED YOUR PROCEDURE SEVERAL TIMES IN THE EXACT SAME WAY - AT LEAST THREE (3) DIFFERENT TIMES

This is the only way you'll know whether your findings (results) are true/accurate!

Then, you compare and contrast these results with your original hypothesis. These findings (conclusion) will now determine whether or not you were able to prove if what you thought would happen, did or didn't happen. Remember: Don't give up and stop if your conclusion doesn't prove your hypothesis to be correct!! The objective is to learn how to do the scientific process correctly and to learn something new, as a result.

INVENTION:

A detailed log book outlining all steps taken, as well as personal reflections/commentary, takes the place of a written report

Remember to follow all Scientific Method steps, as in an experiment, (see above) and post it on the Eco Science Fair Display Board

Figure out what you'll need to use (materials), in order to help you test and measure your hypothesis.

Figure out a step-by-step plan (procedure) of what you'll be doing with these materials.

As you work on your experiment, you'll see what's happening (observation) and taking down all of that information (data), along the way. This data will include charts, pictures, and/or drawings.



TO FOLLOW:

- ECO SCIENCE FAIR TIMELINE
- MODEL RUBRIC
- EXPERIMENT/INVENTION RUBRIC
- SCIENCE FAIR ENTRY FORM



WOODLAKE ECO SCIENCE FAIR TIMELINE (2010)

- March 22
(Monday) Eco Science Fair art posters due in Room 17 before the end of the day.
- April 5
(Monday) Eco Science Fair art posters winners are announced.
- April 23
(Friday) Eco Science Fair projects are due at school! Primary classrooms (K-3) may select up to four entries for auditorium display and further judging. Upper grade classrooms (4-5) may select up to six entries.
- April 27
(Tuesday) Selected Eco Science Fair projects are set up in the Auditorium. Classrooms will be called prior to setting up projects.
- April 28
(Wednesday) All day judging for selected projects - Auditorium (Oral presentations)
- April 29
(Thursday) Eco Science Fair project winners are announced. Classrooms walk through the auditorium to view school's selected projects.
- April 30
6-8:30 PM
(Friday Night) **ECO SCIENCE FAIR NIGHT!!!** Science Fair winners (project and art) will present their amazing work to our community. Selected classroom projects will also be on display.



**SCIENCE FAIR PROJECTS VIEWING: 6 – 7 PM.
WINNERS ENTRY PRESENTATIONS AND AWARDS CEREMONY: 7-8:30 PM.**

**Join us for an evening of science through projects,
art, and music.**

Invite your family and friends!

SEE YOU THERE!!!

WOODLAKE ECO - EARTH SAVER SCIENCE FAIR

| JUDGING RUBRIC | SCORING |
|---|------------------------|
| <u>CREATIVE ABILITY</u> | UP TO 4 POINTS |
| <p>THE TOPIC IS PRESENTED IMAGINATIVELY</p> <p>THE DISPLAY IS ATTRACTIVELY DESIGNED (COLORFUL/LEGIBLE)</p> <p>THE PROJECT IS INVENTIVE/ORIGINAL</p> | |
| <u>SCIENTIFIC THOUGHT/RESEARCH</u> | UP TO 4 POINTS |
| <p>THE DATA IS COMPLETE AND DETAILED (LOGS, GRAPHS, TABLES, PHOTOS, ETC).</p> <p>THE MATERIALS AND CONSTRUCTION ARE AGE/ABILITY APPROPRIATE</p> | |
| <u>THOROUGHNESS</u> | UP TO 4 POINTS |
| <p>THE TIME SPENT ON THE PROJECT IS EVIDENT</p> <p>THE PROJECT REFLECTS QUALITY WORKMANSHIP</p> <p>THE WRITTEN MATERIAL IS WELL PREPARED</p> <p>THE PROJECT IS SCIENTIFICALLY PRESENTED</p> | |
| <u>CLARITY</u> | UP TO 4 POINTS |
| <p>THE TOPIC IS CLEARLY STATED</p> <p>THE PROJECT IS AGE - APPROPRIATE AND IN STUDENT'S OWN WORDS</p> | |
| <u>INTERVIEW</u> | UP TO 4 POINTS |
| <p>PRESENTATION IS CLEAR AND SCIENTIFIC IN MANNER</p> <p>DISPLAYS A DEEP UNDERSTANDING/ KNOWLEDGE OF TOPIC/EXHIBIT</p> | |
| <u>TOTAL SCORE:</u> | UP TO 20 POINTS |

WOODLAKE ECO - EARTH SAVER SCIENCE FAIR

JUDGING RUBRIC FOR EXPERIMENT AND INVENTION

ENTRY NUMBER: _____

GRADE: _____

CIRCLE CATEGORY:

EXPERIMENT

INVENTION

Rating system: (4 possible points for each section – total possible points: 20)

1 = Shows no evidence

2 = Shows little evidence

3 = Shows strong evidence

4 = Shows very clear and very strong evidence

I. Scientific Thought

A. Does project follow the scientific method?

B. Is the problem clearly stated?

C. Are the procedures appropriate and organized?

D. Is the information collected accurate and complete? _____

II. Creative Ability

A. How unique or original is the project idea?

B. Is it significant or unusual for a child this age?

C. Is the display visually appealing?

D. Is the proper emphasis given to important ideas?

E. Are all the components of the project done well? _____

III. Understanding

A. Does it explain what the student learned about the topic?

B. Does the project represent real study and effort?

C. Does the project show the child is familiar with the topic? _____

IV. Clarity

A. Does the student communicate the nature of the problem - (how the problem was solved, and the conclusion)?

B. Are the problems, procedures, data, and conclusion presented clearly and in a logical order?

C. Does the student clearly and accurately articulate in writing what was accomplished?

D. Is the objective of the project likely to be understood by one not trained in the subject area? _____

V. Technical Skill

A. Was the majority of the work done by the student?

B. Has the student acknowledged help received from others?

C. Does the written material show attention to grammar and spelling? _____

Total Number of Points: _____



WOODLAKE ECO SCIENCE FAIR - 2010 ENTRY FORM

Circle category:

MODEL

EXPERIMENT

INVENTION

Neatly print the following:

Project Name: _____

Student Name: _____

Grade: _____ Room Number _____

_____ cut along this line and reuse/recycle bottom _____

