

WOODS SCHOOL

SCIENCE FAIR

THURSDAY, FEB. 15

10:30 AM – 7:00 PM

SET UP:	THURSDAY	8:00 – 10:30
VIEWING:	THURSDAY	10:30 – 7:00
TAKEDOWN:	THURSDAY	7:00 – 8:00
	MONDAY	8:00 – 9:00

<u>Science Fair</u>	Agricultural ideas for science fair topics http://www.ars.usda.gov/is/kids/fair/ideasframe.htm
<u>Student Links</u>	Discovery School's Science Fair Central
<u>Student Services/Special Ed</u>	http://school.discovery.com/sciencefaircentral/
<u>Supply List</u>	Science Fair Project Resource Guide from IPL (Internet Public Library) KidSpace http://www.ipl.org/p/kidspace/projectguide/
<u>Yearbooks</u>	<u>Searchable archive</u> of answers to questions about science fair projects.
<u>Wolf Gazette Student Newspaper</u>	http://www.cdli.ca/sciencefairs/

MANY LINKS LISTED BELOW

1. Scientific Method
Research, Problem, Hypothesis, Experimentation, Conclusion
2. Topic Research
Project Types, Three Steps to a Topic, Research a Topic, Topic Ideas
3. Project Research
Primary Research, Secondary Research
4. A Sample Project
Starting Your Project, Procedures, Results, Explaining Your Results, Hypothesis
5. Project Report
Title Page, Table of Contents, Abstract, Introduction, Experiment and Data, Conclusion, Sources, Acknowledgments
6. The Display
Helpful Hints, Do's and Don'ts, Safety

From *Janice VanCleave's Guide to the Best Science Fair Projects*,
Janice VanCleave (John Wiley & Sons, Inc., 1997)

Project Ideas

Remember, your science fair project should start with a question. What topic interests you most? What have you always wondered about that topic? Once you've decided the question you want to answer, everything from the hypothesis to the procedure will flow from there.

Animals and Insects

- How does electricity affect fruit flies?
- How do different types of liquids affect fruit-fly growth?

Earth, Sun, and Stars

- What evidence can we find about the rotation of the earth from star trails?
- What is the size of the earth? (Eratosthenes method)
- How does the color of a background affect its absorption of sunlight?
- How does sunspot activity affect radio reception?

Food and Our Bodies

- What are eating disorders? (research and survey)
- Is there a relationship between eating breakfast and school performance?
- *On which foods does fungus grow best?*
- How does ethylene affect ripening fruit?
- How are teeth affected by fluorides and acids?

Oceans, Rivers, Streams

- Does the amount of water affect the size of the wave?
- How does the volume of a stream affect its flow rate?
- Where is the current of a stream the fastest?

- Is there a relationship between phases of the moon and our weather?

Plants and Gardening

- What kind of soil is best for water retention?
- Will antacids help soil polluted by acid rain?
- Does human hair affect the growth of plants?
- How does a garden mist spray affect plant growth?
- How does the duration of insolation affect plant growth?
- What is the percentage of water in various fruits and vegetables?
- Which plants and vegetables make the best dye?
- Which type of wildflower grows best under artificial light?
- How does temperature affect the water uptake in celery plants?
- Does the type of water affect the growth of plants?
- Is soil necessary for plant growth? (hydroponics study)
- How does rotation affect plant growth?
- Does music affect plant growth?
- Does a plant grow best in sunlight or artificial light?
- Can plants deprived of sunlight recover?
- What is the relationship between root and stem growth?
- How does gibberellic acid affect plant growth? (growth hormones study)
- Which color of light causes green beans to grow best?
- Can potatoes be grown without soil?
- How do worms affect plant growth?
- What is the effect of urine on grass?
- What affect do Epsom salts have on plant growth?

Water Quality

- What is in our drinking water?
- Are our local waters acidic?
- Do our soils show the effects of acid rain?
- What is the lime content of various samples of water?
- How polluted is our water? (the trapping and study of bacteria with a Millipore filter)

Weather

- How can we prevent the weathering of our sidewalks and driveways?
- How does topography affect weather conditions?
- Does the topography of an area affect its local weather?
- How do changes in air pressure affect the weather?
- How are all weather factors related?

Other

- Are safe homemade cleansers as effective as commercial cleansers?
- How does particle size affect settling rates?

Space Science

Astronomy Homework Help

...links to astronomy pages for all ages, arranged by topic

AstroWeb

...a collection of pointers to astronomy-related information available on the Internet

Discovery Channel School: Astronomy Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and great activities to support this subject in the classroom, including space science, planets, astronomy, the space shuttle, and much more

Earth and Sky

...scripts and a searchable archive of this science-radio show

Eric's Treasure Trove of Astronomy and Planetary Science

...a comprehensive online encyclopedia of astronomical and planetary information and definitions

Hubble Site

...a site which presents all types of information, data, and photos about the Hubble Telescope

Infrared Astronomy

...images and descriptions from this specialized field of astronomy

K-8 Aeronautics Internet Textbook

...a site with lesson plans, activities, information, and much more for teaching aeronautic principles in the classroom

LiveSky.com

...an extensive, well-arranged directory of astronomy-related Web information

Mission to Mars

...an interactive educational site that shares information about our exploration of that planet; includes an interactive mission simulation

Science Information Infrastructure

...a collaboration among teachers and scientists to produce lesson plans utilizing NASA images, NASA data, and the Internet

space.com

...a collection of up-to-date space news, mission information, and much more

Views of the Solar System

...an educational tour of the solar system with information and images

NASA Sites

From Stargazers to Starships

...an online course covering astronomy, Newtonian mechanics, the Sun and spaceflight

High-Energy Astrophysics Learning Center

...a site put together by NASA scientists to help students learn about X-rays and gamma rays

NASA Education Program

...information, programs, and resources produced by NASA to support the space science curriculum

NASA Home Page

...the starting site for links to NASA news, policies, history, and links to NASA centers around the country

NASA Langley Research Center

...a site with links to other government laboratories including N.S.F., D.O.D., etc.

NASA Spacelink

...this site is designed for educators and provides an easy-to-use and informational gateway to all of NASA's material

NASA Technical Reports Server

...a keyword search of NASA-produced technical reports

NASAexplores

...free weekly lessons and articles based on current research and developments in NASA's Aerospace Technology area

NASA's Earth Observatory

...a site with satellite imagery and scientific information about our home planet with the focus on Earth's climate and environmental change

National Space Science Data Center (NSSDC)

...provides access to resources in astrophysics, space physics, solar physics, lunar and planetary data from NASA space flight missions

Rocketry Activities

...a great NASA site which outlines the history of rocketry and includes instructions for classroom rocketry activities

Solar System Exploration

...a site dedicated to providing information on the solar system and the unmanned missions; includes a timeline, history, videos, a kids section, and much more

StarChild

...a hypertext guide to astronomy for young readers; includes links to many other astronomy sites

Today@NASA

...current news and pictures as well as archives of previous information and exhibits from NASA

Welcome to the Planets

...a collection of the best images from NASA's planetary exploration program

Earth and Geology Sites

Ask-A-Geologist

...questions about volcanoes, earthquakes, mountains, rocks, maps, ground water, lakes, or rivers answered by a geologist via e-mail

Bob's Rock Shop

...includes images of mineral specimens and articles about related mineral subjects

Cascades Volcano Observatory

...an organization which provides information for people to live knowledgeably and safely with volcanoes

Discovery Channel School : Earth Science Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and activities to support this subject in the classroom, including volcanoes, earthquakes, tsunamis, fossils, dinosaurs, and much more

Earth Science Teaching Ideas

...inquiry-based methods of teaching earth science concepts created by a classroom teacher

Earth Viewer

...find out where it is day and night in the world and view the Earth from a variety of perspectives

GeologyLink

..."a forum for all things geological"; includes a K-12 section

How Volcanoes Work

...a comprehensive educational website on the science behind volcanoes and volcanic

processes

Illinois State Geological Survey

...another list of geology links for the K-12 educator

Learning Web

...a wealth of earth science educational information produced and compiled by the USGS

Mineralogy Database

...an extensive information source of over 5000 minerals

Museum of Paleontology (UC Berkeley)

...a beautiful site with loads of information about the field of paleontology

New York Earth Science Teacher : Cool Earth Science Links

...a brief, but content-rich list of earth science sites that will help teachers investigate further about the topic

Smithsonian Gem & Mineral Collection

...a nice research site with gem pictures and information

Tsunami Links

- United Streaming: How Tsunamis are Formed video (6:50 minutes)
- Discovery Education: Discussion Guide for *Understanding Tsunamis*
- Discovery Channel: The Next Wave- The Science of Tsunamis
- Tsunamis Theme Page from CLN
- Tsunamis: The Great Waves
- FEMA for Kids: Tsunami Warning
- Discovery Education: Dynamic Earth (Grades 3-5)
- Discovery Education: Tsunami (Grades 6-8) (Google cache)
- National Geographic: Wave Heights
- Tsunami Information
- Tsunami: The Big Wave
- PBS: Waves of Destruction
- National Weather Service: About Tsunamis
- USGS: Tsunami Animation
- Tsunami Animated Movie

U.S. Geological Survey Maps

...information, education, and environmental research from the USGS

Volcano World

...a site with an immense amount of information about volcanoes including "Ask a Volcanologist"

Volcanoes : Can We Predict Volcanic Eruptions?

...a content-rich site which includes a wealth of information, activities, and resources dealing with volcanoes

Windows to the Universe

...a graphics-intensive web site about the Earth and space sciences that is "fun, innovative, and engaging"

Woods Hole, National Marine and Coastal Geology Program

...a program concerned with environmental protection, public safety, natural resources, and earth science information

Oceanography Sites

Aquatic Network: Resources

...a well-compiled list of aquaculture, oceanography, and other marine-related sites

Bridge

...a clearinghouse of many K-12 ocean sciences education sites available online

C.O.O.L. Classroom

...a site for grades 5-12, based on the latest ocean science research and technology, including tutorials and real-time data activities

Jason Project

...take an electronic field trip with Robert Ballard and his team of scientists

NOAA Educational Units

...a series of research and investigation experiences using online resources in the areas of atmospheric science and oceanography

Ocean Planet

...a wonderful exhibit from the Smithsonian including pictures, information, and teacher materials about the ocean

OceanLink

...a link to marine science sites to support the grade 5-12 curriculum

Oceanography

...projects in oceanography and links to oceanographic resources

Oceans Canada: Links

...a list of oceanography sites on the Net, arranged by category, and mostly related to the oceans bordering Canada

SEA K-12 Lesson Plans

...a collection of marine, oceanography, and nautical science lesson plans

SeaWeb

... "a multimedia public education project designed to raise awareness of the world ocean and the life within it"

Secrets of the Ocean Realm

...a content-rich biological oceanography site including a series of lesson plans

Voyage of the Odyssey

...up-to-date and updated information from a three-year voyage gathering baseline data on levels of synthetic contaminants throughout the world's oceans

Water Science for Schools

...everything you need to know about the topic of water is included in this USGS site

Wind and Sea : The Oceanic and Atmospheric Sciences Internet Locator

...a classified index to over 750 sites concerned with oceanic and atmospheric issues

Biological Science

Access Excellence

...a site that puts biology teachers in touch with their colleagues, scientists and critical sources of new scientific information

AP Biology and Other Biology Links

...a nice list of links for secondary school biology

BioChemNet

from medicine to commerce and popular culture throughout history

SelecTree

...although mainly specific to trees found in California, there are listings and pictures over 975 trees in this database

Tree of Life

...a distributed Internet project which contains information about the phylogenetic relationships of organisms and links to related sites

Whole Frog Dissection Project

...view a dissected frog, organ by organ

Zoology Internet Resource Guide

...a scientific guide to zoology and zoological sites on the Internet

Animal Sites

Animal Diversity Web

...a site with collections of pictures and information about animals

Animal Information

...information and fun facts about animals from Sea World/Busch Gardens

Big Cats Online

...a general introduction to the various species of wild cats; no authority information provided

BugGuide.net

...an extensive identification guide to insects and spiders of the United States and Canada

Discovery Channel School : Animal Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and great activities to support this subject in the classroom, including classification, adaptation, frogs, whales, bears, bees, apes, dogs, cats, evolution, and much more

IUCN Red List of Threatened Species

...scientifically-based information on the current status of globally threatened bioperty

Reptile Page

...a site put together by a 13 year old which has a comprehensive list of links to many reptile-related pages

WhaleNet

"...an interdisciplinary, collaborative telecomputing project to foster excitement and learning about whales"; includes a large amount of whale information

Chemistry Sites

BioChemHub

...an extensive directory of biology and chemistry educational resources on the Net

Biology Project: Biochemistry

...a content-rich site with everything you need to know about biochemistry; includes tutorials

ChemCenter

...a resource of all things chemistry for researchers and students alike

Chemical Elements.com

...an easy to use, interactive periodic table site for students

Chemistry Resources

...an nicely chosen, annotated list of chemistry sites put together by a teacher

Discovery Channel School : Forensic Science Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and great activities to support the teaching of forensics units in the classroom

General Chemistry Online

...a great site for secondary chemistry students or a teacher who needs a bit more information

Links for Chemists

...an extensive list of links to chemistry resources on the Internet

WebElements

...a comprehensive site dealing with the periodic table of the elements

General Science SitesAlexander Graham Bell's Path to the Telephone

...a content-rich site that contains detailed drawings and information about this important invention

American Museum of Natural History: Resources for Learning

...a collection of activities, articles, evidence and analysis and more, for educators, families, and students interested in teaching or learning about science

Ask a Science Expert

...a list of science mentors to which teachers or students can pose questions of interest

AskERIC Lesson Plans : ScienceBill Nye, The Science Guy

...a site devoted to science and Bill Nye's television show

Catalog of the Scientific Community in the 16th and 17th Centuries

...a searchable database of over 600 biographies on members of the scientific community during the 16th and 17th centuries

Cornell Theory Center Math and Science Gateway

...great links to resources in mathematics and science for educators and students in grades 9-12

Dragonfly

...a companion to a magazine of the same name, this page introduces basic science and nature concepts to the elementary student

Elementary Science Activities: Unit Resources

...links to a wealth of sites to support many elementary level science topics

eNature.com

...a site of the National Wildlife Foundation with information on wildlife and plants, birding information, the ability to create your own habitats, and much more

Encyclopedia Smithsonian

...a site which includes "answers to frequently asked questions about the Smithsonian and links to Smithsonian resources from A to Z"

Eric's Treasure Trove of Scientific Biography

...a comprehensive online encyclopedia of famous scientists in history

Exploratorium

...a collection of electronic exhibits and resources for teachers, students, and science enthusiasts

Exploratorium Learning Studio

...hands-on science lessons, NASA resources created by teachers, and an archive of the past top sites make this a great starting point for science teachers

Extreme Science

...a site dealing with scientific records and including links to related sites

Food Science Experiments and Learning Opportunities

...links to information, experiments, classroom activities, and much more dealing with food science

Frank Potter's Science Gems

...an extensive, annotated meta-index to 2000 science sites; arranged by subject and grade level

IMSEnet Science Sites

...a categorized set of links to many science sites

Invention Dimension

...an informational resource for students and teachers who want to know more about American inventors and their discoveries

Museum of Science's (Boston) Virtual Exhibits

...visit an electricity, fractal, and electron microscope exhibit, among others, online

National Science Foundation

...contains valuable reports on current scientific topics; useful for teachers and secondary school students

Nearctica

...a site with extensive links to information about the plants, animals, and the physical environment of North America

Patent Title Search System

...search a large archive of US Patent information to see the titles of the current patents that are held

Science Education Gateway

...organized lists of lessons and resources from museums and science organizations

Science Fair Theme Page

...links to sites which contain information and/or other links related to science fairs

Science for Families

...a resource site for classroom and home with many links to sites of interest to students

Science Junction

...a nice science site with links for teachers and students alike; rather graphically intensive

Science Learning Network

...a site which provides Internet exploration of science museums and resources for science educators

Science Lessons by Subject

...a graded collection of science lessons in astronomy, biology, chemistry, earth science,

physical science and technology

Science Net

...a well-compiled list of sites for students in the area of the sciences

Science NetLinks

...a contributor to the MarcoPolo collection, this site includes standards-based lesson plans, links to useful Web resources, and a section with 90-second audio segments dealing with science issues of interest to the classroom

Science of Hockey

...a "Sports Science" resource developed by the Exploratorium to take you inside the game

Science Page

...a very nice list of science links for teachers arranged in broad subject areas

Science Portfolios

...an introduction to the use of portfolios for alternative assessment in science

Science Spot

...a nicely arranged elementary science site with links to science resources, original lesson ideas, science trivia, and much more

ScienceMaster.com

...information and resources in the sciences for middle and high school students

SciNet Science Search

...a browseable and searchable directory of science sites in many categories and also translated into many languages

Smithsonian Home Page

...the starting page with links to the Smithsonian's electronic exhibits

Teachers' Lab

...a quarterly-updated, content-rich math and science site which combines online activities with background information for teachers

TryScience

...this site highlights the activities of over 600 hands-on science museums from around the world (in eight languages), includes support for teachers and parents, and offers ideas for student science extension activities at home

Virtual Field Trip Site

...a well-done group of natural science-related field trips on the Web with original content, teacher resources, and links to related sites

Walk Through Time: Evolution of Time Measurement

...an online exhibit highlighting the history of timekeeping

Why Files

...an NSF-funded electronic exploration of the science behind the news; updated twice monthly

Yahoo Science List

You Can With Beakman and Jax

...a science site for kids (and teachers) who love science; includes some neat science activities

...an extensive directory of biology and chemistry educational resources on the Net

Biology Hypertextbook

...a college-level, hypertext, biology text which provides a good reference for secondary students and teachers; includes a searchable index

Biology Project

...a content-rich, interactive resource for learning biology on the Web

Cells Alive

...a few quicktime movies and animations of microscopic organisms

Discovery Channel School : Human Body Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and great activities to support this subject in the classroom, including genetics, cells, the brain, muscles, and much more

Discovery Channel School : Microscopic World Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and great activities to support this subject in the classroom, including DNA, viruses, bacteria, cells, and much more

Discovery Channel School : Plants Lesson Plans

...curriculum tie-ins with the programs, vocabulary, and great activities to support this subject in the classroom

DNA Files: Genetic Research Resource Links

...this page contains combined links to transcripts of the radio show, Web sites, and print material dealing with many aspects of genetic research

Embryology Overview

...a graphical version of the human development process from the first day through 38th week

Genetic Science Learning Center

...a content-rich site with genetics information, projects, and lessons for teachers, families, and student

Heart : An Online Exploration

...a wonderful interactive tour of the human heart

Histology on the Net

...hundreds of microscopic anatomical images

Microbes.info

...this site collects useful and interesting microbiology information resources and the content is most appropriate for high school students

Missouri Botanical Garden

...information about this botanical museum and links to related sites

Neuroscience for Kids

...an exemplary, content-rich site for students and teachers who would like to learn more about the nervous system

Plants Database

...search this huge database to view and download the taxonomic hierarchy for any plant, or the entire classification for North American non-vascular plants and lichens or U.S. vascular plants. as well as find out much more information about the plants and trees of the U.S.

Red Gold: The Epic Story of Blood

...a site with resources and lessons dealing with human blood and its impact on everything