Wonders of the Imagination Science Exhibition

W. I. S. E. 2001

a science fair for home-schooled students
in grade levels K through 12
living in southeast Michigan and northwest Ohio
planned and organized by volunteers
to promote the wise use of science

When and Where

St. Clement Hall
2990 Tremainsville Road (3/10 mile southeast of West Alexis Road)
Toledo, Ohio
Saturday, March 17, 2001 (St. Patrick's Day)

The science fair timetable is as follows:
Students register and set up their science fair projects: 8:00 a.m. - 10:00 a.m.
Judging of the projects: 10:00 a.m. - 1:00 p.m. (or earlier, if completed)
Public viewing: 1:00 p.m. - 5:00 p.m.
Awards ceremony: 5:00 p.m. - 5:30 p.m.
Refreshments: 5:30 p.m. - 6:00 p.m.
Students remove their science fair projects: 6:00 p.m. - 8:00 p.m.

Since there are no arrangements for the storage of unclaimed projects, any projects remaining after 8:00 p.m. on the day of the fair will be discarded.

Entry Form

Completed and signed entry forms, along with the non-refundable entry fee ($10.00 for one student, $18.00 for two students from a family if both entry forms are submitted together, or $25.00 for a family if all the entry forms are submitted together), will be accepted until December 31, 2000, or until forms for 200 entries (the capacity of the science fair site) have been received, whichever comes first.

Mail your entry form to:

Science Fair Registration
7658 Salter Court
Temperance, Michigan 48182

Questions

If you have questions concerning any information in this Instruction Booklet or on any of the enclosed documents, e-mail your questions to sciencefair@netzero.net.

INSTRUCTIONS FOR STUDENTS

Read this entire booklet before you start your project. Family participation is encouraged.

Acknowledgement

A special thanks is extended to Carol Koesel, Curriculum Resource Consultant at the Monroe County Intermediate School District, for granting permission to adapt freely from the rules of the Monroe County Science Fair for use at this science fair.

Get some ideas for your science fair project.

The Internet Public Library: This site offers a comprehensive science fair project resource guide with articles, program ideas, and resources. It includes links to more than 30 other sites, ranging from those of museums, universities, and magazines, to resources such as dictionaries, periodic tables, and timelines. http://www.ipl.org/youth/projectguide

Science Fair Idea Exchange: From the Science Hobbyist Website, this includes an archive of project ideas in biology, chemistry, physics, and psychology, and links to other sites. Students post and exchange new ideas. http://www.halcyon.com/sciclub/cgi-pvt/scifair/guestbook.html

A site for older students: The National Student Research Center includes an electronic journal of student research, recommended Web sites, plus research projects and more. http://youth.net/nsrc

Eating Patterns (Psychology)

Science Fair Links (National Science Teachers Association)
http://www.nsta.org/onlineresources/links/sciencefair/

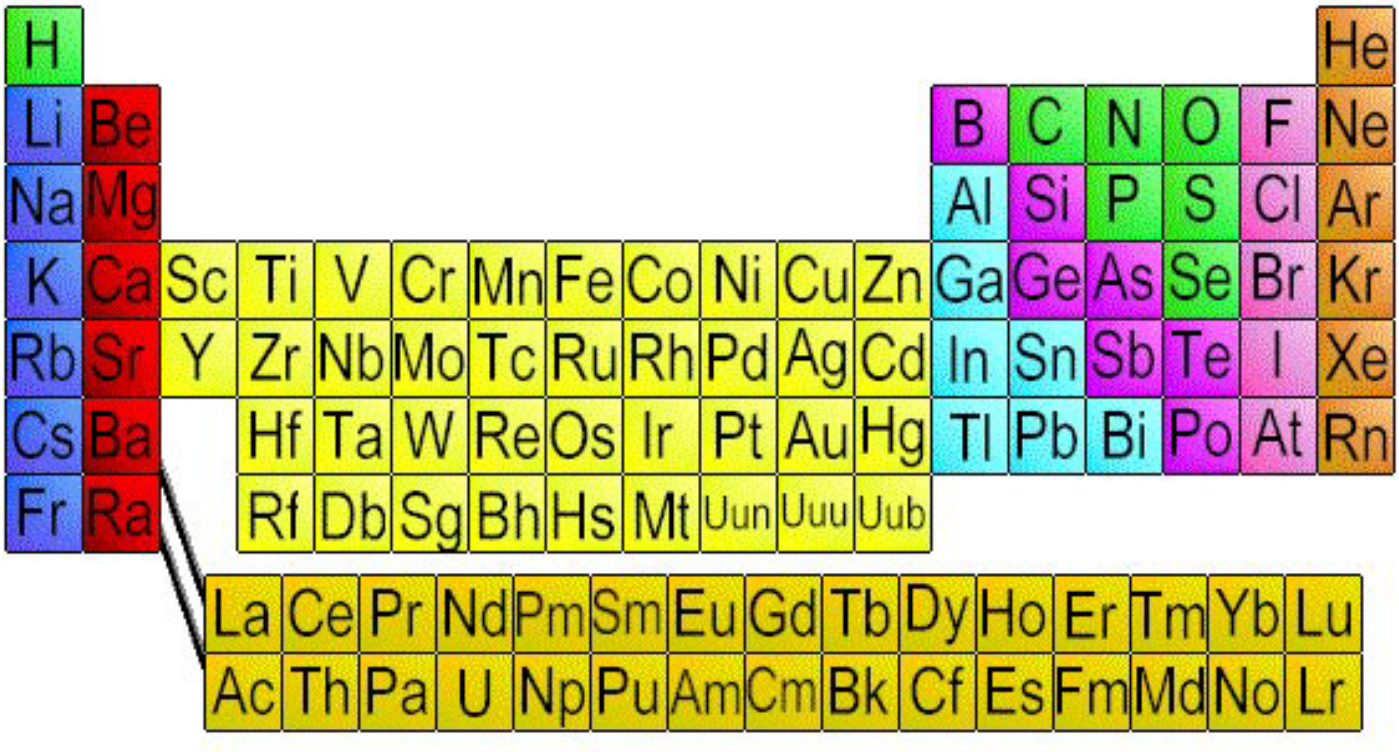
Spotlight on Science Fairs (Franklin Institute Science Museum)
http://sln.fi.edu/qanda/spotlight1/spotlight1.html

The Ultimate Science Fair Resource (links to suppliers of science fair materials)
http://www.scifair.org

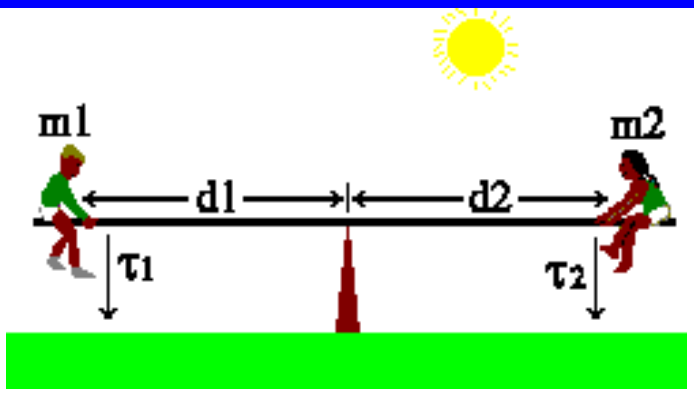
Think about what type of project you want to do.

Experiments, models, and collections dealing with science and mathematics will be accepted.

- You can do an experiment. Think of a question, write a prediction or hypothesis, and set up a test that will help you answer your question. As you conduct your experiment, you record your results, including



Periodic Table of the Elements (Chemistry)



Torque (Physics)

measurements and observations. You then draw a conclusion that answers your question based on your experiment results. It is most important to follow experiment design, collect data, and draw some accurate conclusions based on the data.

- You can build a model-some sort of equipment or device that illustrates a scientific principle. (Kit models are not permitted for any grade level.)
- You can collect biological or geological specimens, arrange them in some order, and give some conclusions about the relationships among the items in your collection.

Select your science fair project topic.

Select a topic that meets the following criteria:

- You're excited about the topic.
- The project will challenge you.
- People visiting the science fair will find the topic interesting.
- You'll be able to do the project within the time periods you have set for yourself (the number of weeks and the hours per week).
- You'll be able to stay within your budget for the materials you need.
- The project can be done in the available space at home.
- Any other people involved in the project (such as test subjects) will be available when they are needed.
- The project can be displayed in a visually appealing fashion.

Do your project.

- Study the problem carefully by thinking through each step.
- Make specific plans, using the scientific method to explore your ideas. (Hypothesize, observe, measure, record, and conclude).
- Read and take notes on your topic.
- Question people who have information or knowledge about your topic. Keep a record of their assistance on the mentorship record required with your project.

Write your research paper.

Students in grade levels 3 through 12 must write a research paper. It should include the purpose of your project, your findings, and your conclusions. It should indicate how you did your work and what references you used. It should include tables, charts, and graphs. It should document ideas, methods, observations, calculations, and other data. The length of the research paper should be whatever you believe is required to discuss your project completely.

Anemone and Clown Fish (Oceanography)

Rhinocerous Beetles (Entomology)

Lightning (Meteorology)

Great Egret (Ornithology)

Build or purchase your display board.

Since construction must be durable, use stiff cardboard, masonite, pressed wood, or some other material that is rigid and stands solidly. If you wish, you may paint it or cover it with cloth or contact paper. Do not use light-weight poster board unless it is mounted on a frame. A tri-fold display works best. Projects without freestanding displays will be disqualified.

Since there will be two projects on each eight-foot table at the science fair, the maximum dimensions of the project are 48 inches wide, 30 inches deep, and 60 inches high. Oversized projects will be disqualified and not accepted for judging.

Inexpensive, tri-fold display boards, custom-sized to your specifications, can be ordered from:

Bay Corrugated Container, Inc.
1655 West 7th
Monroe, MI 48161
Phone: 734-243-5400

The tri-fold display boards used by Bedford Public Schools are white on one side and brown on the other and measure 60" wide by 36" high, with a score 18" from each end to provide for easier folding. Prices quoted on these display boards ranged from $1.50 each for only ten boards to $1.00 each for fifty boards. This does not include delivery. Home-schooling associations may want to purchase a quantity of these for use by their members.

Create captions and include information on your display board.

Make the captions on your display large and the text accompanying them informative. You should have information under at least the following captions:

- Title should be a statement, phrase, or question.
- Purpose (a short statement of your hypothesis if your project is an experiment) should state your reasons for doing the project and indicate what you wanted to find out or discover through doing the project.

Bank Seabass (Ichthyology)

- Materials (if used) should be listed, including their quantities, where appropriate.
- Procedure should be stated in terms of steps you used in doing the experiment or making the model or collection.
- Citations in standard format should identify all the sources you used (at least three), such as books, magazines, newspapers, encyclopedias, Internet sites, and museums. Do not list your mentors here.
- Results/Conclusions (no longer than one page) should support specifically what you have learned or discovered from doing the project. The conclusions should be based on both the purpose and the results and, if the project was an experiment, should state clearly whether the prediction or hypothesis was confirmed.

Create your display.

- Make your display the size necessary for your information, keeping in mind that bigger may not be better.
- Check your written work for neatness, grammar, spelling, and clarity.
- Use pictures, diagrams, tables, charts, and graphs.
- Do not include valuable items with the exhibit. Use pictures or drawings instead.
- Consider using greens and yellows in your display if your project pertains to nature. Use reds, blues, and black if your project is technical.
- Be certain that your name, address, and phone number are on the back of your project. This information must not be visible to the judges.

Carolina Anole Lizard (Herpetology)

Display your project at the science fair.

- You are allowed to display only one exhibit. Team exhibits are not allowed.
- All project equipment must fit in front of the display

Cave of Lascaux (Archeology)

Coma Cluster of Galaxies (Astronomy)

board.

- Place the research paper in front of the display board. It must not have your name on it.
- Place the Mentorship Record in front of the display board. All projects must display this form, whether or not outside assistance was used.
- Live animals may not be exhibited.
- No electrical outlets are available for projects. Design any electrical display to use batteries.
- The use of open flame, flammable chemicals or liquids, or explosive, toxic, or caustic substances is prohibited. Normal safety precautions are required for other chemicals.
- Bacteria and viruses must be in a sealed container.

Aragonite (Geology)

- Containers for water or other fluids must be watertight.

Impress the judges.

Your exhibit will be judged according to the following criteria:

- Scientific Thought (30 points possible) - to what extent quality and depth are evident in your project, if you have handled data properly, and if your conclusions had adequate proof
- Thoroughness (15 points possible) - how completely you covered the problem in your project, considering your grade level
- Skill (15 points possible) - your use of good judgment in the selection of scientific equipment or processes

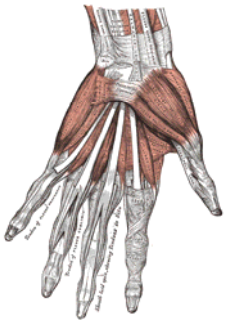
Wolverine (Zoology)

to solve your problem

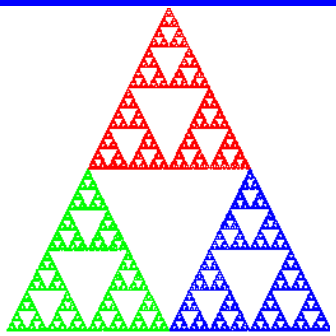
- Creative Ability (30 points possible) - if your investigation shows originality of concept or approach, or if it is a copy of known experiments
- Clarity and Appearance (10 points possible) - if a person with an average knowledge of science is able to comprehend the purpose or goals or general conclusions of your project
- Theme of Science Fair (10 extra points possible) - to what extent your project reflects the theme of the science fair, "Promoting the wise use of science"

You are not to be present for judging. The judges' decisions are final.

Planet Earth (Ecology)



Muscles of Left Hand (Anatomy)



Sierpinski Triangle (Mathematics)

Win an award.

Although awards will be given, the science fair is primarily about learning, about expanding your knowledge.

All entrants who display a project will receive a participation ribbon and a rating of their project.

There will be a 1st, 2nd, and 3rd place award for each grade level.

If there are fewer than ten students in a particular class level, the projects for those students will be combined with the projects of the smaller adjoining class level for judging and awards.

Awards are planned for the best projects in various branches of science-biology (including anatomy, botany, entomology, herpetology, ichthyology, ornithology, and zoology), chemistry, earth and environmental science (including astronomy, ecology, geology, meteorology, and oceanography), mathematics and computer science, physics, and social science (including archeology, anthropology, and psychology). The number of these awards depends upon what contributions have been made to the science fair.

The W.I.S.E. award will be given for the project that best reflects the theme of the science fair, "Promoting the wise use of science."

Think about your project before mailing your entry form. If you change the branch of science or the topic of your project, you may still display your exhibit at the science fair, but your changed exhibit will not be eligible for any awards.

COSI Toledo has offered to showcase the winning entries from the science fair.

Enter another science fair.

If you want to participate in other science fairs, contact the person whose name is provided before you begin your project. Then, when preparing your project for W.I.S.E., be certain to follow the rules of the other science fair you will be entering. The rules for W.I.S.E. are simple since most students are learning how to do a science fair project. Since the rules for the other fairs will be more detailed, you

Tsimshian Totem Pole (Anthropology)

Cymbidium California (Botany)

will need to follow them when entering your project in the other fair. This, of course, should make your exhibit even better for W.I.S.E.

Northwest District Science Day

Eligibility: Students from Lucas, Wood, Hancock, Ottawa, Sandusky, and Seneca counties in grades 7-12

Location: The University of Toledo, Toledo, Ohio

Date: March 31, 2001

This science fair funnels into the State Science Fair at Ohio Wesleyan University in Delaware, Ohio.

Contact person: Dr. Mark Camp, Department of Geology, University of Toledo
E-mail: mcamp@geology.utoledo.edu
Phone: 419-530-2398

Web sites related to the Northwest District Science Day:

http://www.ohiosci.org/sds.htm (The Ohio Academy of Science - Science Day Standards)

http://www.geology.utoledo.edu/upcoming/info99.htm (Northwest District Science Day: General Information)

http://www.geology.utoledo.edu/upcoming/ndsd.html (Northwest District Science Day: Home Page)

http://www.geology.utoledo.edu/upcoming/rules.html (Northwest District Science Day: Rules)

Monroe County Science Fair

Eligibility: Home-schooled students are not eligible to exhibit projects in this science fair.

Tri-County Science & Technology Fair

Eligibility: Students from Hillsdale, Lenawee, and Monroe counties in grades 7-12
Location: Adrian College, Adrian, Michigan

Dates: February 15-17, 2001 **(Note that this science fair takes place before W.I.S.E.)**

This science fair funnels into the Regional Science Fair in Ann Arbor, Michigan.

Contact person:
Kim Small, Science Fair Director
HLM Math/Science/Technology Center
2345 North Adrian Highway
Adrian, Michigan 49221
E-Mail: ksmall@scnc.lisd.k12.mi.us
Phone:517-265-1662

Southeast Regional Fair (qualifying fair for ISEF-International Science and Engineering Fair)

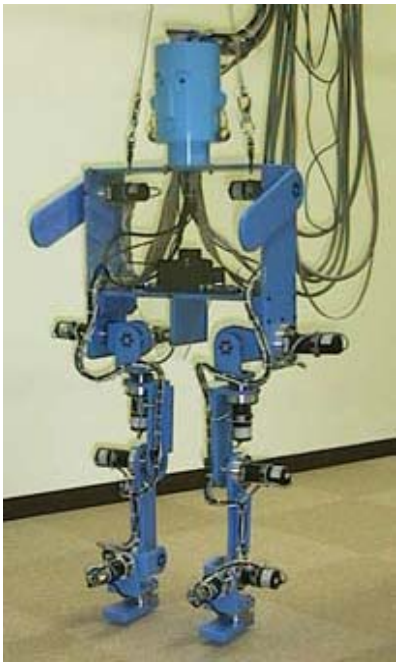
Eligibility: Students from Hillsdale, Lenawee, Livingston, Monroe, and Washtenaw counties in grades 7-12

Location: Washtenaw Community College, Ann Arbor, Michigan

Dates: March 9-10, 2001

This science fair funnels into the State Science Fair in Detroit, Michigan.

Contact person: Kim Small (same as for Tri-County Fair)



Bipedal Walking Robot (Computer Science)