



The South Bay Business Environmental Coalition presents:
**ENVIRONMENTAL
SCIENCE FAIR 5/5/12**
for 5th-8th Grade Students

How to Exhibit Your Project “The Rules”

1. *Maximum Space:*
 - 122 cm table length
 - 76 cm table width
 - 244 cm table height
 - Total exhibit space provided is about 3 ft x 5 ft
2. *Construction:*
 - Must be durable and all parts of the exhibit firmly attached.
 - Provide back support for your exhibit.
 - No attachment to walls is allowed.
3. *Electrical:*
 - All exhibits using electricity must be designed for 110 volts and limited to 500 watts.
 - Use battery power if at all possible.
 - Do not leave any wires or contacts exposed which may cause a hazardous situation.
 - **Please indicate on the entry form if an electrical outlet is needed for your project.**
4. No water or gas outlets will be provided.
5. Only one exhibit allowed per group and one to three students may work on each project. All work must be done by the students.
6. The Environmental Science Fair Committee assumes no responsibility for loss or damage to any exhibit or part thereof. Students assume responsibility for all displayed equipment.
7. The Environmental Science Fair Committee does not condone nor tolerate the mistreatment of animals in students' project work. Environmental Science Fair officials have the right to disqualify projects if an animal or animals are judged to have been put at risk.
8. Live **VERTEBRATE** animals may **NOT** be displayed during the science fair.
9. The Environmental Science Fair Committee reserves the right of refusal of an exhibit that it considers unsafe or unsuitable for public exhibition.
10. **NO** flammable, explosive, or poisonous chemicals are to be left on exhibit. If the student(s) demonstrate(s) to the judges how the experiment works and need(s) chemicals to do so, the student(s) must take the chemicals with them when they leave.
11. A panel of judges will review all entry forms. **The judging panel has the right to disqualify projects which do not fall into one of the four environmental categories.** In addition, the judging committee may select projects to compete in the “Most Innovative Solutions” category.
12. At least one (1) of the project participants must be in attendance the day of the event in order to be considered for an award.
13. All participants in attendance are expected to discuss the project with the judges. Parents/guardians/guests of the participants may not take part in the judging dialogue/process.

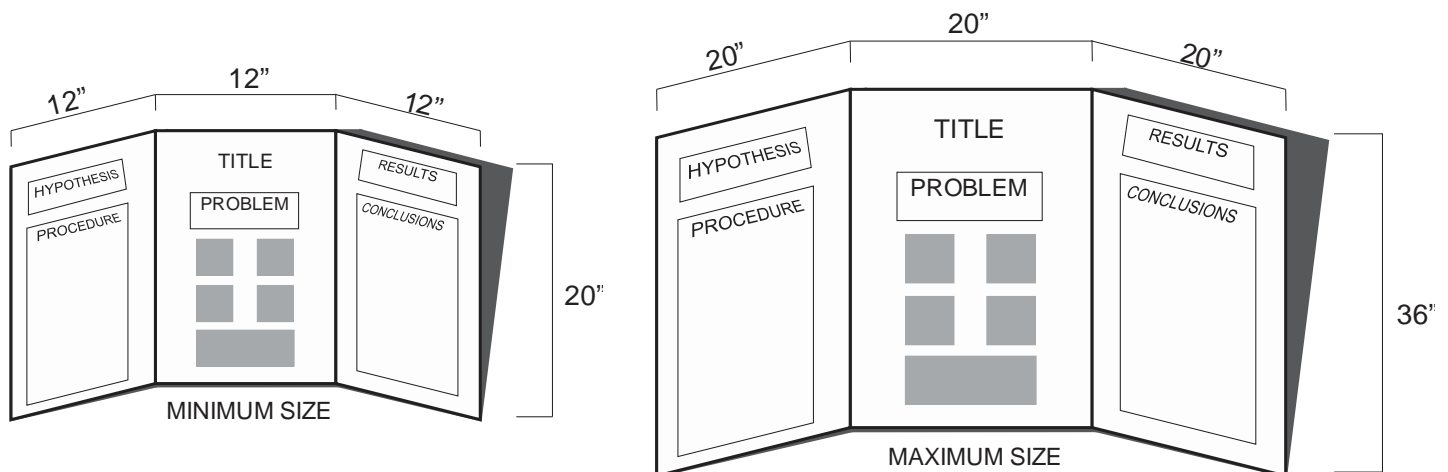


Display Specifications

Three-dimensional reports make concepts more vivid, accurate, and meaningful

1. The backboard should be a 3-sided shape within the size limitations stated below.
2. When displayed, the project should not occupy more than 4 feet of length and 16 inches of depth (see Top View diagram).
3. Backboards may be made of any suitable material that is able to support its own weight (cardboard boxes work well).
4. The center panel should contain the project title (lettering should be clear and large enough for someone to see from a distance) and any visual material (photos, drawings, etc.).
5. Side panels should have supporting material (more photos, drawings, graphs, charts, etc.).
6. When doing an experiment, it is suggested that you state the **Problem** on the front panel, put the **Hypothesis** and **Procedure** on the left panel, and **Results** and **Conclusion** on the right panel.

TOP VIEW





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Project Steps and Awards

The Scientific Process

1. **Research Environmental Issues.** Remember the categories: land, air, water or energy.
2. **Determine a Problem.** State the environmental problem you see in the area of land, air, water or energy.
3. **Study the Issue.** Find out as much information as you can about the specific problem.
4. **Hypothesis.** Propose a solution to the problem. Tell what you think would solve the problem and how you would do it.
5. **Procedure.** Conduct an experiment to test your hypothesis. Record what you do and what you find (your data).
6. **Results.** Use charts, tables, etc., to report the results of your experiment, even if the results turn out differently than you thought.
7. **Conclusions.** State the conclusion you found as a result of your experiment. Was your hypothesis correct? What did you learn? What could be done for further study?
8. **Evaluate.** Reflect on your experiment and consider what you might have done differently to make the experiment better.



Students...Remember to follow the scientific process for your environmental science project.

Teachers...By using the scientific method, your students will learn how to observe, use scientific language, gain critical thinking skills, practice problem-solving, record data, and draw conclusions.

Awards

First, second, and third place trophies will be awarded for each grade for each project category:

- Water Issues
- Land/Natural Resources
- Air Quality
- Energy Alternatives

Awards will also be given for **Most Innovative** from each category for 5th/6th and 7th/8th.

Each team member will receive a goodie bag and certificate of participation!



Examples of Past Projects



Water Issues

- Oil Spills
- Turn off the Tap (Water Conservation)
- Desalination
- Acid Rain
- Recycling Gray Water
- Commercial vs. Natural Fabric Cleaners
- Are Beaches Unsafe When it Rains?
- Clouds and Weather Predictions
- Sea Water on Plants
- Water Purifiers



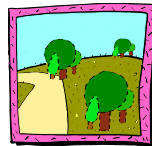
Energy Alternatives

- Active Solar Heating
- Rechargeable Batteries
- Solar Space Heating
- Eco-Safe Energy
- Magnetic Levitational Vehicles
- Solar Furnaces
- Microwave Radiation Safety
- Which Light Bulb Lasts Longer?
- Which Material Insulates Best?



Air Quality

- Air Pollution and its Effect on South Bay Cities
- Different Types of Air Pollution
- Filtering Air with a Smoke Trap
- Oxygen Cycle
- How to Produce Smog
- Oil Refineries and Air Pollution Effects of Airborne Particles



Land/Natural Resources

- Earthworms' Choice of Soil
- Composting
- Controlling Pests Naturally
- Natural Dyes
- Making New Paper
- Recycling's Role in Reducing Landfill Space
- How Fertilizer Can be Destructive
- Effects of Overpopulation
- Effects of Environment on Plant Growth



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Judging Standards

Judging standards will be applied at a grade-appropriate level

1. **Hypothesis.** The student(s) should be able to explain the project's hypothesis/proposal. The hypothesis should be clearly stated, accurately focused on an issue of air, land, water or energy, and appropriate to the experiment. It is best if the hypothesis/proposal is linked to solving an environmental problem.
2. **Research.** Scientific literature is utilized, and the research is thorough enough to show a balanced perspective of the issue. The student should show an understanding of the benefits of the project's proposals as well as possible negative consequences.
3. **Procedures.** The student(s) should be able to explain the procedures followed. The experiment should be clearly designed and organized for data collection and accuracy. Creative and ingenious use of materials and equipment is also considered.
4. **Data Collection and Analysis.** The student(s) should be able to explain their data. Data should be appropriate to the problem and collected over a period of time. The student(s) should utilize appropriate sampling and data collection techniques as well as computational skills to analyze the data.
5. **Results of the Study.** The student(s) should be able to discuss the results of the project. There should be orderly recording and analysis of data, accurate interpretation of data, and use of a notebook consistent with the scientific process. They should recognize that there might be unanswered questions related to the project.
6. **Conclusions/Proposed Solutions.** The student(s) should be able to formulate logical and accurate conclusions from the project and translate their conclusions into a possible solution to an environmental problem. They should be able to explain the significance of the solution they propose.
7. **Application to the Environment.** The project should be clearly linked to an environmental issue, with credit for creativity. The project should be environmentally safe and sound, with consideration for the practicality of the proposed solution(s).

Project Name _____ Grade _____

Location _____ Category _____ M.I.S. Candidate _____

Project Team

1. _____ 2. _____ 3. _____

1. Hypothesis (15 points). Ask them to explain their hypothesis/proposal. Is it:

1. clearly stated?
2. accurately focused on an issue of air, land, water, or energy?
3. proposing a solution to an environmental issue?
4. appropriate to the experiment?

Score

2. Research (15 points). Ask them about the research they did on the issue. Was:

1. scientific literature used?
2. the research thorough enough to show a balanced perspective of the issue?
3. the research thorough enough to show understanding of benefit vs. negative impact on the environment?

Score

3. Procedures (15 points). Ask about the procedures they followed. Did they:

1. clearly design & organize the experiment for data collection?
2. use equipment & materials in an ingenious way?
3. skillfully design the study to yield accurate information?

Score

4. Data Collection & Analysis (15 points). Have them explain their data. Is it:

1. appropriate to the problem?
2. utilizing appropriate sampling & data collection techniques with computational skills to analyze?
3. evident that data was collected over a period of time?

Score

5. Results of the Study (15 points). Have them discuss their findings. Is there:

1. orderly recording/analysis of the data?
2. an ability of student(s) to explain results?
3. accurate interpretation of the data?
4. a notebook with evidence of scientific process?
5. realization of unanswered questions?

Score

6. Conclusions/Proposed Solutions (15 points). Are they able to:

1. formulate logical/accurate conclusions?
2. translate their conclusions into a solution?
3. skillfully design the study to yield accurate information?

Score

7. Application to Environment (10 points). Is the project creative and environmentally:

1. safe?
2. sound?
3. practical?

Score

Total Score

Sample Only to show how Judges will score projects