

# **MADERA SCIENCE FAIR 2012**

## **Grades 4<sup>th</sup> – 6<sup>th</sup>**

**Project due date: Tuesday, March 27, 8:15 am**

**Parent Night: Tuesday, April 3, 6:00–8:00 pm**

### **Why participate in the Science Fair?**

Science fair projects give students hands-on experience in use of the scientific method of problem solving. Knowledge of this method is a California State Science Content Standard.

***At Madera, we encourage all students to participate in the Science Fair.***

### **What kind of project can I do?**

4<sup>th</sup> through 6<sup>th</sup> graders participating in the science fair must enter a problem solving project or an experiment; no models or demonstrations at these grade levels. These projects give students the experience of demonstrating and practicing their knowledge of the scientific method of problem solving. Students should be able to share their understanding of the project in their own words and be able to explain the results that they achieved.

### **Where can I get ideas for projects?**

Some of the most interesting science fair projects are simple, age appropriate, original experiments that come from the students own ideas. These projects may answer questions and test a hypothesis in an area of interest such as a hobby, daily activity, cooking, or sport. Thus, your project may come from your own toys, kitchen, or backyard! Maybe you have a question about how to get the best result in a task, or about how something works. Or, maybe you think you know how to get the best result, and you could run an experiment to test this hypothesis and see if you are correct. Once you have an idea, select one independent variable (the thing you will change in the experiment), and one or more dependent variables (the things you will observe and measure). See, for example:

[www.sciencebuddies.org/science-fair-projects/project\\_variables.shtml](http://www.sciencebuddies.org/science-fair-projects/project_variables.shtml)

The internet, books, magazines, and science museums are also good resources. Remember that there are many different areas of science such as.

- Physical: gravity, magnetism, electricity, motion, color and light, chemistry
- Earth: temperature, weather, energy, pollution, soil
- Biological: plants, food, humans, and animal behavior.

### **Who can help?**

Families can assist students by offering guidance, helping gather needed materials, and providing supervision. The Science Fair Committee will be available to make presentations in classrooms that explain the Science Fair Process, share previous projects, answer questions, and go over the elements of an Inquiry Based Project. The Committee can also provide Mentors that can work with students / families (during or after school). To request mentoring, please leave a note in the Science Fair Box in the School Office with your name, grade, and phone number.

## **How are projects judged?**

At least two volunteer judges from our scientific community will independently rate each project on a rubric in the following areas:

1. Project design
2. Observations and data
3. Scientific accuracy
4. Clarity, writing, effort, and form
5. Charts and graphs, visual aids, attractiveness.
6. Use of Inquiry Process: Question, Hypothesis, Introduction, Materials, Procedure, Results, Conclusion

All 4<sup>th</sup> – 6<sup>th</sup> Grade projects will receive a place ribbon and a certificate.

Students should be able to share their understanding of their project in their own words and be able to explain the results that were achieved.

**There is no District Elementary Science Fair. No projects will be sent to another level.**

## **Tips for getting started, doing and finishing**

- Set target dates for completing certain parts of the project – the earlier the better!
- Make sure you have plenty of time to finish the project. Some projects may take a long time for results to appear. Know how long the experiment will take and schedule accordingly.
- Get ideas from family, friends, books, magazines, Internet, videos, etc.
- Do your research early so that you can adjust your question, hypothesis, or procedures if needed. Remember to write down the sources you used.
- If you need help getting materials or taking photos, let your family know as soon as possible.
- Keep organized! Put all of your work together in a folder of a large envelope and keep it in a safe place.
- **Repeat the experiment at least twice.** This lets you compare the results from each time to make sure that your results were accurate. Also, making a conclusion from similar results is a lot easier. Results that are not similar may point to a flaw in the procedure.

## **Science Fair Project Checklist:**

- **Student's name, grade, room number and teacher's name must be written on the BACK of the display. Nothing on the front may identify the student, including photos.**
  
- Projects must follow the scientific method. The project should include the following:
  - ❑ Title
  - ❑ Question
  - ❑ Introduction
  - ❑ Hypothesis
  - ❑ Materials
  - ❑ Procedures
  - ❑ Results
  - ❑ Conclusions

Please use this list to make sure that your project is complete. The **Science Fair Project Worksheet** guides students as they do their projects and covers what is required on your display board (available at [www.maderapta.com](http://www.maderapta.com) or as a hard copy in the school office).

- Science projects are typically mounted on a display board made of heavy cardboard or poster board. **They must be freestanding and must not exceed the following dimensions: 36 inches high, 48 inches wide, and 15 inches deep (standard size display board).** Display boards are available at most office supply stores. Projects mounted on a poster board must come with a display stand.
- **If you are using photographs, they should not reveal the identity of the student or student's family.**
- Props are discouraged, and should be replaced by photographs when possible.
- Dangerous chemicals, open flames and explosives may not be exhibited. All projects must be durable and safe. Moveable parts must be firmly attached.
- The main work on the project must clearly be understood and done by the student.
- Permission to use live animals (including humans) in a project must be obtained from the Science Fair Committee, or your child's teacher. Project idea must be presented to obtain permission.

**See Science Fair Entry Form.**

## **Sample Science Fair Projects – these are just a few ideas**

1. What is the effect of turning a young plant upside down as it grows?
2. Will seeds germinate faster in soil or in a plastic bag with damp cotton balls?
3. Does temperature influence yeast cell reproduction?
4. Do different sweeteners influence yeast cell production?
5. Are heat conductors also electricity conductors?
6. Does changing the type of insulation affect the temperature of a container?
7. Does temperature affect how high a ball will bounce?
8. Does the weight of an object affect how fast objects slide down a ramp?
9. Does the type of surface affect how high a basketball will bounce?
10. Does the speed of music affect a person's heart rate?
11. Do you really need that salt to make ice cream?
12. What kind of fruit rots fastest? Does the temperature matter?
13. Who has a faster reaction rate – children or adults?
14. What affect does salt have on the properties of water?
15. Which materials are better at keeping things cold? Keeping things warm?
16. What is the affect of detergent on pond water? (Use containers of pond water. Do not pollute the pond)
17. What is the best way to remove bacteria from your hands?