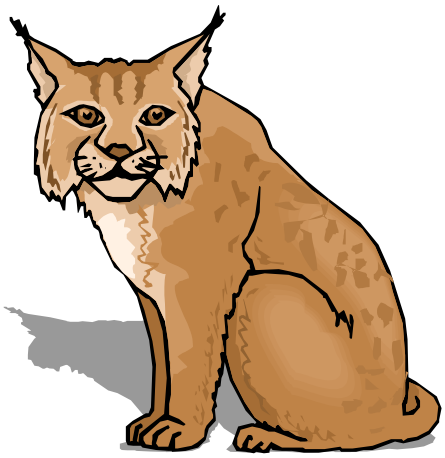
Baldwin Elementary Science Fair Packet 2016-2017



IMPORTANT DATES

All projects due: January 17, 2017

Project Judging & All School Viewing: January 26, 2017

Family Viewing: Jan. 26

Austin Regional Elementary Science Festival: February 17 - 18

Baldwin Science Fair Coordinators:

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Checklist for a Successful Project and Related Information

The Science Fair Team has compiled information from the Austin Energy Regional Science Festival as well as helpful web sites and our timeline in this packet.

If you are interested volunteering to help with this wonderful event, please contact Dora Quiroz at dora.quiroz@austinisd.org or Amy Spencer at amy.spencer@austinisd.org

Review the Science Fair Information Packet to gain an understanding of the **rules and expectations.**

- ☐ Ensure that the project has each of the display **board elements** indicated for the type of project being entered, and that each of these elements are clearly and distinctly labeled on the display board. (example: Title, background, hypothesis, etc.) **The required elements vary with the type of project**.

- ☐ For best results, review the judging criteria indicated for the type of project being entered. (experiment, exhibit, collection).

- ☐ **Complete the registration form on the last page of this packet and attach it to the center back of the project board**.

- ☐ Ensure that the project has **no identifying characteristics such as names on the front of the project**. Photos that are added to the display **should not show the child's face**. If identifying characteristics are present prior to judging, volunteers will ensure that these are removed or covered up.

- ☐ Ensure that there are **no loose items** associated with the project. Only the science boards can be displayed.

- ☐ Students will present their projects in class. Teachers will screen projects for the required elements.

Volunteer judges will score the projects using the Austin Energy Regional Science Fair Rubric in a closed session **Thursday morning**.

Following the judging, **highest scoring projects** will be moved to the stage for viewing and will continue on to participate in the Austin Energy Regional Science Fair. All **other projects** will be on **display in the cafeteria** grouped by grade level.

Students will view the fair with their classes. Family viewing will take place after school at a time to be announced in the near future.

All participants will receive a **BALDWIN SCIENCE FAIR** certificate.

As kids and parents think about Science Fair projects, they sometimes wonder how to pick a topic - not how to find an idea, but how to decide if the idea is a good one. Here are some thoughts:

1. **You are interested in the topic** - it's something you like to think about.

2. **You can do a test to find an answer to a question**.

A good Fair project is an experiment - that means it's a test to find an answer to a question you have. For example, if you are interested in bugs and you saw some ants moving real slowly once on a cold day, you might test to see what effect temperature has on the rate at which bugs move. You'd get some bugs, find a way to make their container a little colder than normal and measure how fast they moved somehow. Then you'd make their container a little warmer than normal and measure what happened then. Don't do demonstrations or simple reports - those don't use the scientific method. They are just showing what you know about something. For example, a diagram or model of something with no test/experiment.

3. **You can do it with only a little help from parents, teachers and friends**.

The reason to do a project is because it's fun and you will learn something you didn't know before. Having someone else help too much takes away some of your fun and you don't learn as much. Your project doesn't have to be perfect, just neat and following the scientific method. Don't be afraid to ask for help if you really need it.

4**. It doesn't hurt or scare people or animals, including you**.

It's not only a bad idea, it is also against the rules of our science fair and of the regional science fair to hurt or badly scare people or animals as part of an experiment. You also may not use dangerous materials in your project.

5. **It's a project that, even when you are done with it, makes you think of new things you want to know**.

One way to tell if you have a good project is to see if the results make you wonder about other things. Did doing the project, or reading or seeing what happened make you think of other questions you are curious about? That's a great project!

1. Look at list of **science categories** (Pg. 9) and pick one that you are interested in, then narrow that down to a project. **Use your experiences.** Remember a time you noticed something and thought "I wonder how that works?" or "I wonder what would happen if..." then turn that into a project.

2. Check the science section of the school **library**. Browse and look at book titles, then look inside the ones that look interesting to you. Also thumb through encyclopedias and magazines. Good magazines for ideas are: National Geographic, Discover, Omni, Popular Science, Popular Mechanics, Mother Earth News, High Technology, Prevention, and Garbage. Perhaps go to the downtown Library.

3. Think about **current events**. Look at the newspaper. People are hungry in Africa because of droughts - a project on growing plants without much rain, which types grow best with little water? There is a hole in the ozone over Antarctica - how can we reduce ozone? Consider a project on non-aerosol ways to spray things. Oil spills- How can we best clean them up? Maybe a project on how to clean oil out of water.

Add to Others Ideas:
Look at sample projects, look at this list, look at projects in books or projects from last years science fair - then add your own questions or ideas to them.

Don't just use these ideas. Take these ideas and add something of your own.
What material is the best insulator?
Do soap bubbles last longer on warm or cold days?
Are hot air balloons different from blimps?
What is the best method, other than heat, to melt ice?
What effect does oil have on water plants?
How can a tomato plant be grafted to a potato plant?
On which type of soils would it be best to build a house?
How do plants react to different kinds of music, different light, colors, and different neighbor plants?
What is the best way to dispose of paper?
Do plants move?

Write a good scientific question by using the sentence starters below...

What is the effect of _____ on _____?

(such as…detergent / germination of seeds or temperature / the volume of air)

How/to what extent does the _____ affect _____?

(such as…humidity / growth of fungi or color of a material / its absorption of heat

Which/what _____ (verb) _____?

1. Select a Topic A Science Fair Project is a test you do to find an answer to a question, not just showing what you know about something. Consider questions you ask about the world around you. Do you ever wonder why something happens or what would happen if….? Use your natural interests and curiosity to come up with a project.

2. Follow the Scientific Method to conduct your experiment.

A. What are you trying to find out? Ask a **scientific question** that you do not know the answer to.
B. **Research** your topic to gather background information. You will need to rewrite what you have researched and learned in your own words. You MAY NOT copy and paste this from a source. Keep track of the sources you use for your references section.
C. State your **Hypothesis** - your guess about what the answer will be based on your research.
D. Select a **variable** (something you will change/vary) that will help make sure your experiment is authentic. An experiment must contain at least 2 groups. One is the control group and the other is the variable.
E. Write all the words that are new **vocabulary** and give definitions. Vocabulary words should be **all** words that are specific to your experiment. Even if you already know the words, consider a younger student may be learning from your project.
F. Write the **procedure** you will follow to complete your experiment. Be specific in the steps you will follow and explain everything you need to do.
G. Run your controlled **experiment**. Take pictures to include in your board at all stages of your experiment.
H. Record what happened during your experiment. Put the **results** in graphs and/or charts. A good experiment must have results that you can clearly measure.
I. Explain your **conclusion**. Did the results of your experiment match your hypothesis? What was different? Explain what may have surprised you and what you learned. Give as much information as you can about your experiment and the results you obtained.
J. Write your **references and acknowledgments**. Give credit to whoever helped you as well as a bibliography for the resources you used.

3. Construct a Display Board It has to be neat, but it does NOT have to be typed. Make it fun, but be sure people can understand what you did. It's nice to make your board attractive, but just pretty isn't enough! Make sure you followed the Scientific Method and completed each part of the experiment. ***Everything*** that goes on your board **MUST BE IN YOUR OWN WORDS**. You may not copy and paste any part of your work.

Planning Sheet

Student's Name _____

Complete this page as you think about your project. You may wish to show it to your teacher. He/she may have some additional ideas or suggestions for you.

Project Title: _____

Project Category (circle one):

Biological Science Physical Science Earth/Space Science Consumer Science Mathematics

Project Title: _____

Explain your idea:_____

_____

_____

_____

Hypothesis: _____

_____

_____

_____

Materials list and where you will get supplies:

_____

_____

_____

_____

_____

_____

Do I have special needs? (Ex. Electricity, adult assistance): _____

_____ ___

Planning Sheet

Procedures: _____

_____

_____

_____

_____

_____

_____

_____

_____

How will I record my data? And when? _____

_____

_____

Do you have any concerns or problems? _____

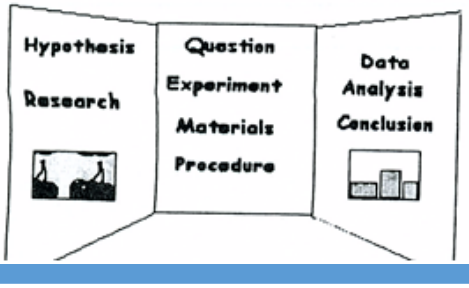
_____

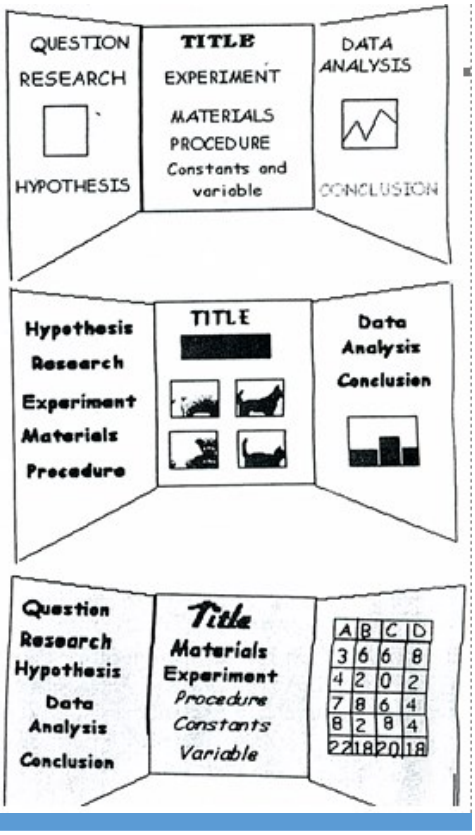
_____

On a separate sheet of paper, draw a picture of your proposed blackboard. Clearly draw and label all the sections that are required. It is not necessary to have all details included on this drawing, however, the FORMAT must be shown. See examples below.

There is no correct way to set up your board. It must, however, make sense and follow the steps of the scientific method. Remember:

- If you use a title, <u>you still need the question</u> (problem statement).
- <u>We read from left to right and from top to bottom.</u> Group topics that go together like questions, research, and hypothesis; materials and procedures; analysis and conclusion.
- Put pictures and graphs where they fit best to make most sense.
- Make sure you proofread any written work.





1. Participation

Students **must be in grades 3 – 6** to participate in the Elementary Division of the Austin Energy Regional Science Festival.

Project Forms

All Elementary students must complete an **Elementary Project Research Form** and submit it with their registration packets.

2. Projects That Are Not Allowed

No student in the Elementary Division will be allowed to design or conduct any science project that involves

- Firearms, explosives or discharge air pressure canister devices (i.e. potato guns)
- **Growing bacteria or mold of any type : NOT ALLOWED**
- Causing pain, suffering, sickness or death of an animal
- Any activity or substance that presents a danger to the student or the environment, including hazardous chemicals or radioactive materials

3. Display and Safety Guidelines

All student projects must follow the guidelines listed below to be allowed to display in the festival exhibit hall.

Items Not Allowed: Project display must not exceed 48 in. wide x 16 in. deep.

- **No organisms; living, dead or preserved (no plants or animals)**
- **No chemicals, crystals, liquids (including water)**
- No human/animal parts or body fluids (for example, blood, urine)
- No human or animal food • No poisons, drugs, controlled or hazardous substances
- No sharp items (for example: syringes, needles, pipettes, knives, tacks, nails)
- No glass or glass objects unless encased or an integral and necessary part of a commercial product (for example, a computer screen)
- No pressurized tanks or containers
- No batteries with open top cells (so that battery acid can be seen)
- No dirt, soil, gravel, rocks, sand, waste products, etc.
- No project, device, activity or substance that may be deemed hazardous to student health or safety
- No photographs or pictures of animals or people in surgical techniques, dissections or necropsies.

Discouraged Items

- Expensive, breakable or fragile items

(More on next page)

Allowed and Encouraged Items

- Photographs, drawings, stuffed animals/artificial plants or imitation (play) food should be used to depict the prohibited or discouraged items.
- Students should always plan on taking photographs of their project steps as a visual explanation of their effort. Students must ask permission before photographing any other individuals for display on project.
- Be sure to properly credit/acknowledge all sources of graphics and photographers on the display board (Photograph taken by . . .).
- Students may use a computer and printer for written parts of the project.
- Electrical projects may use batteries as sources of electricity.

5. Display Board

Project display should be on sturdy tri-fold board available at local craft and office supply stores. Written material, drawings and pictures should be securely attached to the display board.

Projects will be displayed on tables that are 36 inches high. Size of display area may not exceed the following measurements: 15" deep, 48" wide, and 72" high. Due to space limitations, displays that exceed these measurements cannot be accepted.

6. Electricity for Your Display

- Electrical projects may use batteries as sources of electricity.
- If a project requires electricity, indicate this need when registering the project online.

7. Project Organization at Austin Energy Regional Science Festival

(See Project Types & Judging Criteria in this document or on the website for more details.)

A. Grade Level: Each project is categorized by grade level or grade level equivalent

B. Project Categories: There are two types of projects that students may enter. These categories are explained in detail later in this guide.

(1) Exhibit: Model or Display

(2) Experiment

Note: Many students have difficulty discerning the difference between Exhibit and Experiment projects. Remember, an Experiment follows the steps of the scientific method. It clearly asks a question to which you do not already know the answer without testing. An Exhibit is an explanation of how or why something works. It reveals details about the topic. An Exhibit is an explanation, not a question.

(More on next page)

8. Parental Help

Some students are fortunate to have parents who have time to help them. However, parents who do the thinking or build the project for students do not really help them. Parents are encouraged to help their children in these ways:

- Read and discuss the "Rules for Participation"
- Select projects which are appropriate for the child's age and grade level
- Plan and manage project work, documentation and clean-up times
- Take your child to the public library or other places for research
- Help draw straight lines for a young child
- Listen to your child's oral explanation of the project
- Ensure the child's safety

Students must list any parental help in the References and Acknowledgements section of the project.

9. Registration Deadlines

All online registrations must be submitted at www.sciencefest.austinenergy.com **by 5:00 p.m. on Thursday, February 2, 2017**. All paperwork must also be submitted to our office **by 5:00 p.m. on Thursday, February 2, 2017**.

Due to space limitations, late registration will not be permitted.

Note: If you were selected to participate in the Austin Energy Regional Science Festival, you will be receiving important information and paperwork to be completed from Mrs. Quiroz. Please make sure to complete all paperwork and return to Mrs. Quiroz on time before the given dateline.

AN EXPERIMENT/ENGINEERING PROJECT

How well does this project address the criteria?

	LEAST ◄				HIGHEST ►
• Title of Experiment – Student states project title *(No = 1, Yes = 2)*	1	2			
• Problem – Student asks a testable question or states problem	1	2	3	4	5
• Definitions – Student knows meaning of the words in the problem	1	2	3	4	5
• Hypothesis/Engineering Goal- Student predicts results or states goal	1	2	3	4	5
• Background Info – Student provides written research information	1	2	3	4	5
• Materials – Student lists items needed for test	1	2	3	4	5
• Procedure – Student describes steps of test	1	2	3	4	5
• Results – Student describes what happened; tables and graphs display data	1	2	3	4	5
• Conclusion – Student answered the question posed in the problem	1	2	3	4	5
• References and Acknowledgements – Student credits all sources	1	2	3	4	5
• Interview Skills – Student's verbal communication level	1	2	3	4	5

ID #_____
(to be assigned)

Baldwin Elementary
SCIENCE FAIR BOARD IDENTIFICATION FORM

Complete this form and glue it to the center back of your display board.

Name:_____Teacher:_____

Grade: _____

Project Title _____