

**Rockwood
School District**

**Science Fair
Guide**

INQUIRE
EXCITE
CHALLENGE

NEW & IMPROVED PROCESS!



Rockwood Science Fair Categories

You may enter one of four different categories of the Rockwood Science Fair. All categories utilize the same judging criteria. Ribbon placement is based on a standard Rockwood point system making the number of projects in any one category at any one school not a factor in your chances to earn a particular ribbon.

The Family Category

Is the whole family excited about participating in the science fair? This is your chance to work with mom, dad, grandma, grandpa, or any other family member as equals. All parts of the science fair project, including parts completed by adults will be judged. All parts of the project must be understandable by all participants and all participants should have a significant part of the project. Participation of each family member should be noted in the logbook.



The Individual Category

This is the students chance to show their expertise in researching, experimenting, and presenting their science fair project with little if any parent participation. Parents are welcome to give advise on all parts of the project but should avoid participating in the experiment or display set up.



The Group Category

This category is for a group of 2-4 students. Students need not be in the same grade level, class, or family. A small amount of adult help may be expected, particularly in the role of an advisor. The logbook should be used to log each members participation in the project. The entire project should be understandable to all group members.



The Class Category

Often, a classroom teacher will choose to enter a classroom science activity into the Science Fair as a Class Project. It is assumed that all student participating in the class science fair project have participated fully in designing and carrying out the project. Even though the students have participated under the direction of the classroom teacher, they fully understand the process and the results of the class project. This category is open to all grade levels. If independently entering the Greater St. Louis Fair please be aware that classroom projects are only allowed in grades K-2. Participation in a class project does not exempt any student from entering another project in another category.



Please Note: If you are interested in moving on to the Greater St. Louis Science Fair you can have no more than 3 in your group (unless a class project). The family category is a Rockwood category only and may not move onto the Greater St. Louis Science Fair.

About Experiment Science Fair Projects

Begin by exploring a something scientific you are interested in. Play with it, try out different things, and manipulate the conditions around it. Get to the point where you understand the material better. Then begin to observe and notice how the material behaves under certain conditions. At this point, your brain will start asking "What if...." questions. One of these questions is what you will use to design your experiment. It is called the "TESTABLE QUESTION".



Once you have a testable question, you have some decisions to make:

- How do you design the experiment to answer your question?
- What measurements do you need to take to record your results?
- How do you use a CONTROL in your experiment? A control is a part of your experiment that you don't change so that you can compare the results of your test.
- Think about what might happen in your experiment. This is called a HYPOTHESIS. Write down what you think BEFORE actually doing the experiment. Your teacher can help you with the planning part of your experiment by giving advice or ideas that might help.

Now that you have planned your experiment, gather all the materials you will need to do the experiment. As you begin the experiment, make detailed observations of what is happening. Take your measurements carefully. Keep carefully written notes about what you do and how you do it. These notes should be included in your logbook.

Then, **REPEAT THE EXPERIMENT** at least two more times. This is required for all students in grade 3 and above. Record your results. ALL scientists repeat their experiments; you should repeat yours as well to make sure your results are valid.

When you have all of your results, you need to design the way that you will report your results. Many students use graphs, charts and written summaries of what happened in the experiment. Display all your results and measurements, even if it doesn't match what you thought was going to happen.

Look again at your HYPOTHESIS and at the results of your experiment. Think about what happened and why it happened that way. Write down the reasons you think the results happened the way they did.

For the final display of your experiment, write down everything again, this time neatly. Write your TESTABLE QUESTION, HYPOTHESIS, your MATERIALS, the description of HOW (the method) you did the experiment, the RESULTS with a copy of any GRAPHS and charts you made, and write the REASONS you thought the experiment turned out the way it did.

Paste it on your display along with any photographs or drawings you have made. You might also want to display a part of your experiment and some of the measuring tools you used. Be sure to read the rules of the Science Fair to make sure what you bring in to display is safe.

About Model Science Fair Projects

Choose any scientific subject where a model and demonstration would give you information on how an object works. Please **DO NOT** choose a commercial plastic model or replica that doesn't have moving parts. Build **YOUR OWN** model out of inexpensive and easily available objects. For example, a working model of catapult may be made using wood, rubber, and string. Marbles and a ramp can show one of Newton's laws of physics.

To begin, research your object and how it works using library resources. Decide how you could show this using a model. Make a plan on paper of your model to get the best working device you can. Include this drawing in your log-book.



In your display, describe how your model works and how the device you've built resembles the actual natural object or event. Be prepared to demonstrate the working model for the judge. A description of your library research, your materials used and a copy of the plans you drew to construct your model should also be included in your display. List any sources you found that helped you design your model. If your model is an invention or a new measurement tool, please explain on your display its function, why you invented this device, why it is necessary and what problems it will solve.

REMEMBER, models that are artistic displays of natural objects, like volcanoes and solar systems, and don't **DO** anything, are not acceptable entries in this Science Fair. Likewise, purchased plastic models made from kits are also not acceptable.

About Collection Science Fair Projects

Choose any natural object for your collection, that is possible for **YOU** to gather or photograph, and that you have an interest in. Please do not use a commercial collection that you have purchased, or use plastic toys. Once you have collected several objects for your collection, use whatever sources you can to find out information about your objects. Consult sources to find the scientific names for your items, of your collection. You should also write down information that tells about your objects.

Organize your collection according to the information you gathered. For example, in reading about rocks, you found that there are three types; organize your rock collection into those three types. Carefully and neatly label each item in your collection with the following information: scientific name, date collected and geographical location collected.

On your display, include information about the items in your collection; what they are, and the reason you organized the collection as you did.

For objects that would be physically difficult to display (like snowflakes, tree bark, or geologic land forms) clear photographs taken by the exhibitor can be substituted, as long as they are properly labeled. Commercial photographs should not be used in place of your own photographs.



About Invention Science Fair Projects

Think of a need that exists for people in general, or a person with a specific needs. Think about a device that could make a difficult task easier. Think of an inconvenience that could be made easier with a simple device.

Once you have thought of your idea, plan out how to make it by writing your ideas into logbook. Draw your plans, measurements and blueprints into this notebook. Every time you work on your project, you should summarize the things you did in the notebook. You should also list all materials you used and/or tried in the construction of your invention.

Next, build your invention out of sturdy materials that can be handled and operated by you and science fair judges. Your invention **MUST WORK** at the time of the judging. Test your invention for "bugs" (things that won't make it work right) and reliability.

Finally, prepare your display for the invention. Please include: Need: Why you invented the device. Description: What it does. Use graphs, pictures and visuals. Be thorough, but concise. Procedure Thoroughly describe step-by-step instructions on operating your invention. Before writing this down on the display board, test the instructions on a friend. Make sure they can follow the instructions by just **READING THEM**. List of materials: Do not forget anything, including what you tried and eventually used.



What's NOT a Science Fair Project?

- A book report
- Art project based on a scientific topic
- Information copied from encyclopedias or the internet and pasted onto a display
- A model or mock-up without investigations
- A collection of unlabeled objects without further research
- A commercially purchased kit.
- An experiment copied from a book and repeated without a testable question or understanding the results



Rockwood Science Fair Rules

Read Several Times!



- The science display must show that the student carried out a science related study that began with a testable question or problem. Parents may help advise (or be a part of the project in the Family category); however, the student is responsible for knowing all aspects about the project.
- No paragraphs downloaded from the internet and pasted onto your display are allowed. Photos downloaded from the internet are allowed, but must be given credit.
- The science display must be **NO LARGER** than 3 feet wide by 2 feet deep by 6 feet high and must stand by itself. An attached base and separate title board are not required but allowed. You may now bring acceptable objects from your project to display in your 3 foot by 2 foot space as long as all parts are contained in that space.
- **NO** live or dead animals may be displayed. Any work with animals or human subjects will be safe for the subjects and of a humane and ethical nature. Dissection projects or anything that harms a living thing is never allowed.
- All experiments done by students in grade 3 and above must be repeated more than 3 times. All references and sources used must be given written credit on the project and in the logbook.
- **NO** dangerous or poisonous chemicals, explosives, or exposed electrical wires carrying a high voltage current may be displayed. Plugs will not be available. Any chemical used must be widely available at a grocery store and may not be of flammable nature.
- **NO** bodily fluids of any kind are allowed.
- **NO** objects that are prohibited by everyday school rules are allowed on or near your display.
- **NO** names or pictures of any participants will be allowed. First place winners will have their projects identified at the district wide Science Expo in February.

PLEASE NOTE: If your project is moving onto the Greater St. Louis Science Fair you can not take any models or props with you. You may have them during our fair.

Another Option....The E-Fair

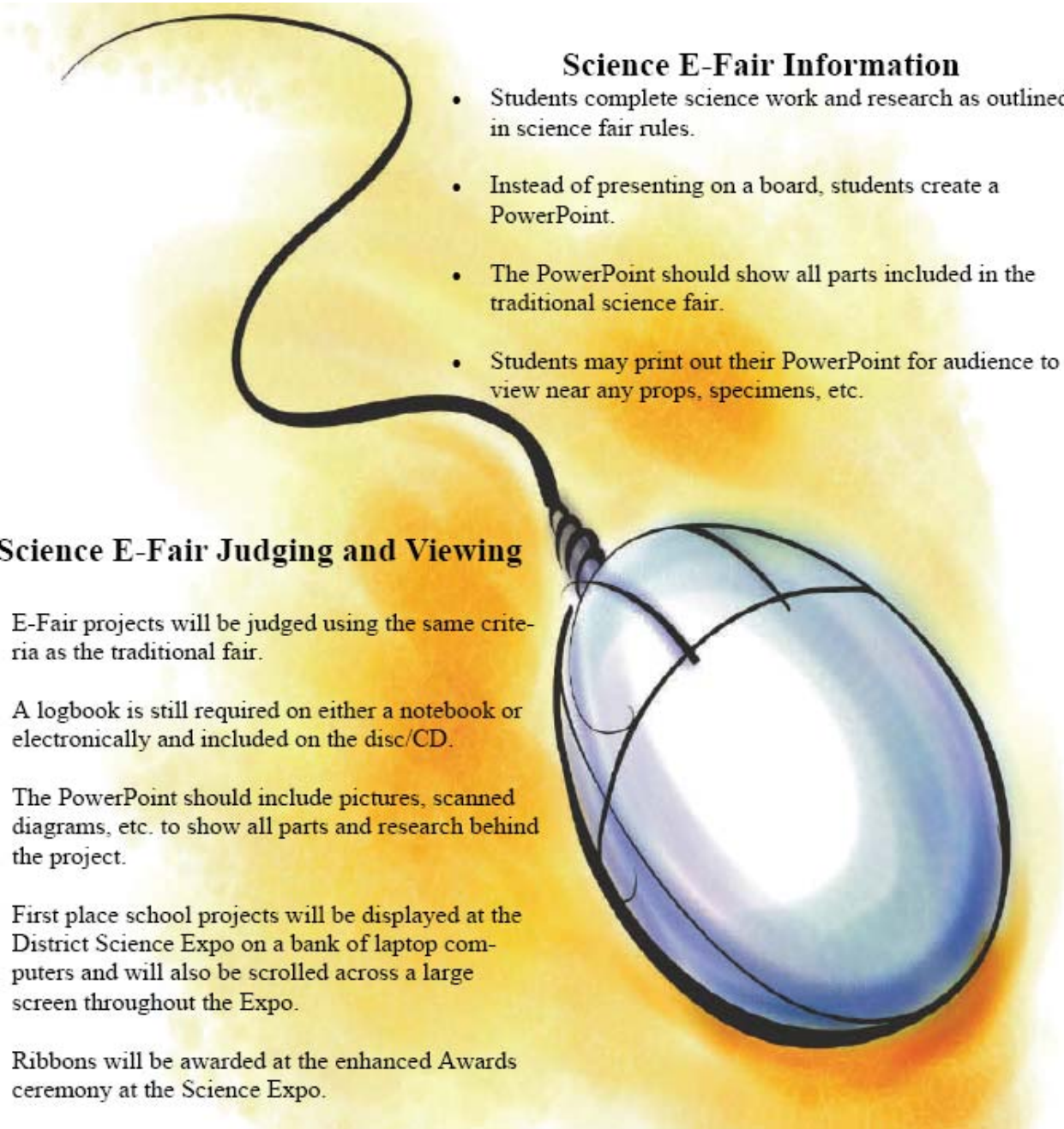
Both the Rockwood Science Fair and the regional Greater St. Louis Science Fair are now accepting electronic science fair projects! So if you like science and you like technology consider the E-Fair!

Science E-Fair Information

- Students complete science work and research as outlined in science fair rules.
- Instead of presenting on a board, students create a PowerPoint.
- The PowerPoint should show all parts included in the traditional science fair.
- Students may print out their PowerPoint for audience to view near any props, specimens, etc.

Science E-Fair Judging and Viewing

- E-Fair projects will be judged using the same criteria as the traditional fair.
- A logbook is still required on either a notebook or electronically and included on the disc/CD.
- The PowerPoint should include pictures, scanned diagrams, etc. to show all parts and research behind the project.
- First place school projects will be displayed at the District Science Expo on a bank of laptop computers and will also be scrolled across a large screen throughout the Expo.
- Ribbons will be awarded at the enhanced Awards ceremony at the Science Expo.



Where Do I Start?

THREE SIMPLE STEPS!

1. Decide on what type of project you wish to complete.
2. Download that project's rubric from the science fair website.
3. Use that information and the information in this packet to complete your project.

The rubrics on our site are the IDENTICAL scoring guides that the Greater St. Louis Science Fair will be using. You can see exactly how the projects will be judged.

HELPFUL LINKS

www.RockwoodScience.com

www.jracademy.com/GSLSF/