Ruskin 2019 Science-O-Rama Science Fair

February 11  Science Fair School Assemblies

February 11  Science Fair permission slip distributed to students

April 4     Last day to pick up display board from the Science Lab

April 9     Science projects due. After you check in your project in your classroom, move the project to the Multi. The Ruskin Multipurpose Room is open for after school drop off from 2:30 to 3:30 p.m.

April 10-11  Take late projects to the Science Lab for sign in – do not take the project to the multipurpose room.

April 11  Ruskin Science Fair opens to viewing by the students, parents and community during the Ruskin Open House.

April 12  All science projects are taken home.

All forms and the handbook is available on the Ruskin website:
https://ruskin.berryessa.k12.ca.us/

Acknowledgement

Ruskin Elementary School would like to acknowledge the Synopsys Silicon Valley Science and Technology Outreach Foundation for their generous support of the Ruskin Science Fair. The Foundation, headquartered in Mt. View, champions activities and programs that enhance science and math education. The Foundation’s Science-O-Rama program provides support for high school and middle school science fairs. The Foundation is also a sponsor of the regional science fair, “The Synopsys Silicon Valley Science and Technology Championship.”

The Synopsys Outreach Foundation supports the Ruskin Science Fair at the elementary school level. They are providing Ruskin Elementary School with display boards, ribbons, certificates and a grant for science project related costs. Thank you Synopsys Silicon Valley Science and Technology Outreach Foundation!
Steps to Participating in the Science Fair

To participate in the Science Fair, you will need to follow these steps:

1. **Choose a science project.**
2. **Carry out a science project, at home.**
3. **Create a three-sided display board, at home.** This display board will describe your project, including facts you learned about your subject from books and a discussion of how you carried out your project. **A display board is available when you bring the signed Science Board Ticket (page 8) to your teacher. You may print the Science Board Ticket from the link on the Ruskin website.** The Science Lab will distribute boards to the classroom daily. If you did not turn in your board ticket, **you may pick up your free display board from the Science Lab after school Thursday, April 4th. This is the last day to get a display board.**
4. **Bring your display board and other parts of your project to school on Tuesday, April 9th.** The projects will be checked in at the classroom and then brought into the Ruskin Multipurpose Room. After school project check in will be available Tuesday, April 9th, ONLY. Bring the project to the multi after school from 2:30 to 3:30 pm.

Science Fair Rules

1. Each student may enter only one project.
2. Respect all life forms.
3. The following are prohibited: dangerous chemicals, open flames, explosives, illegal drugs, or animal experiments that involve starvation or any other form of cruelty.
4. Use safety on the internet! NEVER write to anyone without an adult knowing about it. Be sure to let an adult know about what websites you will be visiting, or have them help you search.
5. Electrical switches and cords needed for exhibits must be in good working condition and must be approved by the teacher.
6. Expensive or fragile items should not be displayed. Valuable items essential to the project should be simulated or photographed.
7. The school and teacher assume no liability for loss or damage to the exhibit.
8. Teachers and parents may advise. Parents should let students do the actual work.

*Suggested ways for parents to help:*

♦ Give lots of encouragement. Let the students enjoy the process and experience the excitement of experimenting with their own ideas.
♦ Help the student find information on their experiment and encourage discussion of their ideas. Help refine their hypothesis – the choosing of a question that can be tested.
♦ Reinforce the concept that experiment results which do not match the hypothetical results does not mean “failure”, but is part of doing science.
♦ Provide working space and materials.
What is a Science Fair Project?

A science fair project should be selected from one of the following types of projects:

♦ **Experiment**
In this type of project, use the Scientific Method. A hypothesis (an educated guess) is made to answer a question. Then, experiments are carried out to test this hypothesis. **Example:** you might be interested in the question, “What design of paper airplane will fly the farthest?” You would research different designs of paper airplanes by going to the library and looking at books on paper airplanes. You might then develop the following hypothesis for this question, “Paper airplane design #1 will fly farther than design #2 or design #3.” You would then make the paper airplanes, fly them, and take notes on which design of airplane flew the farthest.

♦ **Model**
A model is a small object usually built to scale that represents some already existing object. **Example:** you might decide to construct a model of the planet Saturn from Styrofoam and cardboard. Your poster should include facts about Saturn, a description of how you constructed the model, and a discussion about the features of your model and how these features represent the actual planet.

♦ **Demonstration**
A demonstration is an illustration or explanation of a scientific principle. This type of experiment shows how and why something works. **Example:** you might demonstrate the principle of sound using a rubber band stretched around a box. You could show that the more tightly stretched the rubber band, the more rapidly the rubber band vibrates, and the higher the sound that is produced.

♦ **Collection**
A collection is a group of objects. This group of objects must be scientifically oriented and show that you have learned something through the process of collecting and categorizing. The items should be categorized and labeled correctly. **Example:** you might have a collection of leaves separated into categories based on the type of tree on which they grew.

♦ **Invention**
An invention is a new device or process used to improve conditions, solve problems, or to fill needs. Inventions can be completely new ideas or improvements on something that already exists today.
The Scientific Method  
For Projects which Involve Experiments

Use the following five steps of the scientific method when conducting an experiment.

1. **Identify the problem**  
Think about what area of science interests you. Narrow your focus down to a specific question.

2. **Collect information**  
Research your topic. Take notes on information that you think will be important for your experiment.

3. **Develop a hypothesis**  
A hypothesis is an *educated* guess. It takes into account the research you have done and also your opinion of what you think will happen. What do you think will happen when you perform your experiment? The hypothesis answers your question.

*Example:* Plant food “B” will cause the lawn to grow faster.

4. **Plan and Conduct an Experiment**  
First, make a plan for how you will do your experiment and a list of all the materials you will need. Conduct your experiment and observe what happens. In your experiment, make sure that you are only changing one variable at a time. This means that everything should be the same among the tested items (conditions remain constant). The only difference (variable) would be the procedure or item being tested in that part of the experiment. Keep a journal to record what you did and your observations - changes, growth or other results of your experiment. Photos or illustrations of the progress of your experiment are good ways to display what you did and what your results were.

*Example:* All lawns being tested should be treated the same (conditions remain constant): same type of grass soil, temperature, sunlight water feeding times, etc. The only difference (variable) would be the plant food fed to the lawns. Make a chart of the weekly lawn growth.

5. **Draw a conclusion**  
Analyze the results of your experiment. Draw a conclusion based on your results. Was your hypothesis correct? Why or why not? Your conclusion should tell what you learned by conducting the experiment. Remember, an experiment is *not* a failure if the hypothesis is proven wrong!

*Example:* The lawn fed with plant food “A” grew faster than any of the other plant foods tested. My hypothesis was not correct, even though plant food “B” cost more and promised better growth. I learned that not all plant foods are the same and that advertising is not always true.
How to Start your Science Fair Project

Help choosing a topic

Books. Books on science experiments and science projects are available in libraries (including the Ruskin School Library) and bookstores.

Web Sites. Science websites for kids are available:

www.exploratorium.edu
http://www.lhs.berkeley.edu/kids  (Lawrence Hall of Science at Berkeley)
www.kidsgardening.org
www.madsci.org/  (Mad Science Network)
http://kids.nationalgeographic.com/kids/activities/funscience
http://www.ducksters.com/science/
https://ca.pbslearningmedia.org/collection/zoom/
www.howstuffworks.com  (background information on a variety of things)
http://www.billnye.com
http://www.sciencekids.co.nz
http://www.sciencebob.com
http://scienceclub.org
http://www.usc.edu/CSSF/
http://www.sciencebuddies.org/
https://www.jpl.nasa.gov/edu/learn/
http://school.discoveryeducation.com
http://www.super-science-fair-projects.com/
http://cssf.usc.edu
Displaying a Science Fair Project

What you thought would happen

What you did

Procedure
1. I chose two healthy geranium plants that were the same size.
2. I put plant A near a sunny window.
3. I put plant B in a closet under a tree.
4. I watered both equally.
5. I observed and recorded changes in the plants for one week.

Purpose
To find out if geranium plants need light

Hypothesis
Geranium plants need light

Results

Day 1: Plant A - healthy, Plant B - healthy
Day 4: Plant A - healthy, Plant B - leaves beginning to turn yellow
Day 7: Plant A - healthy, Plant B - yellow leaves

Conclusions
Geranium plants need light to stay green.

Who helped you

Materials

Charts and tables

What happened

What you wanted to find out

Title

Pictures and drawings

Research paper

Teachers: Reproduce this page and the "Science Fair Time Line" page. Send them home with students to inform parents about the science fair and to help students prepare their projects. You may wish to use this chart with Frank Schaffer's The Scientific Method bulletin board set (FS-9492) and Work Like a Scientist chart (FS-1247).
Question (Statement of Purpose): State your purpose as a question or statement. What is it that you want to find out by doing this project?

Hypothesis - If..., then I think... : [Only if Experiment] What do you think is going to happen? Based on what you know, what do you think the results of your experiment will be? After doing the experiment, it may turn out that your guess was wrong. It’s okay if this happens.

Materials I will need: List all materials that will be used in your project. Include exact quantities of items used.

Procedure: List and describe the steps taken to complete the project.
Please cut out board ticket and turn in to your teacher to get your Science Fair display board when you are finished with your project.

SCIENCE FAIR DISPLAY BOARD TICKET

Student Name___________________________________

Teacher ____________________________ Grade _________

Project description___________________________________

☐ Check here when project is finished.
Now, give this ticket to your teacher.

**Teachers: forward tickets to the box in the office – thank you.**