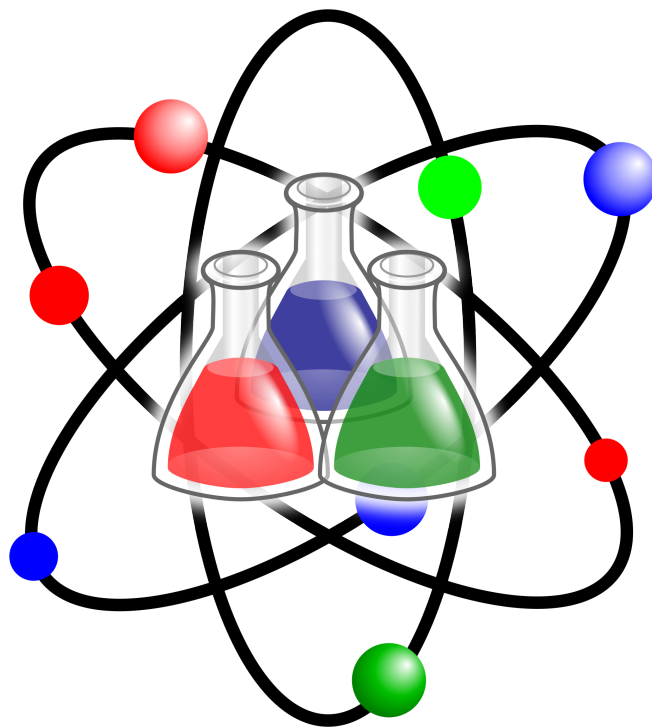


Liberty Elementary
Science Fair
2023-2024



January 10, 2024

Dear Families,

We are very excited to be hosting the Liberty Elementary Science Fair this year. Science fairs are a great way for students to learn about the scientific process through creativity and by using analytical skills. This packet will walk you through the process of completing a science fair project. Here are a few things to remember:

1. The school science fair is open to all students Kindergarten through 5th grade!
2. 4th Graders are required to complete a science fair project.
3. Assignments are meant to keep students on track.
4. Assignments can be turned into the students' teachers (see schedule in packet and assignment pages in the back).
5. Students will meet with judges during the school day on January 10th.
6. There will be a share night that evening (times and details to follow).
7. Awards and certificates will be presented the following day at school.
8. This packet and other information can be found at liberty.fcps.net.
Click on teacher websites, special areas, then science.

So how can you help your student? Encourage your child and monitor their progress. Help them gather materials and complete their assignments. Remember, science fairs encourage students to think like scientists and develop writing skills, critical thinking skills, oral presentation, and problem solving.

Thanks so much,
Mr. Peterson

A successful science fair project....

1. Represents the students' work - not the work of parents. We do realize however that parent help may be needed to gather materials and facilitate the project.
2. Shows an understanding of the area of science chosen.
3. Shows careful planning that eliminates a rushed project.
4. Includes a complete record of your work.
5. Is neat and organized.
6. Includes photographs, charts, pictures, graphs, etc.
7. Has accurate, valid, and correct information.
8. Tells a complete story and solution
9. Is original in it's approach
10. Is self explanatory
11. Is organized and attractive
12. Does not have to cost a lot of money
13. Is an experiment
14. Gives credit to those who help

A science fair project is not...

1. Only a report
2. A new discovery
3. Just building a plastic model from a hobby kit
4. A model or drawing
5. A weekend chore
6. A poster
7. Something completely done by an adult

Physical Display

Title: The title should reflect the nature of the problem investigated, and should be as brief as possible. A subtitle may help to explain the main title.

Purpose: The purpose should state the problem clearly and concisely to explain the need, importance and source of the project.

Hypothesis: The hypothesis should be formed before beginning the experiment. It should be a general statement about the expected outcome of the investigation. The hypothesis should be testable. Your observations and results *do not* have to support your hypothesis.

Procedures: Make a detailed list of the specific materials used in your experiment. Include the independent and dependent variables as well as the control. Give step-by-step directions for how to complete your experiment.

Data: On the display board, summarize your findings. You should include a project notebook for more detailed observations. Photographs or drawings may be included.

Graphs: Line graphs, bar graphs, pie graphs, or charts help to explain your findings. Photographs or drawings may be included.

Conclusion: The conclusion should contain a statement as to whether the findings supported the hypothesis. Suggestions for further study and use of findings may also be included in the conclusion.

Physical Display

Purpose	Title	Graphs
Hypothesis		
Procedures -Materials -Variables -Step-by-step directions		Conclusions
	Data	



Suggested Questions for Judges



1. Why did you decide on this topic?
2. What is the purpose of your project?
3. What was your hypothesis?
4. Which variable did you change?
5. For each value of the variable that you changed (the independent variable), how many trials did you do?
6. What response did you observe or measure (the dependent variable)?
7. What are some of the things you were careful not to let change (the constants) as you did the experiment?
8. What procedures did you follow?
9. In your experiment, what was the control? What sample did you use to compare the others against?
10. Explain your graph or data table. What results did you find?
11. What conclusions did you draw?
12. How did your results relate to your original hypothesis?
13. If you had a mentor, in what ways did your mentor assist you?
14. What would you do differently if you were to do the project again?
15. What might you do in the future to continue your project?
16. Do you have notes or a journal that you kept regarding your project?
17. What is the most interesting or surprising thing you found out?



What are the rules and guidelines for science fair projects?

- 1) The student must do all work on the project's experimental procedure, data collection, and data analysis. The judges will disqualify projects that indicate the direct assistance of individuals other than the student. Teachers, parents, or other persons may advise and provide technical assistance, but may not be involved in the actual work of the project.
- 2) Exhibits must fit within a space of 45 cm (1.5 ft.) front to back and 75 cm (2.5 ft.) side to side, and be less than 180 cm (6 ft.) tall.
- 3) Only table space will be provided at the fair. Exhibits must be free standing with their own means of support.
- 4) If electricity is used in the exhibit, all switches, cords, and other devices must be of an approved variety. Students must supply their own extension cord, at least six (6) feet long. Electrical outlets will be available only if requested on the project entry form.
- 5) The student's name and school affiliation must not be visible until after the judging is complete.
- 6) Record books outlining the purpose of the project, procedures used, source of data and information, etc., must be available for examination by the judges. Daily/periodic logs are highly recommended as a part of the Record book.
- 7) Projects in all grades are prohibited from using vertebrate animals in experiments that would result in injury, discomfort or death of the organism. Use of vertebrate animals in grades 4-12 must strictly adhere to the I.S.E.F. guidelines on animal experimentation. If in the opinion of the judges a project violates this rule, it will be disqualified.
- 8) According to I.S.E.F. rules, the following items may not be included in the project exhibit under any circumstances (display drawings or photographs are allowed instead):
 - a) Live animals (vertebrate or invertebrate), including humans.
 - b) Plants.
 - c) Preserved vertebrate animals or parts.
 - d) Live pathogens, microbial cultures or fungi, i.e. bread mold, etc.
 - e) Open flames.
 - f) Chemicals (even water).
 - g) Any other materials hazardous to the public.

A teacher must approve any projects in these categories before a student begins research. Students must submit research plan 1A and 1B to the teacher before the start of the project. Vertebrates are subject to rule 7 listed above. Please pay particular attention to any project with human subjects (including surveys).

- 9) Go to the following website to view guidelines for projects involving any of the above topics : <https://ruleswizard.societyforscience.org/> 10. Projects not meeting these guidelines will not be eligible to win at the District Science Fair and therefore not qualified to participate at the regional, state, or international levels.

Kentucky American Water - Fayette County Public Schools

District Science Fair – 4th and 5th Grade

Student Name: _____ Project Number: _____
 Grade - Category: _____ School: _____
 Project Title: _____

Scoring Guide:

9-10: Exceeds expectations

7-8: Appropriate evidence of understanding

4-6: Basic evidence of understanding

0-3: Minimal or no evidence of understanding

Total Project Score: ____/100

Information Acquired from Student Discussion and Display Board

0-3	4-6	7-8	9-10	Asking Questions
Score:				- Questions about what would happen if a variable is changed. - Asks questions that can be investigated and predicts a reasonable outcome based on patterns such as cause/effect relationships.
0-3	4-6	7-8	9-10	Developing and Using Models
Score:				- Identify limitations of models. - Develop or use models to describe and/or predict phenomena.
0-3	4-6	7-8	9-10	Planning and Carrying Out Investigations
Score:				- Plan and conduct an investigation to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. - Evaluate appropriate methods and/or tools for collecting data. - Makes observations and/or measurements to produce data to serve as the basis for evidence - Make predictions about what would happen if a variable changes.
0-3	4-6	7-8	9-10	Analyzing and Interpreting Data
Score:				- Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. - Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation. - Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
0-3	4-6	7-8	9-10	Using Mathematical and Computational Thinking
Score:				- Decide if qualitative and/or quantitative data are best. - Organize simple data sets to reveal patterns that suggest relationships. - Describe, measure, estimate, and/or graph quantities
0-3	4-6	7-8	9-10	Constructing Explanations
Score:				- Constructs an explanation of observed relationships - Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. - Identify the evidence that supports particular points in an explanation.
0-3	4-6	7-8	9-10	Obtaining, Evaluating, and Communicating Information
Score:				- Obtain and combine information from texts and/ or reliable media to explain phenomena. - Communicate scientific and/or technical information orally and/or in written formats, including various forms of media as well as tables, diagrams, and charts.
0-3	4-6	7-8	9-10	All materials in display and project meet safety guidelines
Score:				
0-3	4-6	7-8	9-10	Exhibit is visually appealing; shows evidence of being student's own work
Score:				
0-3	4-6	7-8	9-10	Journal/Lab Notebook contains experimental records (daily observations, data, and procedural comments)
Score:				

*Please feel free to include constructive comments which can be shared with the student on the back of this page.



Science Fair Schedule

Name: _____

Date: _____

Teacher's Name: _____

Grade: _____

Project Title: _____

To keep your Science Fair project on track, sections of your project will be due throughout the next few weeks. Please note the dates below. Each section of your project will be evaluated and will be part of your Science grade. You may make changes to your project as each section is evaluated in order to improve your completed Science Fair Project's final score.

Science Fair Project Section	Date Due	Score	Notes
Project Proposal	11/17		
Experimental Design	11/29		
Data, Results, and Conclusion	12/13 or 1/3		
Completed Science Fair Project	1/9		

** The data, results, and Conclusion can be turned in either on 12/3 or 1/3. Some families like having it done early while others like to use the holiday break to work on it. If turned in on 12/13, I will review the data and return it before the holiday break so students can work on their presentation board. Completed projects will be turned in the day before the science fair so boards can be set up the night before.

