

## Timeline for 2021-2022

<u>Event</u>	<u>Due Date</u>
Distribute and discuss Science Fair Handbook	August 18
Problem due in class ( <b>must be written in notebook and signed by parent for approval</b> )	September 01
Hypothesis due in class	September 22
Orange County paperwork due in class ( <b>Student must have detailed procedures and all required forms completed by this date. Bibliography must have 5 sources including the Intel website for rules and forms</b> )	October 13
Experimentation must have started on all projects	October 25
Conclude any experimentation being done at school	November 19
Conclude experimentation for December presentation ( <b>Students can continue to experiment beyond the 09<sup>th</sup>, but they have to stop and create an abstract for class in December. They may add and embellish their projects through the school fair in January and through subsequent fairs they qualify for</b> )	November 28
Abstract due in class	December 01
Project due in class	December 06
LECS science fair	TBD
Ying Expo	February 16-17
Florida State Science and Engineering Fair	March 29-31

## **Introduction**

Lake Eola Charter School's science fair is an excellent opportunity for our students to explore their favorite topic in science. It provides an avenue for student research and allows the students to be actively engaged in their own learning. A science fair builds a bridge between home and school - establishing bonds between students, parents, and teachers and inspires students to become life long learners.

## **Ethics**

Each student is required to conduct themselves to the highest ethical standards. The student will not:

- Plagiarize (copying a project from Science Buddies, or similar site)
- falsify their research or the outcome of their experiment
- use vertebrate animals (including humans), animal tissues, or micro-organisms, including mold, fungus, and bacteria in their research without special approval.

To do any of the above, the student will be disqualified from the science fair and receive no grades for the benchmarks. Further actions against the student will be at the discretion of Lake Eola Charter's administration.

## **The 1-2-3's of the Science Fair/Checklist**

The following steps are required to complete a project:

1. Choose your topic
2. Get your parent's and teacher's approval
3. Research your topic
4. Develop your hypothesis
5. Get your teacher's approval again!
6. Plan your experiment and write a step-by-step procedure
7. Fill out and turn in the required paperwork
8. Experiment, experiment, experiment!!!
9. Repeat your experiment as many times as possible
10. Analyze your results
11. Draw a conclusion
12. Write your abstract
13. Create your display for class and present your project in class
14. Refine your project as needed
15. Present your project at the school fair
16. Present your project at the county and state fair if you qualify

## **Choosing Your Topic**

The best way to help your student select a topic is to ask "What if" questions and "I wonder" statements.

- What is the level of lead toxins in downtown lakes?
- Is mental practice as effective as physical practice?
- When given a box of crayons, which color will a kindergarten student choose first?
- I wonder why it rains so much in some places.

Think back to the days when you thought you could hatch a chick from the egg in your mom's refrigerator. A great science fair topic starts with a lot of imagination and ends with a lot of hard but fun work!

Science Buddies is a great resource too. Students can look at projects that have been done, get a good idea of what needs to be done, how much it might cost, and more. However, copying a project from this site or a similar site is plagiarism. Science Buddies has a link to "making the project your own" that you can click on and get some great ideas of how to alter the project and create your own project from it.

## Requirements

### Research Notebook

In addition to any reference books, students are required to keep a printed copy of any Internet research, magazine articles, and any other gathered material. They need to keep it in a 3-ring binder type of notebook.

**Logbook (Journal)** This is the most important part of the project!!!!

A logbook contains all written work done by the student. It must be in the composition notebook and written in blue or black ink – **no pencils or colored pens**. Any errors must be crossed out – **no white outs and no removed pages!**

Be sure to include any visits to the library, a museum, or any other site you visited to gather information. This must also contain a phone log if you made phone calls.

**Everything that you do MUST be written in this notebook. EVERYTHING!!**

Most importantly, this notebook must contain your project's scientific method.  
**Please date each entry and number each page as used.**

This logbook will be on display with your backboard so that the judges can view your progress.

This logbook will be turned in from time-to-time to monitor the student's progress towards benchmarks.

### Scientific Method

#### **Problem/Purpose**

What is your goal?

What idea are you trying to test?

What is the scientific question you are trying to answer?

**Is it a question you don't know the answer to, but can experiment to find out?**

#### **Hypothesis**

Tell how you think your project can demonstrate your purpose.

Make a prediction regarding the outcome of your experiment.

**Is it measurable????**

## **Procedure**

Give a detailed step-by-step explanation of how the experiment will be performed to test your hypothesis. **This should be numbered steps, 1-whatever, and written so well that ANYONE could read it and do EXACTLY what you are doing.**

Be clear about the variables (elements of the experiment that change to test your hypothesis) versus your controls (elements of the experiment that do not change).

Be very specific about how you will measure results to prove or disprove your hypothesis. You should include a regular timetable for measuring results or observing the projects.

Your procedure should be like a recipe – Another person should be able to perform your experiment your procedure. Test this with a friend or parent to be sure you have not forgotten anything.

## **Materials**

List all materials and equipment that were used

Your list of materials should include all of the ingredients of the procedure recipe.

## **Observation/Data/Results**

Keep a dated and detailed journal of observations, data and/or results. They can be data measurements and written notes about what you are sensing about your experiment. **Use blue or black ink only, no pencils!!**

**Photograph your project results or phases of the project if appropriate to help your analysis and possibly to demonstrate your experiment on your exhibit board.**

## **Analysis**

Explain your observations, data and/or results. This is a summary of what your data has shown you.

List the main points of what you've learned.

Why did the results occur? What did your experiment prove?

Do you accept or reject your hypothesis? Did your experiment prove or disprove your hypothesis? This should be explained thoroughly.

## **Conclusion**

Answer your problem/purpose statement

What does it all add up to? What is the value of your project?

What further study do you recommend give the results of your experiment? What would be the next question to ask? If you repeated this project, what would you change? Are there any acknowledgements to be made?

## **Abstract**

After finishing your research and experiment, you are required to write a maximum 250 word, one-page abstract. The abstract should include: purpose of experiment, procedures used, data, and conclusions. **It is written in paragraph form.** The abstract should not include: acknowledgements, or work or procedures done by the mentor. The abstract is required to be on the Florida State Science Fair form that can be found on the Ying Expo website at [www.yingexpo.com](http://www.yingexpo.com)

## **Required Forms**

All projects must be approved before you start. **All projects require the following paper work, some will require additional forms.**

1. Checklist for Adult Sponsor/Safety Assessment Form (1)
2. Research Plan (1A) – This form requires you to attach a typed research plan, which must include your purpose, hypothesis, step-by-step detailed experimental procedures, and bibliographies.
3. Approval Form (1B)

**All forms must be typed or filled out using blue or black ink. NO pencil!**

**The teacher is the adult sponsor.**

**Form 1B is signed by the student and the parent.**

## **Additional Forms**

Students doing experiments that involve humans, vertebrate animals, animal tissues, micro-organisms such as bacteria, fungus, and mold, are required to fill out additional forms and get signatures from qualified scientists in their fields of study. These forms are due with the above mentioned forms on the date the Orange County paperwork is due.

### **13 Science Fair Categories (new this year)**

<b>Category</b>	<b>Abbreviation</b>	<b>Field/Division</b>
Animal Sciences	ANIM	Biological
Behavioral & Social Sciences	BEHA	Biological
Biomedical & Health Sciences	BMED	Biological
Cellular/Molecular Biology & Biochemistry	CMBI	Biological
Chemistry	CHEM	Physical
Earth & Environmental Sciences	EAEV	Physical
Engineering	ENMS	Physical
Environmental Engineering	ENEV	Physical
Intelligent Machines, Robotics and Systems Software	IMRS	Physical
Mathematics & Computational Sciences	MACO	Physical
Microbiology	MICR	Physical
Physics & Astronomy	PHYS	Physical
Plant Sciences	PLNT	Biological

### **Websites**

#### **General Science Fair Resources**

<http://www.sciencebuddies.org/>

#### **Orange County's Science Fair Site/all forms**

[www.yingexpo.com](http://www.yingexpo.com)

#### **Intel International Science & Engineering Fair**

<https://student.societyforscience.org/international-rules-pre-college-science-research>

(This site MUST be included in the bibliography.)

#### **MLA Bibliography Generator**

<http://www.citationmachine.net>

**Lake Eola Charter School**  
**Science Fair Agreement**

I, \_\_\_\_\_, and my child, \_\_\_\_\_, have read through the Lake Eola Charter School's Science Fair Handbook. We understand what is required and agree with the timeline.

We especially understand the ethics involved in a science fair and agree to abide by them.

\_\_\_\_\_  
Parent's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Student's Signature