

**Volusia County Schools
Elementary Science Exposition
Student Guide
2021-2022**



Elementary Science Exposition

“A celebration of student achievement in science!”

Who: The top Fifth Grade Science Fair winners from each Volusia County Elementary School

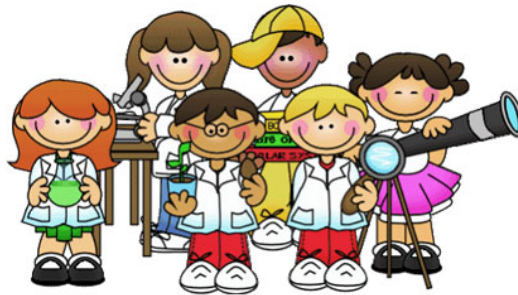
What: Elementary Science Exposition

Where: Volusia County Fairgrounds

When: April 15, 2022
8:00-12:00

Why: To celebrate student achievement in science

**We build scientific confidence
that lasts
a
lifetime!**




The student quota for each school is determined by the VCS Science Department based on enrollment.

Student representatives are selected and invited through individual processes coordinated by each school.

All projects must follow district rules that have been adapted from the *International Science and Engineering Fair (ISEF) Rules*.

Quick Reference (Prohibited Items/Substances)

For safety reasons, students MAY NOT work with or display ANY of the following:

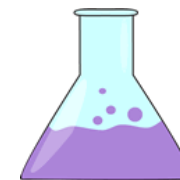
PATHOGENS	HAZARDOUS SUBSTANCES OR DEVICES	VERTEBRATES/ VERTEBRATE PARTS (Human/Nonhuman)
<ul style="list-style-type: none"> • mold • fungi • bacteria • microorganisms collected, isolated, and/or cultured from any environment (e.g., pond water) • food mold <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> • alcohol (does not include rubbing alcohol) • fertilizers • insecticide/pesticide • herbicide • dry ice • nicotine/tobacco/e-cigarettes/vaping tools • poisons • toxic chemicals • drugs/controlled substances/medications • fire/flames//matches • weapons/ammunition/firearms/paint ball guns • sharp items (e.g., needles/syringes) • motor oil 	<ul style="list-style-type: none"> • tests using human subjects (i.e. using sporting equipment, taste tests, surveys, etc) • human/animal tissue or body fluids (e.g., hair, nails, teeth, bones, blood, saliva, urine) <p style="text-align: center;">Human and vertebrate animal testing is PROHIBITED.</p> <p style="text-align: center;">ANYTHING that <u>may</u> cause physical or psychological risk to the child is PROHIBITED.</p>

If you are not sure, please ask your teacher.

Students who use any of the prohibited items listed above will NOT be permitted to participate in the Volusia County Schools Elementary Science Exposition.



Approved Items/Substances (with restrictions)




aluminum foil	hair spray	fingernail polish/remover
antacids	sunscreen	salt
baking soda	hand lotion	sugar
hand soap	starch	caulk
lemon juice	teeth whiteners	vinegar
chalk	toothpaste	seltzer water
laundry soap	mouthwash	watercolors/paint
hair gel	hair mousse	cola/soda
saline	non-toxic glue	glycerin
shampoo/conditioner	wood polish	laundry stain removers
gum	hydrogen peroxide	make-up
pH test kit	Epsom salts/aquarium salt	baby powder
rubbing alcohol (with supervision)	Windex (not pure ammonia)	cooking oils
vitamins (small amounts with supervision)		water-based markers
iodine, peroxide, bleach (small amounts with supervision)		ink

For the health and safety of all Volusia County students:

- **Projects involving human and/or vertebrate animal testing will be disqualified.**
- **Projects involving EATING, TASTING, or INHALING any substances will NOT be approved under any circumstances.**
- **Approved chemicals should be handled minimally and WITH adult supervision. Students should handle chemicals using gloves, goggles and aprons WITH adult supervision.**
- **If a student uses a chemical that is not on this list or has NOT been approved by the supervising teacher and the Elementary Science Department, the project will NOT be permitted to participate in the Volusia County Elementary Science Exposition.**

Students MAY NOT display the following:

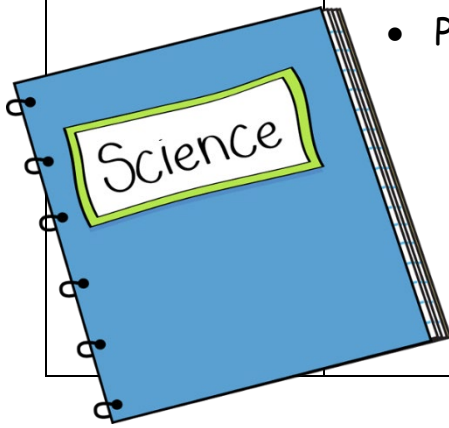
Personal Information	Preserved Animals	Living and Non-Living Things	Liquids	Batteries
<ul style="list-style-type: none"> • Photographs of faces • Names • Addresses • Telephone numbers 	<ul style="list-style-type: none"> • Taxidermy specimens • Animals stored in preservatives 	<ul style="list-style-type: none"> • Dried plant material • Dirt • Soil <div style="text-align: center;">  </div>	<ul style="list-style-type: none"> • Any and all liquids (including water) 	<ul style="list-style-type: none"> • Batteries with open cell tops

- **The science project board is to communicate the experiment that has been done at home or at school and its results, findings and conclusions. Graphs, charts, data tables, and pictures are encouraged. Students should follow the sample project display format (page 7). Additional objects and materials that are not attached to the project board are not permitted for display at the VCS Elementary Science Expo.**
- **Pictures of the experiment are encouraged; pictures of students' faces may not be displayed.**
- **Using common sense will further ensure the safety of the student scientist.**
- **Projects that do not follow the guidelines will NOT be permitted to participate in the VCS Elementary Science Expo.**

If you have any questions, please ask your teacher.

Science Project Display Board

Backboard	The display board must be freestanding. The backboard panels may be hinged, fastened, taped together or all one piece depending on the type of backboard materials. Sizes may vary.
Material	A sturdy piece of cardboard, plywood, fiberboard, Styrofoam or other material can be cut for the backboard. Many office supply companies sell "ready-made" science project display boards.
Display	<p>Information on the backboard may be handwritten, typed, or computer printed. Edit your work for spelling, capitals, and punctuation. Main points should be large and simple. Headings may be printed, made by hand, or purchased. Project title should be larger than the scientific process headings.</p> <p>You may include:</p> <ul style="list-style-type: none">• Drawings, pictures, outlines• Charts, tables, or graphs (use proper headings and units)• Photographs of the experiment (may not include faces)



Students must follow the rules defined in the "Quick Rules Reference" found earlier in this packet.

SAMPLE PROJECT DISPLAY

PURPOSE

The purpose of this project is to determine which wood holds up better in salt water.

HYPOTHESIS

If I test how salt water affects different types of wood, then it is expected that the oak surface will hold up better because it is considered a hard wood.

EXPERIMENT

Materials:

10 boards of pine
10 boards of oak
10 boards of redwood
27 buckets of manufactured salt water
3 buckets of tap water
ruler

Procedure:

1. Cut ten boards of oak pine and redwood, two (2) inches by six (6) inches each.
2. Place each piece of wood in a separate container filled with one gallons of salt water
3. Observe and measure each piece of wood every 24 hours and repeat for 15 days.

THE EFFECTS OF SALT WATER ON DIFFERENT TYPES OF WOOD

DATA

PICTURES



Days 1-4



Days 5-8



Days 9-12



Days 13-15

INFORMATION

Types of Wood

The materials for most projects will fall into three categories: softwood, hardwood and manufactured panels such as plywood.

DIAGRAMS



Pine

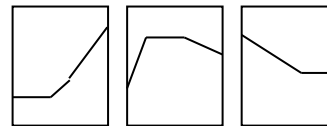


Oak



Redwood

GRAPHS



RESULTS

The boards were observed and measured each evening at 6 p.m. over a period of 15 days. On Days 1-4 there was no visible changes to the pine boards, the oak boards, or the redwood boards. The length and width were measured. On Day 5-8 the oak board began to lighten in color but....

CONCLUSION

The data collected supported my hypothesis. According to my results, oak wood was most resistant to salt water.

APPLICATION

The Southern Standard Building Code recommends the use of redwood for its strength, durability, and resistance to adverse weather conditions.

**Sample
Judge Score Sheet**

Score 0-5 (0=least, 5=greatest)

Recommended for EXPO?

_____yes

_____no

Section A. Project Board Components: (55 points)

- _____ Testable Problem (not an opinion, model, demonstration, or book report)
- _____ Hypothesis (includes research support or previous experience)
- _____ Experiment (list of all needed materials and steps in a procedure that are clear and complete)
- _____ Evidence of Control Group (normal condition)
- _____ Evidence of Limiting Variables (only one manipulated variable)
- _____ Repeated Experimentation (10 trials) or Large Experimental Group (10 tested at a time)
- _____ Data (pictures, graphs, tables, diagrams, charts, labels, information)
- _____ Results (narrative of data)
- _____ Conclusion (explanation of the results)
- _____ Application (relationship to real-world)
- _____ Display board arranged in correct format

Section A TOTAL: _____

Section B. Interview Components: (45 points)

- _____ Student understands and can explain the purpose of the project.
- _____ Student can thoroughly explain the set up of the experiment.
- _____ Student can explain the formation of the hypothesis.
- _____ Student knows what the control group is in the experiment and why it is important.
- _____ Student can explain the importance of limiting variables (one manipulated variable).
- _____ Student can explain the importance of repeating an experiment or using a large experimental group.
- _____ Student can explain the data and the connection to the conclusion.
- _____ Student can explain what has been learned and how the project relates to the real world.
- _____ Overall Presentation

Section B TOTAL: _____

OVERALL TOTAL: _____

Scientific Process Planning Outline

Write the QUESTION: (What do you want to find out?)

Write the PURPOSE: (What is the reason you are interested in your project?)

Do RESEARCH on the topic. Gather information to form a hypothesis.

Write the HYPOTHESIS. (What do you think will happen? Use information gained from research and/or previous experiences to explain why it will happen.)

Design the EXPERIMENT: How can you test what you think will happen? How will you measure the data? Make sure to include a control group (the standard or normal conditions you are comparing to) and only one variable. In addition, make sure you repeat your experiment (10 trials) or use large experimental groups (10 tested at once).

Materials: (Use metric units and scientific tools for precise measurements.)

Procedure: (List detailed sequenced instructions using numbered steps.)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Record the DATA. Use charts, graphs, tables, and pictures as appropriate.

Write the RESULTS: (Restate the data in narrative form.)

Draw a CONCLUSION: (Was your hypothesis supported or not supported by the data you collected? Why or why not? What would you do differently next time?)

Make an APPLICATION: (How do the findings from the experiment relate to the real world?)
