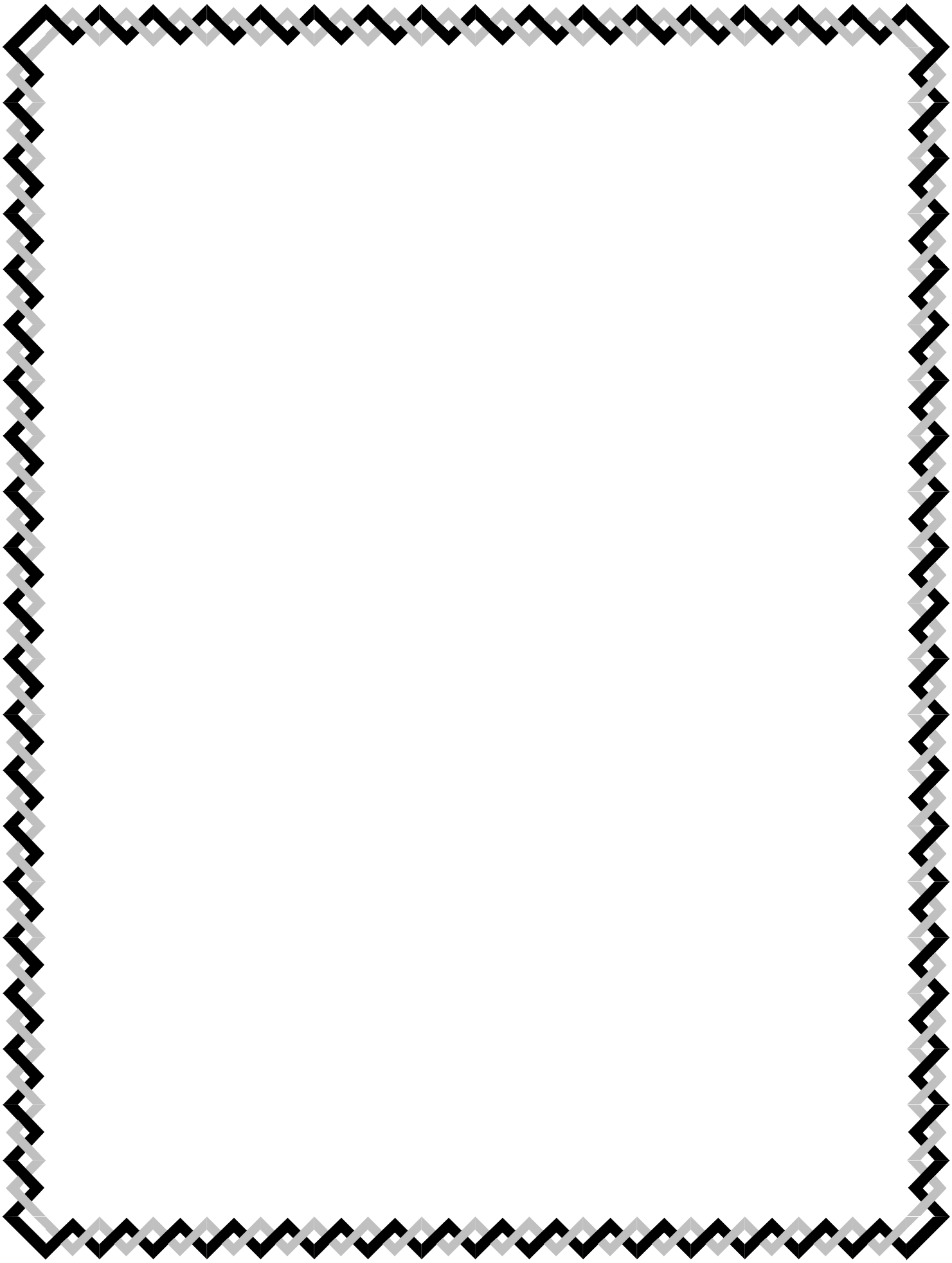
Volusia County Schools
Elementary Science Exposition
Student Guide
2012



Volusia County Schools
Elementary Science Exposition
2012

Date: **May 4, 2012**

Time: **8:00-8:45** **Registration & Project Set-up**
9:00-12:00 **EXPO Program**

Who: **The Top Fifth Grade Science Fair Winners from each Volusia County Elementary School**

Where: **Atlantic High School**

- Students will be chosen by their schools to participate. The number of students will be determined by the quota formula provided by the VCS Science Department.
- All projects presented at the Expo must follow the district rules.
- A detailed agenda will be shared with your school's science contact before the Science Expo.
- Parking will be limited.

Quick Rules Reference

For safety reasons, students <u>MAY NOT</u> work with or display:

PATHOGENS	HAZARDOUS SUBSTANCES OR DEVICES	HUMAN SUBJECTS/NON-HUMAN VERTEBRATE ANIMALS
• Mold • Fungi • Bacteria • Microorganisms collected, isolated, and/or cultured from any environment (i.e. pond water) • Food mold	• Alcohol (does not include rubbing alcohol) • Acid rain • Insecticide • Herbicide • Dry ice • Nicotine/tobacco • Poisons • Toxic chemicals • Drugs/controlled substances • Fire/flames//matches • Weapons/ammunition/firearms/paint ball guns • Sharp items (needles/syringes)	• Eggs • Foods made from animals • Human or animal parts or body fluids (i.e., blood, saliva) • Human or animal tissue • Anything that may cause psychological or physical risk **PLEASE NOTE:** • teeth, hair, nails, dried animals bones that are <u>professionally sterilized</u> can be used • dairy products can be used

If you are not sure, please ask your teacher.

Students who use any of the following items in their science fair project <u>WILL NOT</u> be allowed to participate in the Volusia County Schools Elementary Science Exposition.

Approved Substances List

(with restrictions)

aluminum foil	hair spray	finger nail polish
antacids	sunscreen	salt
baking soda	hand lotion	sugar
hand soap	starch	caulk
lemon juice	teeth whiteners	vinegar
chalk	toothpaste	seltzer water
laundry soap	mouthwash	water colors
hair gel	hair mousse	cola/soda
saline	non-toxic glue	glycerin
vitamin C, calcium (small amounts with supervision)	wood polish	laundry stain removers
gum	hydrogen peroxide	make-up
Ph test kit	Epsom salts/aquarium salt	baby powder
plants food (not fertilizer)	Windex (not pure ammonia)	cooking oils
Iodine, rubbing alcohol, bleach (small amounts with supervision)		

- Projects will be disqualified if chemicals are used to do human/vertebrate animal testing.
- NO EATING, TASTING, TOUCHING or SNIFFING of any chemicals will be approved.
- All chemicals should be handled minimally and under adult supervision. Students should handle chemicals using gloves, goggles and aprons under adult supervision.
- If a student uses a chemical that is not on this list and has not been approved by the teacher and Science Department, the project will be removed from the Science Expo.
- If you have any questions, please ask your teacher.

Student **MAY NOT** display:				
Personal Information	**Preserved Animals**	**Living and Non-Living Items**	**Liquids**	**Batteries**
• Photographs of faces • Names • Addresses • Telephone numbers	• Taxidermy specimens • Animals stored in preservatives	• Dried plant material • Dirt • Soil	• Any and all liquids (including water)	• Batteries with open cell tops

- The science project board is to communicate the experiment that is done at home or school and its results, findings and conclusions. Graphs, charts, data sheets, and pictures are encouraged. Students should follow the sample project display format. Additional objects and materials are not appropriate for display at the Science Expo.
- Using common sense will further ensure the safety of the student.
- Projects that do not follow the guidelines will not be allowed to participate in the Volusia County Elementary Science Exposition.

Science Project Display Board

Backboard	The display board must be freestanding. The backboard panels must be hinged, fastened, taped together or all one piece depending on the type of backboard materials used.
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	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 can be purchased. Titles should be larger than the scientific process headings. You may include: • Drawings, pictures, outlines • Charts, tables or graphs (use proper titles, labels, and units of measure) • 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

THE EFFECTS Of SALT WATER ON DIFFERENT TYPES OF WOOD

PURPOSE

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

HYPOTHESIS

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

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 each piece of wood every 24 hours and repeat for 15 days.
4. My control group will be…..

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.

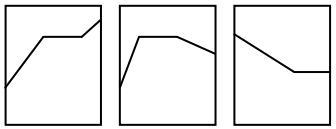
DIAGRAMS

Pine

Oak

Redwood

GRAPHS



RESULTS

The boards were observed 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. On Day 5-8 the oak board began to lighten in color but….

CONCLUSION

According to my results, oak wood was most resistant to salt water. I came to this conclusion because…..

APPLICATION

The Southern Standard Building Code identifies redwood for its strength, durability, and resistance to adverse weather conditions; however,….

Recommended for EXPO
_____ yes _____no

Sample
Judge Score Sheet
Score 0-5 (0=least, 5=greatest)

A. Board Accurately Displays: (55 points)

_____ Testable Problem (Not an opinion, model, or book report)

_____ Hypothesis (includes research support or previous experience)

_____ Experiment (Materials and Procedure: Lists all materials and steps which are clear and complete)

_____ Evidence of Control Group (normal condition)

_____ Evidence of Limiting Variables (only one variable manipulated)

_____ Repeated Experiment or Large Experimental Group (tested 10 times; tested 10 at a time)

_____ Data (pictures, graphs, tables, charts, labels, clear, neat)

_____ Results (narrative of data)

_____ Conclusion (explanation of the results)

_____Application (relationship to real-world)

_____Display board displayed in correct format

Section A TOTAL: _____

B. Interview (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 how 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.

_____ 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 for your project?

_____

_____

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

Write the HYPOTHESIS. What do you think will happen? Explain why.

_____

_____

_____

_____

Design the EXPERIMENT. How can you test what you think will happen? Make sure to include a control group and one variable. In addition, make sure you repeat your experiment (10 times) or use large experimental groups (10 tested at a time).

Materials: (Use metric units.)

_____

_____

_____

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 paragraph form.

_____

_____

_____

_____

_____

_____

_____

_____

Draw a CONCLUSION. Is your hypothesis supported? Why or why not? What would you do differently next time?

_____

_____

_____

_____

_____

_____

_____

_____

Make APPLICATION. How do the findings from the experiment relate to the real world?

_____

_____

_____

_____

_____

_____

_____

_____