

## Valley Presbyterian School Science Fair

***“Through Him all things were made; without Him nothing was made that has been made.” John 1:3***

As a Christian school, it is our responsibility to emphasize and to give recognition to God as the Master Designer of our universe. Therefore, the science fair is an opportunity to integrate Christian truths with scientific fact involving an independent scientific investigation.

All students in the sixth grades are required to do a science fair proposal, a typed title page, and at least a one page typed research paper with a minimum of 500 words which includes a biblical application/illustration, and a typed bibliography of two resources. The proposal will explain their project in words while the research paper will reflect reference to their question. All sixth graders will participate in the science fair. Only the two highest scorers from each category, Life Science and Physical Science, are eligible to participate in the ACSI Science Fair. ACSI requirements are followed in our school’s science fair. All judges’ scores are final. Sixth grade science fair scores will be reflected on their report card. Additional information and instructional meetings are provided at a later date.

We expect a certain amount of parental help and support. Attached are some suggestions and pertinent information/guidelines/requirements regarding the science fair proposal page, the research paper, and the science fair. Please return the bottom portion of this letter to acknowledge your receipt of the materials. Thank you for your cooperation and support.

**Parent signature slip Due \_\_\_\_\_**

**Question with one resource Due \_\_\_\_\_**

**Proposal & Research Due \_\_\_\_\_**

**SCIENCE FAIR DATE \_\_\_\_\_**

In His service,  
Science Fair Coordinators

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(Please return by \_\_\_\_\_)

\_\_\_\_\_  
(Student’s name)

\_\_\_\_\_  
(Grade)

\_\_\_\_\_  
(Parent’s signature)

\_\_\_\_\_  
(Date)

## The Parent's Role

Undertaking a project for a science fair can be a daunting prospect for children, especially if they are expected to work without the teacher's constant guidance. A little preparation, however, can help a parent assume the role of a guide. This can be more than a learning experience; opportunity for sharing is enhanced when parent and child set out on the road of inquiry together.

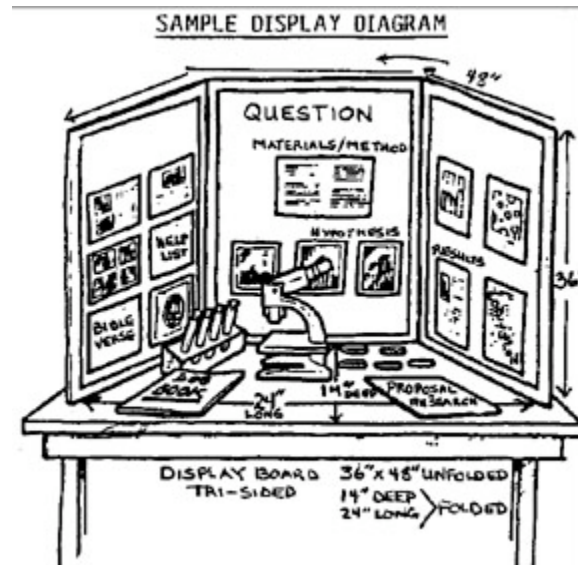
The following suggestions will be helpful as your child develops this year's science project:

1. Please remember that the most important ingredient in any project is the amount of work the student accomplishes, how much knowledge he/she acquires, and how much initiative is displayed. Many abilities are developed: researching, organizing, outlining, measuring, planning, calculating, reporting, and presenting. These involve the reading, writing, math, and social skills that play a part of successful daily living.
2. Although it is to be the student's effort, there is no substitute for a parent's support.
3. Areas in which a parent's assistance will be necessary include:  
Safety – Be sure that poisons, dangerous chemicals, live animals, and open fires are avoided. Learn and practice electrical safety if electricity is used in the project. If any aspect of the project appears to be dangerous, it is not to be included. Monitor the use of the Internet for research.
  - a. Transportation – Help will be needed for the transportation of materials to the science fair, although it is better if the student can set up and take down the exhibit with a minimum of assistance.
4. Areas in which a parent's assistance may be welcomed include:
  - a. Suggesting project ideas (these may be connected with your work).
  - b. Transportation to libraries, businesses, museums, nature centers, universities, or any source of project information.
  - c. Technical work such as construction, photography, computer programs/skills.
  - d. Being an interested listener.

### **Project Requirements**

1. Display board: Project boards MUST be tri-sided white cardboard with a maximum size of 36" by 48" unfolded, but 24" long by 14" deep when displayed/folded. The display board is to be free standing to fit on our tables. All equipment and materials MUST fit within the 24" long and 14" deep.
2. Display: Include any equipment, materials, etc. that are important to the project. Also, include a typed title page, a typed research paper with a typed bibliography with two resources, and a chronological log. The project display should be attractive, creative, eye catching, neat, informative, organized, and with appropriate labels. The question, hypothesis, materials/method, results, conclusions, Scripture reference/application, the abstract, and an acknowledgment of all pertinent help must be in written form on the board. The student's name, school, and grade must be in the lower right hand corner on the back of the display board. Display printed material may utilize any neat, legible medium.
3. Project assistance: There are no team projects. Students may seek help from other resources, but students must do 90% of the total work.
4. Utilities: All projects requiring electricity must be designed for 110 volts. A three-prong ground plug must be used. Students must provide their own extension cords and omni boxes. No gas or water outlets will be provided.
5. Suitability for exhibition: Dangerous/unsafe projects will not be permitted. The fair coordinators reserve the right to remove any project deemed objectionable or hazardous. No live animals or animal experiments except by permission of coordinators.
6. Scientific method: The main emphasis for the projects is research by the scientific method which includes: 1) a question that lends itself to scientific inquiry; 2) a hypothesis which is a tentative or reasonable assumption made for the purpose of testing; 3) the materials are the items needed to conduct the experiment; 4) the method which are the steps required to conduct an experiment and test the hypothesis (observe, analyze, record data in a log book); 5) the results which are what happens; and 6) the conclusion as it relates to the hypothesis and whether the hypothesis was verified or nullified.
7. Misc.: Each student must remain with his or her projects during the judging period. The two highest scorers from each category: Life Science and Physical Science, are eligible to enter the district ACSI Science Fair to be held at a later date and at a different place. An additional entry fee would be assessed. All scores are final.

## SAMPLE Display Diagram The Display



### Checklist – Your display should include the following:

- \_\_\_ Question (from proposal paper) – written form on display board
- \_\_\_ Hypothesis (from proposal paper) – written form on display board
- \_\_\_ Material (from proposal paper) – written form on display board
- \_\_\_ Method (from proposal paper) – written form on board
- \_\_\_ Results – written form on display board
- \_\_\_ Conclusions – written form on display board
- \_\_\_ Scripture reference/application – written form on display board
- \_\_\_ Abstract – written form on display board
- \_\_\_ Acknowledgment of all pertinent help – written form on display board
- \_\_\_ Name, grade, school name, on back of project board, lower right hand corner
- \_\_\_ Graphs, pictures, drawings, diagrams, & tables, if applicable – on display board
- \_\_\_ Log (do not attach to display board)
- \_\_\_ Typed title page, typed research paper with a minimum of 500 words including a biblical application/illustration, and a typed bibliography with two resources (do not attach to board)
- \_\_\_ Any additional permitted materials or equipment
- \_\_\_ Extension cord or omni box, if applicable
- \_\_\_ Lettering is neat/legible/organized & sections clearly labeled
- \_\_\_ Display board is white tri-sided, 36" x 48," and exhibit display is 24" long x 14" deep, self supporting

### **A Bibliography for Science Fair Projects**

Webster, David. How to Do a Science Project. New York: Franklin Watts, Inc., 1974.

Perry, Phyllis J. 365 Science Projects & Activities. Illinois: Publications International, Ltd., 1996.

Gutnik, Martin J. How to Do a Science Project and Report. New York: Franklin Watts, Inc., 1980.

Gardner, Robert. Ideas for Science Projects. New York: Franklin Watts, Inc., 1986.

Taylor, Ron. The World of Science Projects. New York: Facts on File Publications, 1986.

Cobb, Vicki. More Science Experiments You Can Eat. New York: J. B. Lippincott, 1979.

Headlam, Catherine. Science Encyclopedia. New York: Kingfisher Books, 1993.

UNESCO. 700 Science Experiments for Everyone. New York: Doubleday & Company, Inc., 1958.

Brown, Robert J. 200 Illustrated Science Experiments for Children. PA: Tab Books, Inc., 1987.

Challand, Helen J., Ph. D. Science Projects and Activities. Illinois: Children Press, 1985.

Herbert, Don. Mr. Wizard's Experiments for Young Scientists. New York: Doubleday & Company, 1959.

Ontario Science Centre. Science Works. Maryland: Addison-Wesley, 1987.

Vecchione, Glen. 100 First-Prize Make-It-Yourself Science Fair Projects. New York: Scholastic Inc., 1998.

[www.valleypresbyterian.org](http://www.valleypresbyterian.org)

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

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

[www.exploratorium.edu](http://www.exploratorium.edu)

### Possible Project Bible Verses

#### Ability

II Cor. 1:8  
II Cor. 8:3  
Acts 11:29  
Heb. 7:25

#### Accept

Prov. 21:3  
Prov. 10:8  
Gal. 1:9  
Rom. 11:15

#### Account

Rom. 14:12  
Rom. 3:19  
Heb. 4:13  
Luke 16:2

#### Armor

Jer. 46:4  
Eph. 6:11  
Rom. 13:12

#### Appearance

Gal. 2:6  
James 7:24  
I John 3:2

#### Arrogance

I Sam. 2:3  
Rom. 11:20  
I Tim. 6:17

#### Believe

I John 5:1  
Acts 13:39  
I Tim. 6:2

#### Belong

I Peter 2:9  
Gal. 3:29  
I Cor. 7:39

#### Bless

Prov. 10:22  
Prov. 10:6  
Ps. 33:12

#### Care

Ps. 65:9  
Prov. 29:7  
I Tim. 6:20  
I Peter 5:2

#### Clean

Ps. 51:2  
Heb. 10:22  
Acts 10:15  
John 15:3

#### Compare

Luke 13:20  
II Cor. 10:12  
II Cor. 3:10  
Rom. 8:18

#### Destroy

John 10:10  
Jude :5  
II Cor. 4:9  
II Peter 3:10

#### Die

Phil. 1:21  
I Peter 2:24  
Col. 3:3  
I Cor. 15:36

#### Earth

Isa. 6:3  
Heb. 1:10  
Phil 2:10  
Gen. 1:1

#### Food

Prov. 20:17  
Prov. 21:20  
Prov. 23:3  
I Tim. 6:8

#### Grow

I Cor. 3:6  
II Peter 3:18  
Col. 1:6  
Col. 1:10

#### Guard

Prov. 13:3  
Prov. 19:6  
II Tim. 1:14  
Phil. 4:7

#### Light

John 1:5  
I John 1:7  
Ps. 18:28  
II Peter 1:19

#### Protect

John 17:12  
Prov. 2:8  
Prov. 2:11  
John 17:11

#### SAMPLE BIBLE APPLICATION:

Like fertilizer produces growth in plants, so God's Word, the Gospel, produces growth (fruit) in a believer's life referred to in Colossians 1:6.

## The Question

In order to help you choose an appropriate question that will incorporate the steps of the scientific method, complete part A and B below.

*Part A: A "yes" response is required for each.*

1. Am I interested in this topic?
2. Can I find research material on this question?
3. Does the question require experimentation and testing to answer it?
4. Can I get all the necessary materials to do the experiment?
5. Can I conduct the experiment primarily on my own?
6. Will I be able to run repeated tests or test many subjects?
7. Will I be able to measure my test results in some numerical way?
8. Do my parents approve of my project?
9. Does the question meet the guidelines set by my school?
10. Am I able to word the question in one of the 3 formats below?

*Part B: **REQUIRED WORDING FOR THE QUESTION. CHOOSE ONE.***

1. How does \_\_\_\_\_ affect \_\_\_\_\_?  
(Exp.-How does the type of fertilizer affect a plant's growth?)
  
2. What is the effect of \_\_\_\_\_ on \_\_\_\_\_?  
(Exp.-What is the effect of air temperature on the bounce of a ball?)
  
3. Which \_\_\_\_\_ is \_\_\_\_\_?  
(Exp.-Which brand of paper towel is the most absorbent?)

**\*\*Note:** Exceptions that meet all the criteria may be reworded if approved by your teacher ahead of the due date for the question. **\*\***

**POSSIBLE Life Science Questions**

How does acid rain affect plants?  
Which substance is the most effective for cleaning teeth?  
Which liquid: water, milk, or Pepsi, is best for plant growth?  
Which lotion works best on skin?  
How do storage containers affect banana ripening?  
Which wood absorbs the least amount of water?  
How does a particular brand of bread affect the speed growth of mold?  
What is the effect of detergent on plants?  
How does Listerine affect bacteria?  
Which cheese is the fastest in producing mold?  
Which liquid dissolves teeth the fastest?  
What is the effect of environment or light or temperature or water or gravity on seed germination?  
How does gravity OR light affect plant growth?  
How does temperature affect the growth of mold spores?  
How does light affect the growth of mold spores?  
Which foods are the most likely to grow mold?  
Which substances are the most biodegradable?  
How does time of day affect body temperature?  
What is the effect of age on memory?  
What is the effect of environment on snail or sow bug behavior?  
How does grafting affect fruit production in plants?  
Which flowers contain the most chlorophyll?  
Which foods contain the most vitamin C?  
Which kind of milk contains the most bacteria?  
How does water and/or light affect the process of photosynthesis?  
How does exercise affect one's pulse and heart rates?  
What type of water, tap or carbonated, makes plants grow better?  
How do minerals and/or vitamins dissolved in water affect plant growth?  
What is the effect of detergents on pond life?  
How is word recognition affected by color?  
Which foods contain the most water?  
How does secondary body movement affect hand-eye coordination?  
How does vision affect balance?  
How do different background sounds affect a person's mental ability to perform a mental task?  
How does caffeine affect blood pressure?  
How does moisture affect the growth of mold spores?  
Which liquids are most damaging to tooth enamel?  
Which soap is the most effective anti-bacterial?  
Which mouthwash is the most effective in killing germs and/or bad breath?

**POSSIBLE Physical Science Questions**

What are the effects of gravity and friction on size and weight?  
Which fabric is the most absorbent when dyed red?  
Which type of detergent is best on hard stains?  
How does design affect a sailboat?  
Which diaper brand is the most absorbent?  
How does the distance of a magnet affect the sound of the telegraph?  
How does cross-sectional shape and grain affect the strength of wood?  
Which brand of alkaline battery is the longest lasting?  
Which solution is the best cleaning material for pennies?  
What is the effect of size on the bounce of a ball?  
What is the effect of drinks on your teeth?  
Which glue gives the strongest bond on wood?  
Which antibacterial soap is the most effective?  
Which is stronger: a truss bridge or a ladder frame bridge?  
Which bridge can support the most weight?  
How does salt affect the speed of ice melting?  
Which carries sound the longest, wood or metal?  
Which brand of insulation is the best insulator?  
Which brand of water is the fastest evaporation liquid?  
Which is the strongest: electromagnets or permanent magnets?  
How does aerodynamics affect a plane's performance?  
Which windmill produces more energy?  
Which paper planes flies longest?  
How do liquids affect acetaminophen?  
Which will lift the most weight: hydrogen, helium, or hot air?  
Which color absorbs the most heat?  
Which type of wood makes the strongest skateboard deck?  
How does the shape of the beam affect the strength of the bridge?  
Which kind of cereal contains the most iron?  
What foods conduct the most electricity?  
Which type of water forms corrosion faster?  
How does temperature affect the bounce of a tennis ball?  
Which pulley is easiest to use?  
Which bat hits the farthest: aluminum or wooden bats?

**Abstract**

**TITLE OF PROJECT:**

**HYPOTHESIS:**

**METHOD OF TESTING HYPOTHESIS:**

**RESULTS:**

**CONCLUSION:**

## Science Fair Proposal

Name:

Directions: Complete the scientific steps below in clear and concise sentences.

**Question:** The question must lend itself to scientific inquiry. See page 7 for the appropriate format.

**Hypothesis:** Propose a hypothesis that is a tentative or reasonable assumption made for the purpose of testing for your question.

**Materials:** List all the materials that would be used in the method's step.

**Method:** Describe the steps you would use to test your hypothesis.

**\*\* Typed Research Paper \*\***

Title page

500 words minimum (includes a biblical application/illustration)

Double spaced

Bibliography with 2 resources