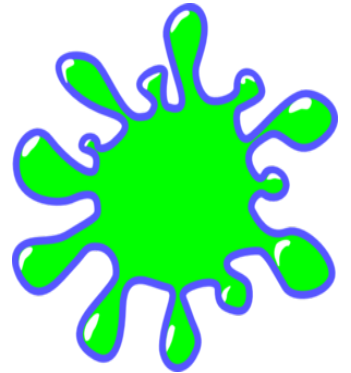
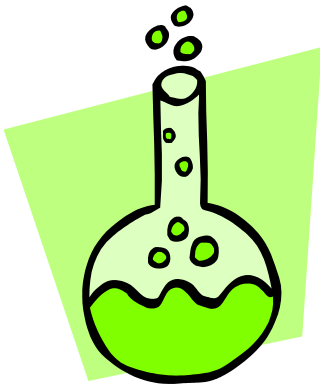


Bellevue Christian SCHOOL

Creation Celebration

Science Fair



2015

SCIENCE PROJECT

3rd-6th Grade GUIDEBOOK

Enter your science project
and be a part of the excitement!

Science Fair, Thursday, April 23rd

From 6:30-8:30pm, MPR

Register by March 6th and you will be entered into a drawing
for a Kindle Paperwhite! We will be giving away 2 Kindles –
1 for grades K-2 and 1 for Grades 3-6!

Final Registration is due by March 20th

Welcome the BCS Creation Celebration Science Fair!

Our mission is to offer students an opportunity to practice scientific investigation and see God's wonderful world through an invention, study, collection or experiment. At Bellevue Christian School, we have the ability to recognize and celebrate our Creator in our lives and in our study!

Our Verse for the 2015 Science Fair is:

"Those who are *wise* will shine like the brightness of the heavens, and those who lead many to righteousness, like the *stars* for ever and ever." *Daniel 12: 3*



Schedule

March 6th by 2:40p.m: Early Registration deadline: Register by this day and you will be entered into a drawing for 1 of 2 Kindles being given away. We will be drawing 1 name from grades K-2 and 1 name from grades 3-6.

March 20th- Final Registration deadline: Turn your form into your teacher or the office.

Ice Cream Parties: The 2 top classes with the most registrations for the Science Fair will receive an ice cream party after the Science Fair!!

April 23rd - All projects must be turned in on this day. No projects will be allowed earlier due to space constraints. The projects **must be turned in at the beginning of the day** so judging can be done.

Thursday, April 23 from 6:30-8:30pm

Creation Celebration Science Fair!

- *All participants must be present with their project during the first 30 minutes of the Science Fair. We will recognize participants and announce special recognition winners at 7:30pm.*
- Families are encouraged to view projects and enjoy activities at the science fair!
- Dinner will be available for those who pre-order through registration and for sale that night.
- Moonie Icy Tunes ice cream cart will be here, bring cash to purchase separately.
- Demonstrations by adults such as mammal dissections will be available for all attendees.
- Hands-on EGG DROP experiment will be available for all who come. (More information coming.)
- Raffle for prizes will be given throughout the night for all who come. You must be present to win!

Science Fair RULES

1. Students must bring their projects to school on the morning of **Thursday, April 23**, no sooner please.
2. Each Science Fair participant receives a white tri-fold display board. If you would like to use a colored tri-fold board and would like to purchase that yourself, that is fine.
3. Label THE BACK of your display board with the nameplate identification tag at the end of this packet. Be sure that your name is also included somewhere on the front of the board.
4. You will be given 3 feet of space on a table. Please do not use more than your allotted space on the top of the table.
5. Please feel free to bring samples that are secured and labeled.
6. Please bring items for the students/parents to touch or look at with your project. ***But please make sure they are labeled and if item(s) are lost that it does not matter.*** An example would be to show some of your leaf collection or some of the wires you used to create a charge.



Do Not Bring

Projects with items from the following list will not be accepted or displayed

1. Explosives, open liquid containers, bubbles, glass, bacteria, actual flames, chemicals or active volcano models are not allowed. If you used these items, you can use pictures to show your materials.
2. “Live” experiments (where you complete your project at the event), such as an erupting volcano.
3. Live animals are not allowed as part of your display at the Science Fair. If you used a live animal, you can use pictures to show your subject. Do not bring them to the school.
4. An item that needs to plug in, electrical outlets are very limited.
5. Projects that are potentially harmful or dangerous.
6. Projects that harm an animal.
7. Items that are valuable or breakable. The Creation Celebration Science Fair is not responsible for items that are lost or broken. If you used an item that is valuable or breakable, take a picture to show it. Do not bring it to school.

WHICH GUIDEBOOK DO I USE?

To be developmentally appropriate, the steps to a science fair project are different for each grade group. Each group is comprised of different grade levels and thus different expectations. We have created two age appropriate Guidebooks (K-2nd grades and 3rd-6th grades). Make sure you are using the correct Guidebook for your grade.

AN IMPORTANT NOTE FOR PARENTS:

We ask that the science project be a realistic reflection of the child's knowledge and skill level. We want parents to be involved, but **please let the project be the child's own**. It is understood that parents may need to assist more with some children than others, based on the child's abilities and the complexity of the project. In general, we expect that 3rd graders will be able to do at least some parts by themselves, while 4th-6th graders will do most of the project on their own. The parent role should be to help their child focus the project question, to guide in accessing reliable information sources, to assist with some typing, to facilitate gathering materials, to provide an extra set of hands, and to encourage, support, and give feedback throughout the process—all as needed. Ask your child questions to stimulate their thinking rather than give them the answers. Please keep in mind that this is *their* work.

NOW WHAT?! OR HOW TO GET STARTED?

ASK A QUESTION

First thing you need to ask yourself is **what interests you?** Do you have a hobby, sport, or activity that you especially like? Go to the library and look at science books; do a search for science fair topics on the Internet; visit places like the Pacific Science Center, the zoo, the aquarium, or local museums; consider what you have studied during science in school that you might want to learn even more about.

Our school library has many books on a variety of science topics, as well as a list of websites that may be helpful. Once you have a general idea, brainstorm questions that you can investigate. Consider the time needed, what supplies you might require, how complicated (or simple) the project would be, and talk with your parents/teachers about the suitability of your idea.

Determine which of the three types of projects will fit with your topic and question; see the following pages for specific information on each type. Map out a timeline for completing your project on time, get started, and have fun!

Here's an example of a Science Fair Project: I like dogs and I am interested in what the best breed would be for a family? Or I want to know more about the Moon and why it looks different in the sky sometimes. Or I heard you can cook food using just solar energy, is that true?

Your questions: _____

ASK A TEACHER, PARENT...

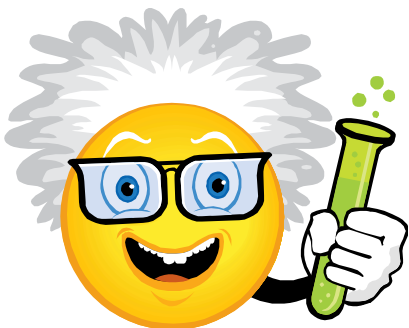
If you still aren't sure of a question or are having trouble narrowing it down to one idea, ask your parents, teacher or friends.

What topics have you been discussing in class? Is there a way to extend any class projects further?

TOPICS...

Here are some subject areas:

- Natural Science: water, light, earth movement, solar system, moon, animals, habitats
- Geography and Travel: migrating birds, flash floods, survey of mountain peaks
- Arts: origami, carpentry, special effects, perspective
- Animals: dogs, fish, cats
- Social studies: Famous WA people, Lewis and Clark, Great Wall of China
- Biblical: map Paul's journeys; Biblical foods; Weights, Measures and Money from Biblical Times
- Creation: gemstones, orchids, chocolate, root beer
- Economy and Money: money, metals, Boeing, the cost of going to a movie in 2020



Types of Science Projects, Choose One: For 3rd-6th Grade

The Science Fair at Three Points is held to celebrate God's creation. All students are encouraged to select a topic for scientific inquiry; this should be something you don't already know a lot about. You will share at the Fair what you learned while doing your project. To demonstrate what you learned, **choose one of the following project types:**

- € **Do an experiment.** In doing an experiment, you will use the Scientific Method. You begin by asking a question about the subject you are interested in. You'll do some research, and then come up with your hypothesis—your best guess on what you think will happen in your experiment. The next step is to design and then conduct your experiment. At the end, you compare your results to what your hypothesis was. Some examples of this type of project: "How much methane is produced by different types of food scraps?" or "Which type of pulley system lifts heavy loads the easiest?" or "What type of paper is best for origami?"
- € **Make an invention.** Do you have ideas of how to make something better or to even create something brand new? If so, take your question about how to fix a problem or make an item better and try to create the solution with an invention. You will follow the Engineering Design Process while developing your invention. Some examples of problems that an invention could solve: "Can I make a better tool to empty a tube of toothpaste?" or "Can I make a better food scrap container?" or "Can I make a better box to securely hold my valuables?"
- € **Make a collection.** In a collection, you will collect items with similar properties. These objects need to be natural science items, like leaves, tree bark, rocks, or fossils. You will need to group the objects into categories, looking for similarities and differences, and then explain how and why you grouped certain objects. Some ways to group objects are by appearance, texture, use, or location. Some examples of what you can learn from a collection: "What kinds of rocks are found in the lowlands of the Pacific NW?" or "What minerals are common in WA state?" or "What types of pine cones can be found in western WA?"
- € **Do a study.** By doing a study, you will become an "expert" in the topic you choose. You may study a disease, a physical phenomenon like weather or electricity, the population of living organisms in an environment, an advanced math concept, or the work of a notable scientist. You will research what is known about the topic or scientist's work and present what you learned from this study. Some questions you may explore through a study: "What is asthma and how does it affect breathing?" or "How do the different kinds of electrical circuits work?" or "What birds can be viewed in this marsh?" or "What did Nikola Tesla discover?"

If you want to do an EXPERIMENT: 3rd-6th Grade

METHODOLOGY:

QUESTION:

Determine what you are going to test, and then state that in the form of a question.

RESEARCH:

Read about your topic to find out more about the idea you are investigating. Check out 2 or more sources.

HYPOTHESIS:

Based on what you learned in your research, make your predication about your results—your best guess about what you think will happen in your experiment.

EXPERIMENT:

Materials: Determine what materials you need to do your experiment and collect them.

Procedure: Plan how you will conduct your experiment. What steps do you need? Are there safety precautions that will be needed? What factors will you change or manipulate to understand their effects? What are you looking for, and how will you measure the effects or changes? Consider whether your experiment should have a control—something you don't change or manipulate— to help confirm that what you see is from your experiment and not just by chance. Conduct your experiment. You likely will need to do multiple runs of your experiment to be confident about your results (this is called reliability).

Data Recording: Take careful notes (observations, measurements) on what happens during your experiment.

Results: Take your data and document it in charts, tables, and graphs.

ANALYSIS:

Compare your results to your initial hypothesis. Did what you expected actually happen? (It's okay if not; scientists learn from unexpected results too!) If it isn't, what might be the reason? For example, were there variables you couldn't control? Could your procedure have been improved? What did you learn from your experiment?

SOURCES:

List any sources you used in your research or to make your display board.

BIBLE VERSE:

Select a Bible verse that relates in some way to your experiment. Look for ways to see God in science.

PROJECT NOTEBOOK:

Share about your project in a project notebook or folder. Your folder should be neat and orderly and include the following:

- € Title Page
- € Table of Contents
- € Hypothesis: State your prediction, and why you chose to test this hypothesis.
- € Facts: Make sure to include all information that you gathered to use in your project. For example: "Airplanes fly because of lift and thrust, which have to be more than their weight and drag."
- € Materials: Give a detailed list of all the materials used in your project. Include with the list any sizes or measurements of the materials used; for example, 3 cups of oil or 5 inches of string.
- € Experiment: Describe the steps you used. Include your observations along with photos, drawings, or graphs. The steps should be detailed so that an outside reader can understand exactly what you did.
- € Conclusion: Compare the results from your project to your hypothesis. Note whether they are the same or not. If not, what are the possible reasons for the difference? Explain what you learned from this study, and what factors are important for causing the effects that you observed.
- € Bible Verse: Include the Bible verse you chose. State in 1-2 sentences how this verse relates to your study.
- € Resources: Make a detailed list of all the books, websites, magazines, interviews, etc. used in developing your project. Include the sources for any images you have used in your report as well.

This project notebook will be placed in front of your display board.

DISPLAY BOARD:

See the sample on a previous page in this packet for general information. The information for the board will be excerpts or summaries from your Project Notebook. Items to include:

- € The project title
- € Your name and type of project (An Experiment by...)
- € Your question
- € Your hypothesis
- € Some interesting facts from your research
- € The procedure you followed in doing your experiment
- € Any pictures taken or drawn of the experiment
- € Your results (use charts, tables, or graphs as appropriate)
- € Your conclusion/analysis
- € The Bible verse you selected
- € The list of references used
- € Who helped you on your project
- € Put your completed nameplate on back of the board (the nameplate is at the end of this packet)

Along with your display board, you may include some of the items used in your experiment. ***Please check the “Do Not Bring” list in the Guidebook on what objects cannot be brought to the Science Fair.***

If you want to make an INVENTION: 3rd-6th Grade

METHODOLOGY:

PROBLEM:

Identify a problem you would like to solve or a need you see that could be met. Everyday items were all originally created by someone's invention. What can you create or improve to address that problem?

RESEARCH:

Find out what solutions to the problem (or similar situations) are already in existence. How have others tried to solve the problem? Talk to possible users about what they would like to see in a new product. Interview engineers or inventors you know about the process of developing new products.

POSSIBLE SOLUTIONS:

Brainstorm ideas of what you could create to address your identified problem. Look at the positive and negative sides of each solution *before* choosing which solution you will attempt.

PLAN & CREATE:

Draft Plan: Sketch out your idea for your invention; include diagrams and labels for the parts. Explain how you think your invention will work.

Materials: Determine what materials you will need to build your invention and collect them.

Build: Construct your invention, following your plan.

Obstacles: Note the problems you face while working on your invention and what you do to solve them.

TEST & IMPROVE:

Test: Try out your invention. Does it work as you had intended? If it works initially, repeat your testing to confirm. What could be made better about it?

Improve: Modify your invention based on the results of your first testing.

Retest: Try out your improved invention. Record the results of your testing.

APPLICATION:

Explain how your invention worked and whether or not it adequately addresses your starting problem. How might your invention be used? If your invention didn't work as you intended, even with improvement and retesting, what did you learn? (It's okay if it does not work, as inventors sometimes try many times before achieving success!)

SOURCES:

List any sources you used in your research or to make your display board.

BIBLE VERSE:

Select a Bible verse that relates in some way to your experiment. Look for ways to see God in science.

PROJECT NOTEBOOK:

Share about your project in a project notebook or folder. Your folder should be neat and orderly and include the following:

€ Title Page

€ Table of Contents

- € Problem: Describe the problem you wanted to solve with your invention and why you chose this problem.
- € Research: List other solutions that are available or that have been tried to address this problem. Describe the qualities possible users want in a new product.
- € Solution: Explain the solution you decided to try after your brainstorming. Include the labeled drawings or diagrams of your planned invention. Briefly describe alternate ideas that you rejected.
- € Materials: Give a detailed list of all the materials used in your invention. Include with the list any sizes or measurements of the materials used; for example, 3 cups of oil or 5 inches of string.
- € Development: Describe the process you used in building your invention. Include obstacles you faced and how you addressed those. Include photos or drawings as appropriate. The steps should be detailed so that an outside reader can understand exactly what you did.
- € Testing & Improvement: Describe the testing of your invention and the results. Explain how you modified your invention based on the initial testing. Describe your testing of your improved invention.
- € Application: Discuss whether or not you were finally successful in solving your problem with your invention. Explain how your invention can be used, or what future steps could be taken to get to a successful invention.
- € Bible Verse: Include the Bible verse you chose. State in 1-2 sentences how this verse relates to your study.
- € Resources: Make a detailed list of all the books, websites, magazines, interviews, etc. used in developing your project. Include the sources for any images you have used in your report as well.

This project notebook will be placed in front of your display board.

DISPLAY BOARD:

See the sample on a previous page in this packet for general information. The information for the board will be excerpts or summaries from your Project Notebook. Items to include:

- € The project title
- € Your name and type of project (An Invention by...)
- € Your problem
- € Your idea
- € The procedure you followed in creating your invention
- € Any pictures taken or drawn of the invention

- € Your testing results
- € How you improved your invention
- € Your retesting results
- € Your conclusion about your invention
- € The Bible verse you selected
- € The list of references used
- € Who helped you on your project
- € Put your completed nameplate on back of the board (the nameplate is at the end of this packet)

Along with your display board, you may include some of the items used in your experiment. **Please check the “Do Not Bring” list in the Guidebook on what objects cannot be brought to the Science Fair.**

If you want to make a COLLECTION: 3rd-6th Grade

METHODOLOGY:

PURPOSE:

Determine what natural items (specimens) you are going to collect.

QUESTION:

What do you hope to learn from making this collection?

RESEARCH:

Read about your topic to find out more about the idea you are investigating. Check out 2 or more sources.

COLLECTION:

Materials: Determine and gather any supplies you need to make and categorize your collection. Collect the specimens that will be in your collection.

Sort/Categorize: Organize your specimens according to one or more characteristics: size, color, weight, location, hardness, or other quality.

Data Recording: Make notes on your collection—how many items, how did you categorize them? Can they be organized in more than one way? Use charts, tables, or graphs if useful for your data.

ANALYSIS:

Explain what you learned from making your collection. How are the items similar or different? What factors cause the differences? Answer your starting question.

SOURCES:

List any sources you used in your research or to make your display board.

BIBLE VERSE:

Select a Bible verse that relates in some way to your collection. Look for ways to see God in science.

PROJECT NOTEBOOK:

Share about your project in a project notebook or folder. Your folder should be neat and orderly and include the following:

- € Title Page
- € Table of Contents
- € Purpose & Question: State what you chose to collect, what question you wanted to answer, and why you chose this topic.
- € Facts: Make sure to include all information that you gathered to use in your project. For example: "Douglas fir cones contain 25-50 seeds."
- € Materials: Give a detailed list of all the materials used in your project.
- € Collection: Describe the specimens you collected. Explain how you categorized your collection and why you chose to organize it that way. Include photos, tables, or drawings. The descriptions should be detailed so that an outside reader can understand exactly what you did.
- € Conclusion: Explain what you learned from this study.
- € Bible Verse: Include the Bible verse you chose. State in 1-2 sentences how this verse relates to your study.
- € Resources: Make a detailed list of all the books, websites, magazines, interviews, etc. used in developing your project. Include the sources for any images you have used in your report as well.

This project notebook will be placed in front of your display board.

DISPLAY BOARD:

See the general information earlier in this packet. The information for the board will be excerpts or summaries from your Project Notebook. Specific items to include:

- € The project title
- € Your name and type of project (A Collection by...)
- € Your question
- € Any interesting facts you learned in your research about the items in your collection
- € Any pictures taken or drawn of the collection
- € Your results (use charts, tables, or graphs as appropriate)
- € The summary of what you learned from your collection
- € The Bible verse you selected
- € The list of references used
- € Who helped you on your project
- € Put your completed nameplate on back of the board (the nameplate is at the end of this packet)

Along with your display board, you may include the collection you made. If the collection is too large or for some other reason not displayable at the Science Fair, you should include clear photographs of your collection items. ***Please check the “Do Not Bring” list in the Guidebook on what objects cannot be brought to the Science Fair.***

If you want to do a STUDY: 3rd-6th Grade

METHODOLOGY:

PURPOSE/TOPIC:

Select a subject you want to learn more about.

QUESTION:

Decide on a question about your subject that you want to answer as you do this study.

RESEARCH:

Read about your topic to find out more about the idea you are investigating. Check out at least 2-3 sources.

FINDINGS:

What information did you learn? Your subject will determine what type of facts you will want to include. If you studied a disease, you would include facts about what the disease is, how common it is, who gets it, how do you know you have it, and how it is treated. If you explored a physical phenomenon like weather systems or friction, you would describe the phenomenon, explain what other things can influence it, and explore how it is used or seen in everyday life. If you are doing a population study, give some facts about the creatures, like birds or insects or trees, which you expect to find in a certain environment and describe how they fit into their ecosystem. If you studied a math concept, you should explain the concept, and describe how it is used or seen in everyday life. If you studied a scientist, you would include some personal background information about them, and then explain the discoveries they made and why those are important. Use pictures, diagrams, statistics, and examples as appropriate.

EXPERIENCE:

Consider what you learned through your research and look for a hands-on experience that allows you to see your topic in action. Possible options: go somewhere that you can observe or use the item you are studying; interview someone who works with the topic you are studying; do an activity that you find online or in a book that demonstrates the concept you are studying. For example, can you try the vision tests used to diagnose astigmatism, can you make a cloud in a jar, or can you create a fractal design? If you are doing a population study, go observe what creatures you find in a given space, count and identify the different birds, insects, or plants that you see, and then read more about the specific species you observed. Document what happened as you tried out what you learned from your research; use photographs, drawings, or samples as appropriate.

CONCLUSION:

Summarize how you can answer your starting question, based on what you learned in this study.

SOURCES:

List any sources you used in your research or to make your display board.

BIBLE VERSE:

Select a Bible verse that relates in some way to your study. Look for ways to see God in science.

PROJECT NOTEBOOK:

Share about your project in a project notebook or folder. Your folder should be neat and orderly and include the following:

- € Title Page
- € Table of Contents
- € Topic & Question: State the topic you chose to study, the specific question you wanted to answer, and why you chose to study this.
- € Facts: Explain the information you learned from your research—the facts you found, how those relate to each other and your question, and why those facts would be important.
- € Experience: Include diagrams, drawings, photographs along with a summary of the activity you did to experience first-hand what you studied.
- € Materials: Give a detailed list of all the materials used in your project (if any). Include with the list any sizes or measurements of the materials used; for example, 3 cups of oil or 5 inches of string.
- € Conclusion: Answer your beginning question; explain what you learned from this study.
- € Bible Verse: Include the Bible verse you chose. State in 1-2 sentences how this verse relates to your study.
- € Resources: Make a detailed list of all the books, websites, magazines, interviews, etc. used in developing your project. Include the sources for any images you have used in your report as well.

This project notebook will be placed in front of your display board.

DISPLAY BOARD:

See the general information earlier in this packet. The information for the board will be excerpts or summaries from your Project Notebook. Specific items to include:

- € The project title
- € Your name and type of project (A Study by...)
- € Your question
- € Facts you learned from your study
- € Visual aids to demonstrate or illustrate something you learned (be creative)
- € Your conclusion
- € The Bible verse you selected
- € The list of references used

- € Who helped you on your project
- € Put your completed nameplate on back of the board (the nameplate is at the end of this packet)

Along with your display board, you may include any materials that demonstrate something you learned from this study. **Please check the “Do Not Bring” list in the Guidebook on what objects cannot be brought to the Science Fair.**

ADDITIONAL INFORMATION

DOCUMENTING YOUR SOURCES

Sample for book:

Harbo, Christopher L. The Ultimate Guide to Paper Airplanes. 2011.

Sample for chapter in book (multiple authors):

Hartel, Richard W. & Hartel, Anna Kate. “The Magic of Gelatin” in Food Bites: The Science of Food We Eat. 2008.

Sample for website:

“What Is Protein?” Straight Health. 26 Apr. 2014.

<http://straighthealth.com/pages/qna/what-is-protein.html>

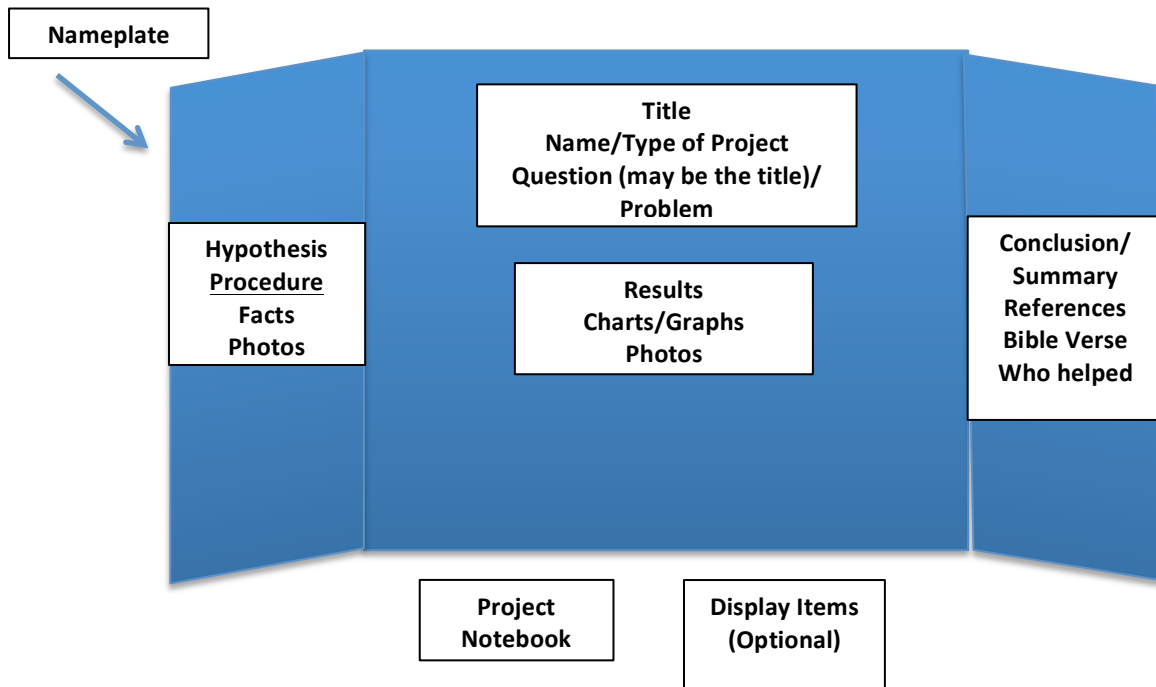
Images used from the Internet may be cited in a separate list, with either the name of the website or the URL.

MAKING THE DISPLAY BOARD

Fill out and put the nameplate on the right upper corner of the back of your display board (the nameplate is at the end of this packet).

Your board should be clear, neat, and readable from at least 2 feet away. The arrangement of information should be logical; below is an example, but you are free to order the parts in whatever way makes sense for your project. Include titles for the sections of your display board. Label all pictures, charts or graphs, and any other materials you include. Consider what you can do to make the display visually appealing, like use of color, diagrams, pictures, etc. Make sure anything you put on the board is securely attached.

For your display you may include some of the materials from your project, such as a plant you used, examples of your origami, or the collection you made. **Please note all the rules on what objects cannot be brought to the Science Fair.** Be sure to not use more than 3 feet of space on your table.



Thank you to the Science Fair Committee!

Kelly Curran

Charlie Heinemann

Sharon Heinemann

Elena Lamb

Kurt Leinweber

Shaula Leinweber

Sonya Morken

Cyndy Park

Jim Reed

Sue Ro

Kaptain Karl Riebeling

Tenda Tjoelker

Brenda Zylstra

These parent volunteers have made this event possible!



2015 Bellevue Christian School

Creation Celebration Science Fair Nameplates



Science Fair Project Nameplate

Detach and place on upper right corner on the back of the display board

TEACHER: _____ GRADE: _____

STUDENT NAME: _____

PROJECT TITLE: _____

TYPE OF PROJECT (circle one): Experiment Collection Study Invention



Science Fair Project Nameplate

Detach and place on upper right corner on the back of the display board

TEACHER: _____ GRADE: _____

STUDENT NAME: _____

PROJECT TITLE: _____

TYPE OF PROJECT (circle one): Experiment Collection Study Invention