Covington Science Fair

March 15-17, 2010

Information Packet

Getting Started

Participating in the science fair is a great way for you to explore new ideas and research topics of interest to you. Wondering how to get started? Here are a few tips to help get you on your way. Keep in mind that your science fair project does not have to be an experiment. It can be a collection, an invention, a demonstration or a model. ***Remember to keep it simple and have fun!***

Here are some ideas you can explore.

Collections

Seashells
Leaves
Rocks
Fossils
Different types of soil
Feathers
Bark rubbings
Chemical elements
(carbon, lead, sulfur, etc.)

Observations

Animal tracks
Raising a rabbit
Gravity
Spider webs
The moon
Inside an egg
Fish prints
Shapes of magnetic fields
Shadows
Parts of a flower
Clouds and weather
Earthworms

Demonstrations

Pulleys
Electromagnets
Levers
Planets
Why the wind blows
How the ear works
How seeds travel
Why fish have fins
How a bicycle works
Friction
Open and closed circuits
Optical illusions
Evaporation

Simple Experiments

Which magnet is strongest?
Which toy car rolls furthest?
Do plants give off water?
Do reshaped ice cubes melt faster?
How does vinegar affect egg shells?
Does salt water or fresh water corrode metal?
How long does it take mold to grow on food?
Which materials conduct heat best?
Which materials dissolve in water?
What type of grocery bags rots faster in soil?
Can an earthworm detect light and darkness?
Can people identify soda brands when blindfolded?
Which color liquid do hummingbirds prefer?
Does mold on different foods smell differently?

Resources and Planning

Have an idea? Ready to start? Here are some resources to help guide you through the process of creating your science fair project.

Check out these resources

- Covington library
- Los Altos library
- **Kids Space:** http://www.ipl.org/div/projectguide/
- **Kid Science** http://www.fatlion.com/science/
- **PBS Dragonfly TV Site** http://pbskids.org/dragonflytv/scifair/index.html
- **Discovery Kids** http://school.discoveryeducation.com/sciencefaircentral/Getting-Started.html
- **Science Club Kids** http://scienceclub.org/kidproj1.html
- **Science Fair Blueprints** http://www.terimore.com/science-projects/fun-science-projects.htm
- **Books:**
  - **Shocking, Slimy, Stinky, Shiny Science Experiments** by Steve Parker (make a circuit, slime and other interesting things)
  - **365 More Simple Science Experiments** by Judy Breckenridge, Anthony D. Fredericks (how to ripen fruit, rescuing an apple, etc.)
  - **Science for Fun Experiments** by Gary Gibson
  - **Science Experiments You Can Eat** by Vicki Cobb

Create a Plan

Make sure you have enough time to complete your project!

- Remember, most experiments take time so plan carefully or create a calendar.
- Start making a list of the materials you need (journal or notebook, science board, etc.) and start collecting them.
- Review the page on Developing Your Science Fair Project in this packet.
- Be ready to set up on Monday, March 16.

Developing Your Science Fair Project

Once you have an idea or topic, you can begin to make observations, start a collection, invent or build a model, develop a demonstration, or form a question for an experiment.

The Scientific Method

Develop a hypothesis and design an experiment to test it. The first thing to do is to ask a question for what you want to figure out. For example, "Does hot water freeze faster than cold water?" Then make a prediction about what the answer will be: "I think cold water will freeze faster than hot water." This prediction is called your **"hypothesis."** An experiment is a great way to test your hypothesis. The experiment you conduct will help you find out if your prediction was correct or not.

1. **Ask yourself what it is you are trying to find out**	2. **State your hypothesis**	3. **Select a variable** (what you will change to help find an answer)	4. **Decide how you will change the variable**	5. **Decide how you will measure the results**
"Does hot water freeze faster than cold water?"	*"I think cold water will freeze faster."*	*Water temperature*	*Select five different temperatures of water to freeze*	*Measure time it takes to freeze water of different temperatures*

Observe and analyze your experiment.
Now you are ready to run the experiment you described above. Make sure to:

- ***Measure*** your results and write down all of your data – even when things go wrong!
- ***Make careful observations*** during the experiment, and take notes on what you see and learn
- Draw pictures and take photographs if it helps ***illustrate what happened***
- ***Record*** the date and time if it is important
- Keep your notes neatly organized in a notebook or journal. These notes will help you create your science fair display board.

If you have time and materials, repeat the experiment to see if you get similar results. Remember, if you flip a penny one time and get "heads," you haven't proven that a penny will always come up "heads."

Determine results and draw conclusions.
What happened in your experiment? Look at the data you got, and try putting it into a graph, which may give you a "picture" of your information. If you repeat the experiment, do you get similar results? This information will help you make a conclusion, or tell you whether your hypothesis (prediction) was correct.

Sometimes science experiments do not work, at least not the way we planned. That is OKAY! It just means you've "disproved" your hypothesis. It happens to adult scientists quite often and they usually redesign the experiment and start over. What are some of the things that went wrong? What would you do differently if you were going to repeat the experiment?

Your Science Fair Display Board

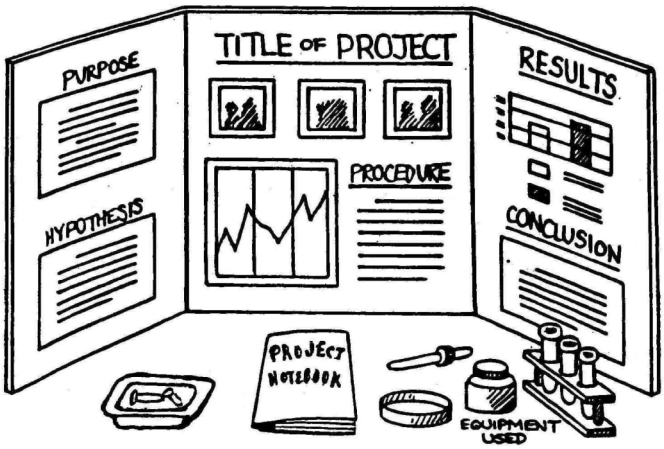
The display board is your way ***to show your work in a clean and simple manner***. It should get the attention of viewers so they will want to learn more about what your project.

Materials Checklist

- ☐ ***A tri-fold cardboard display board.*** Student Council will be selling display boards (Wed and Fri) during and after school beginning February 3 until supplies run out. Watch for announcements in the Howler. $3.00 for a white board and $5.00 for a color one.
- ☐ ***Markers, pens, pencils, etc.*** Use these materials to create bright colorful lettering for the titles and descriptions. You can write it by hand or type it on a computer.
- ☐ ***Colorful construction paper.*** Use colorful construction paper as a background to your typed descriptions, charts and graphs to set them off from the white background.
- ☐ ***Pictures, diagrams and other illustrations.*** If possible, include these items if they help to explain your project.

What to Include on Your Science Board

- ☐ ***Title.*** A catchy title that will attract people to your board.
- ☐ ***Purpose Statement.*** A short statement about why you chose this project.
- ☐ ***Hypothesis.*** Your educated guess of what you think will happen in your experiment.
- ☐ ***The Experiment.*** Your detailed plan of how you carried out your research. This item should include materials and the procedure.
- ☐ ***Data and Results.*** These are your charts, graphs and analyses.
- ☐ ***Conclusions.*** Was your hypothesis correct? If not, why? What would you do differently next time?

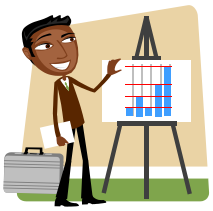


Presenting Your Project to Students or Parents

During class time, or on family night, please stand by your board and present your hard work. Here are some tips on making a presentation of what you did.

Project Presentation

Remember these key tips!



- ✓ Say your name and the title of your project
- ✓ Point to your science board when you talk
- ✓ Tell why you were interested in your topic
- ✓ Say a few sentences about what you did
- ✓ Talk about your conclusions
- ✓ Give a short summary of what you learned
- ✓ Be ready to answer questions from your audience

Don't: *-Talk when other people around you are demonstrating their project*
-Laugh or make jokes during presentations

Always: *Respect everyone's work!*

Details and Logistics

Key Dates

- **Display boards for sale after school by Multi:** Feb 3 until ??
- **Register:** by March 5
- **Set up:** Monday, March 15, 8:00-8:30 am in the Multi
- **Exhibit:** March 15-17 in the Multi
- **Family Open House:** March 16, 6:30-8:00 pm in the Multi

Keep watching The Howler for more details.

What to Display

- Self-standing display board with name, grade and room number.
- Notebook, journal or note pages kept during the experiment
- Optional: small model item or material used, or actual experiment.

Rules for Displays

- Displays must fit on a table in an area 24” wide x 18” deep. Maximum height is 54”.
- Dangerous items prohibited. Do not bring dangerous chemicals, drugs or alcohol, explosives, open flames, microbes (bacteria or molds), toxic waste samples, combustible liquids/gases, or protruding sharp items.
- Safety for all visitors is required.
- Operation of electrical appliances, 110-volt AC, must receive prior permission.
- Valuable, expensive or fragile items should not be on display.

Register Now!

☐ I can’t wait to participate in the science fair!

Name: _____ Room: _____

Teacher: _____ Grade: _____

Fill this out and return to the office. Remember to register by the end of March 5.

A Note to Parents

Welcome to the 6th Annual Covington Science Fair. This is a non-competitive science fair designed solely to give our students a chance to create and display a scientific project of their choosing. We thought you might appreciate some information on how you can help make this a successful event for your child.

Questions? Want to Volunteer?
Contact:
Ingrid Choong
(ichoong2@gmail.com)

What is the purpose of the science fair? Science fairs are about learning and having fun. Real-world scientists know that discoveries and breakthroughs are built on learning what doesn't work as much as what does. We are not looking for kids to find the "right answers" with their projects. We just want them to try a project and learn from whatever happens.

What exactly should my kid be doing? The science fair project could be a model, invention, collection (insects, seashells, etc), demonstration, or experiment. Since many children choose to conduct experiments, we have provided information in this packet as to how to create one.

How much involvement should I have? The answer is not too little and not too much. Consider the following in determining how much involvement is right for you:

- It's important that kids stick to a topic that's simple and straightforward. You can help to brainstorm ideas and making sure that the final choice is something your child seems genuinely curious about.

- Once your child comes up with an idea, determine what question will be answered through the project. In other words, a question needs to be posed and then a hypothesis needs to be made (i.e., a guess as to what the results will be). How your child goes about answering this question becomes the project.

- Don't forget to consider the age of your child, the safety (or lack of) involved with the proposed project, how elaborate and time consuming the project will be, what materials will be needed, and so on. By understanding his capabilities, you can help your child choose a project that is right for him. Remember that learning should be fun rather than stressful for both of you.

- Allow for plenty of time. Many children will need help budgeting their time, spacing the work into manageable chunks, and keeping a reasonable schedule.

- Your enthusiasm and encouragement are the most valuable things you can give your child. Guide him whenever and wherever you can, but let the final project reflect your child's individual effort and design.

Please note the dates and times of the fair in the attached packet. There are myriad resources on the Internet and at the library. Good luck, and have fun!

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