



Science Fair Information Pack



Parent & Child Project



Save the date!



What: PETNS Science Fair

When: Friday the 10th of March!

Details:

Each child in the school and parents/guardians are encouraged to complete a project for our first Science Fair. All projects will be displayed in the hall and the hall will be open for visitors for the day.

What is a Science Fair Project?

A science fair project is a unique way for students to pose questions for which they must seek out answers and to satisfy their own curiosity about the world around them. A science fair project is an experiment, a research effort, a collection of scientific items, or display of scientific tools presented for viewing. It represents the efforts of a student's investigation into some area of interest and provides a way for the student to share the results of those investigations. Through the development of a science fair project, students gain a first-hand appreciation of the work of scientists and the value of their discoveries.

Science Fair - A Parent & Child Project

The Science Fair is a Parent and Child Project! It aims to encourage parental involvement in the children's learning. As many parents work and are unavailable during the school day, it is a great opportunity for parents and children to work together on a project over a 5 week period **after school**. The entire science project is completed at home.

Parents are encouraged to facilitate their child's learning and actively assist them complete the project. It is important that parents encourage children to complete the project in **their own words** and ensure children have a comprehensive understanding of the project.

PETNS Science Fair Project Rules & Guidelines:

- A project should include a display board and any important hands-on objects. Students are expected to be able to share/discuss their project with the judges. Presentations will be conducted during school on Friday the 10th of March.
- The display board may be a typical trifold display board available at local stores such as Easons, or it may be any type of free-standing cardboard. The display board must stand

upright.

- Projects should include a title, clear description of what is being investigated, and what was learned. Graphs, charts, photos and other visual aids are encouraged.
- The project should be completed by the student **at home**.
- The project should include the child's name, class and teacher.
- The project can be completed by an individual child, a family or a group of children
- Using the scientific method is strongly encouraged, but not required.

Some Science project ideas:

Sometimes, one of the hardest parts of planning a Science Fair project is figuring out what to do and where to start. Below are various resources to help you think about what kind of Science Fair project you want to complete. ^[SEP]The following are Science Topics covered in Junior Infants through to 6th class to help guide you as you look to pick out a Science Fair topic...

Junior & Senior Infants:

- 5 senses
- Magnets
- Physical properties of objects
- Properties of water - solid, liquid, gas (Flow of Water/Sink or Float)
- Plant and Animal Life Processes and Needs
- Shadows
- Weather Observations
- Reduce/Reuse/Recycle

1st & 2nd Class:

- Magnets (attract, repel, applications of magnets)
- Plant and Animal Life Cycles
- Weather Patterns, Types of Storms, Day/Night^[SEP]
- Water Cycle
- Seasonal Changes
- Weathering and Erosion
- Plants produce oxygen and food, are a source of useful products, and provide benefits in nature
- Plant Products

3rd and 4th Class:

- Animal and Plant Life Cycles
- Adaptations (physical/behavioral/learned/instinct)
- Ecosystems and Environments (terrestrial, aquatic, populations, communities)
- Food Chains
- Environments (human impact, conservation of resource renews, effects of fire, flood, erosion on organisms)
- Water Cycle
- Soil
- Earth Patterns (Day/Night, seasons, tides, moon phases)
- Renewable Resources
- Types of Energy
- Simple Machines

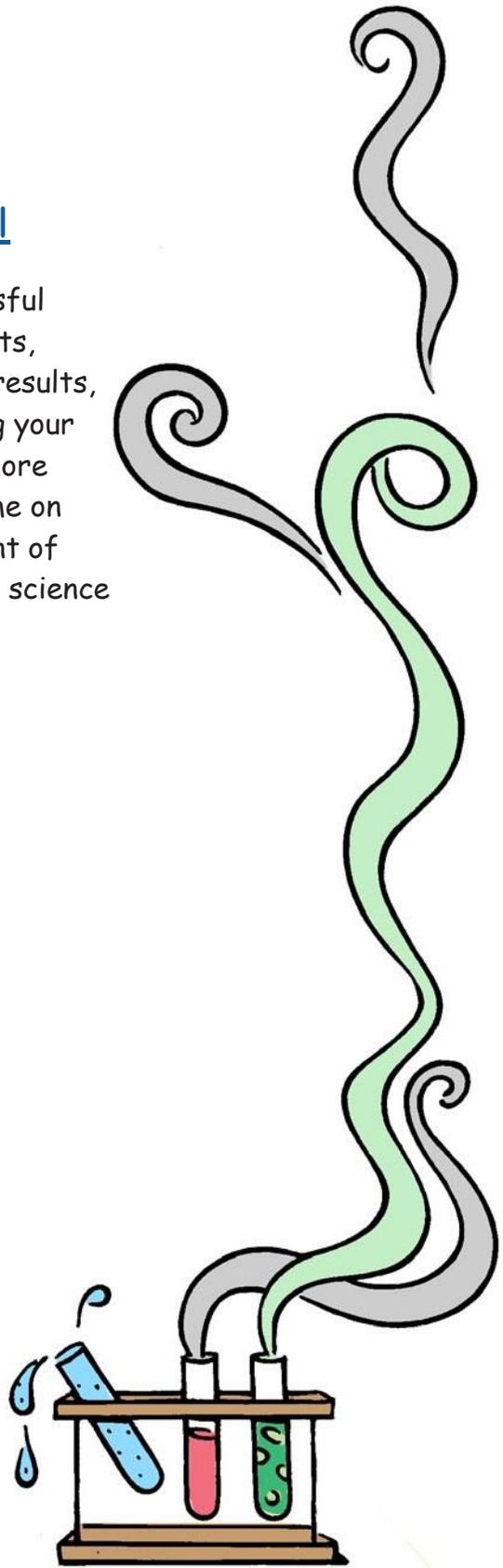
5th and 6th Class:

- Sound
- Earthquakes; Volcanoes
- Light
- Living Systems/Cells
- Ocean Life
- Forest Life
- Types of Energy
- Plant Anatomy
- How plants make food
- Solar System
- Electricity (open/closed circuits; electromagnets)
- Force and Motion

Part One: The Science Journal

The Science Journal is one of four parts of a successful science fair project. This is where ALL ideas, thoughts, notes, drawings or sketches, research, information, results, and data are written. Everything that happens during your science fair project should be recorded here—the more detail, the better! Remember to write a date and time on every page. The science journal will be placed in front of your display board for the judges to read during the science fair.

The Science Journal may be a spiral or composition notebook. Once started, please do not remove any pages from your Science Journal or use it for other things. This notebook should be completely dedicated to your project. It is okay for there to be some mistakes— just be as neat and thorough as possible.



Part Two: The Research Paper

Using the Scientific Method of Investigation



The research paper may be typed or neatly handwritten. Each step must be explained thoroughly and clearly. Some of the steps require a rough draft; Rough draft worksheets are included at the end of this guide.

Attach more pages if necessary.

Step 1: State the Research Question

What question are you trying to answer? Ask a question that you can answer through observation or experimentation.

Step 2: State the Purpose

What is your reason for asking this question? What are you trying to discover?

Step 3: Background Research

Write a background research section. This section should be used to help you make a hypothesis. For 3rd -4th class, include ten to fifteen facts and cite one to three sources. For 5th & 6th class, include twenty to thirty facts, and cite three to five sources.

Step 4: Write a Bibliography

Make a list of the sources you used to collect your background research. Your teacher can help guide you in using the proper format.

Step 5: Make a Hypothesis

A hypothesis is a statement that predicts the outcome of your experiment, based on what you already know, and proposes an explanation that can be tested. What do you think that the answer to your research question will be? Remember, hypotheses don't need to be correct— they just need to be informed guesses! Never go back and change your hypothesis once your experiment is complete. You will learn something important whether your hypothesis is proven or disproven! If you have researched the topic of your project, then your research should help you make a good hypothesis. Hypotheses are often written using an "If..., then..., because...." format.

Step 6: List the Materials

Every item that you will use to do the experiment should be listed in the materials section. A common format is to list items in the order in which you will use them.

Step 7: Describe the Procedure

The procedure describes the experiment in a step-by-step sequence. It may help to think of the procedure as a recipe, in which every step is clearly explained. How will your materials be used, and how and when will they be measured? Another person should be able to follow the procedure of your experiment and get the same, or similar, results.

Step 8: Perform the Experiment

Following the procedures from Step 7, conduct your experiment. If you realize that new steps or materials are needed, you may go back and revise those sections. But remember not to revise your original hypothesis.

Step 9: Record the Results

Record detailed records of the results of your tests and observations. Results should always be explained in a written format first, followed by graphs, charts, and/or tables.

Step 10: Make a Conclusion

After getting the results in Step 8, make a conclusion. According to your results, was your hypothesis proven or disproven? (Remember, it is okay for your hypothesis to be disproven!) Was there anything in the experiment that you would change if the hypothesis were retested? How could you change or expand this experiment if you were going to do it again? What did you learn from the experiment? How could this information be used to help people or to make the world a better place?

Step 11: Write an Abstract (recommended for 5th & 6th class)

An abstract is a one-page summary of your project. It should state your research question, purpose, and hypothesis. It should include your procedures, but you do not need to be as precise as you were in the procedures section; describe your steps more generally. Your results and conclusion should also be included. The abstract is meant to give a quick explanation of your project to someone before they start to read your paper and examine your display.

Step 12: Acknowledgments (optional)

Thank the people who helped you with your project.

Step 13: Create a Title Page and Table of Contents (optional)

The title page should include a title for the project. (It is okay to restate the research question if you can't think of a good title.) Also include your full name, your grade, your teacher's name, your school's name, and the school year.

After placing each section of your paper in order, number your pages, and then write a table of contents.

Step 14: Proofread Everything Carefully!

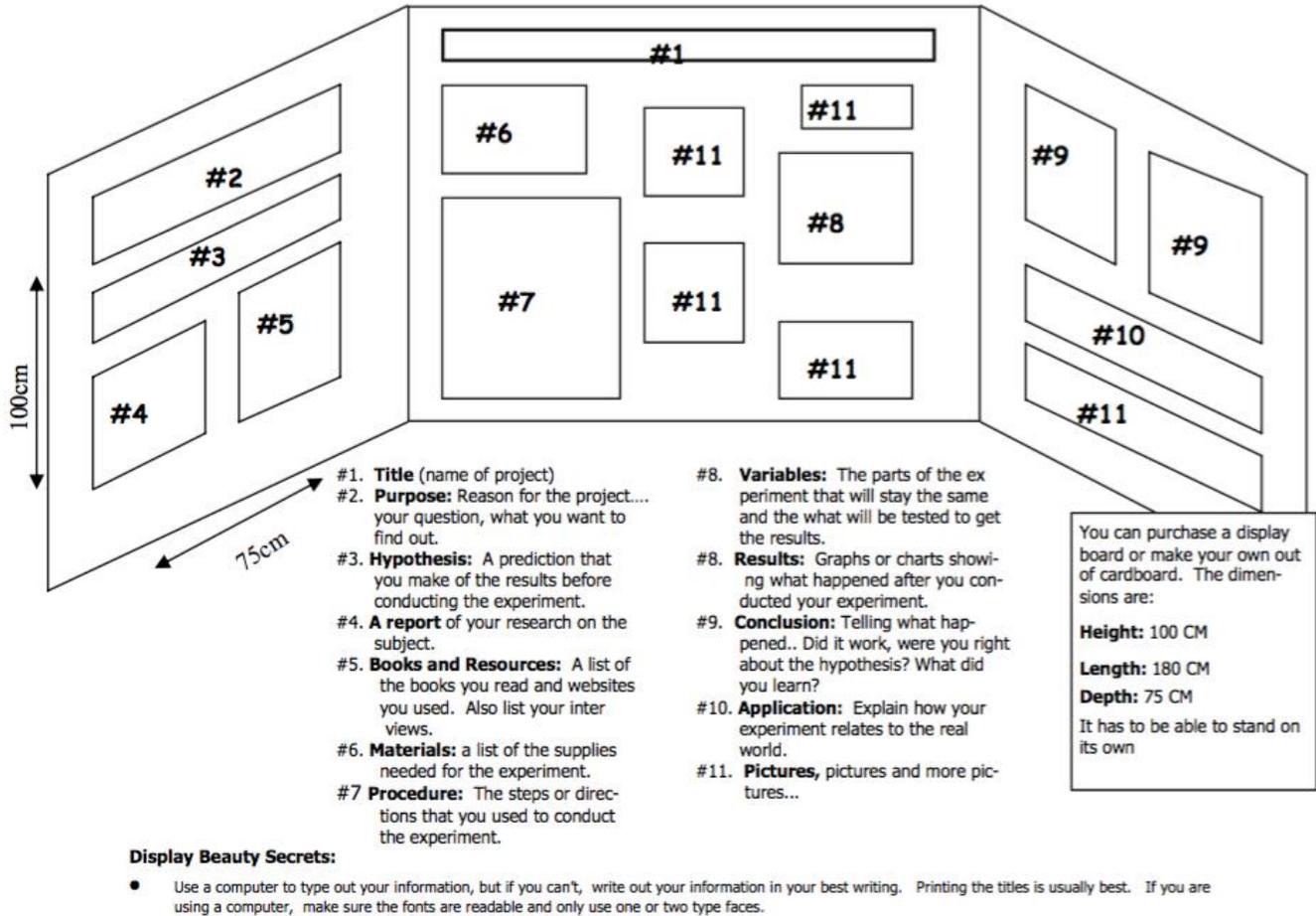
**The Final Order Of Your
Research Paper Should Be:**

Title page
Table of Contents
Acknowledgments
Abstract
Research Question
Purpose
Background Research
Hypothesis
Materials
Procedures Results
Conclusion
Bibliography



Part Three: The Display Board

This is an example of a neat looking Science Fair Display Board. It is just an example. Depending on your information and the amount pictures, tables and graphs, you may have a different layout. Just make sure it is neat and easy to read!

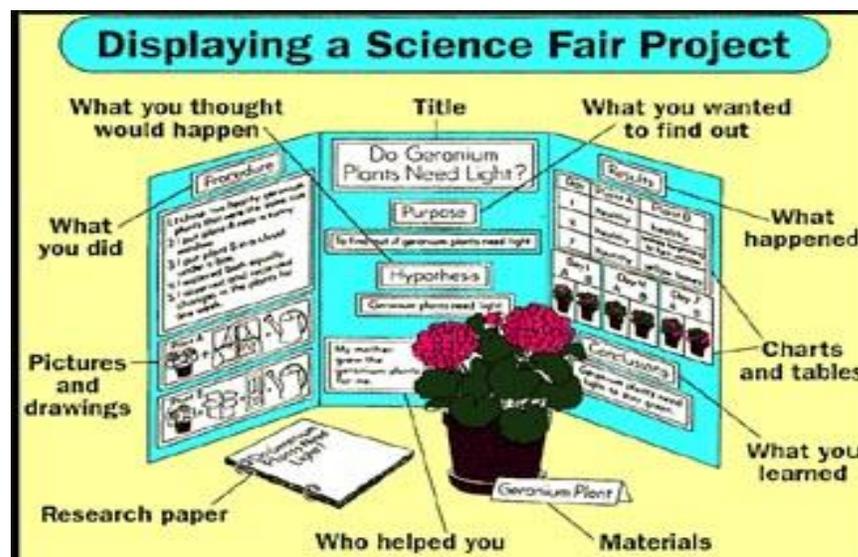
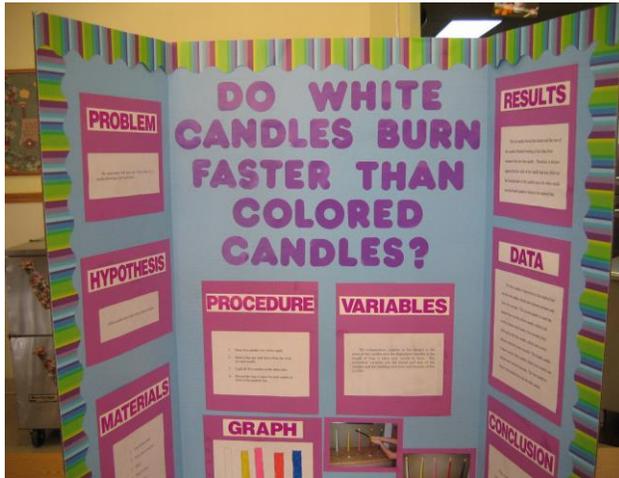


How does it look?

Create a display board so your findings can be shown at the science fair. It is a summary of your project and reflects your journal. This is your showcase. Make it creative and colorful. Below are ideas for a great display board.

- Title of your project at the top.
- Show all the steps of the Scientific Method process with a brief explanation of each: question, research, hypothesis, experiment (materials, procedure, variables, and data gathered that is organized in a chart or table), analysis (graph and graph explanation), and conclusion.
- Well-organised and easy to follow from one idea to the next.
- Neat, edited, and without scribbles and misspelled words.

- Creative, pleasing to look at, colorful, with different font sizes to show emphasis.
- Photos of the developing experiment.
- Drawn pictures, artwork, and icons that bring out the ideas of the experiment.



The style of your font should not vary from one section of your text to another section—this will make your board look too "busy" when people are trying to read it. The project and section titles may have different styles from the text, but these should also remain consistent. Many people use colored construction paper mounted behind each section to make their boards stand out. Use rubber cement, a glue stick, or two-sided tape to stick each section to your board. School glue may make the paper

Before you glue everything onto your board, place each section where you think it would look best.

In front of your display board you should place your science journal, your research paper, and examples or models that help explain your project (if applicable).

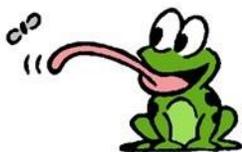
Part Four: The Oral Presentation

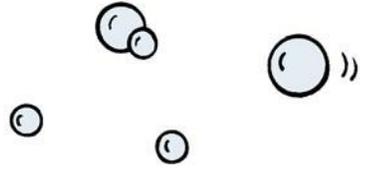
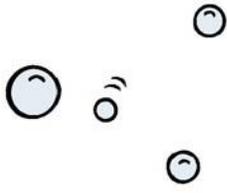
Your teacher may assign you a date on which you will present your science fair project to the class. You will also be asked to present your project to the science fair judges.

Tips for a great oral presentation:

- Make sure that your science journal, research paper, and display board are complete, neat, and proofread.
- Be prepared. Practice your presentation as many times as possible. Use index cards to write down your main points. Your index cards should not be read aloud; by practicing your presentation enough times, you should know what to say without even looking at your cards. They are to be used only if you need a reminder as you are presenting.
- Point to your board when explaining graphs or pictures, but do not read off your board.
- Practice in front of friends and relatives. Give them an opportunity to ask questions or provide feedback, and remember that it's okay to say, "I don't know." Remember, it is always better to say that you don't know the answer than to make one up!
- In case you are asked, make sure that you can clearly explain how your results were measured. For example, if you used a scale to measure weight, know what type of scale you used. Be able to show how to balance the scale and what weights you used.
- Be enthusiastic, and smile during your presentation. Stand straight and speak clearly and loudly enough to be heard by everyone in your audience. Make sure that your audience knows how proud you are of your project.
- Dress well. Wearing nice clothes shows that you are proud of your project and want to represent it in the best way possible.
- Stay within the length of time your teacher has provided for your presentation.

You may be expected to present your entire study, including your research question, purpose, background research, hypothesis, materials, procedure, results, and conclusion. Make sure that you share any special challenges or unexpected outcomes. Be prepared to answer questions at the end of your presentation.





Research Paper Rough Draft:
Research Question/Purpose

Name _____ Due Date _____

Parent/Guardian Signature _____ On Time? Yes/No

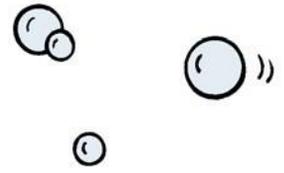
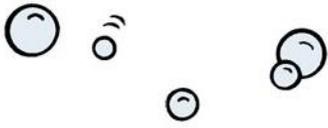
State the Research Question

What question are you trying to answer? Ask a question that you can answer through observation or experimentation.

State the Purpose

What is your reason for asking this question? What are you trying to discover?

Comments/Suggestions:



Research Paper Rough Draft:
Materials/Procedure

Name _____ Due Date _____

Parent/Guardian Signature _____ On Time? Yes/No

List the Materials

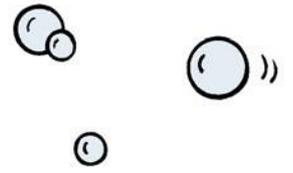
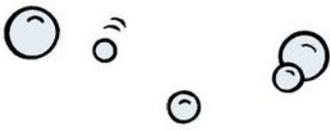
Every item that you will use to do the experiment should be listed in this section.

Describe the Procedure

The procedure describes the experiment in a step-by-step sequence. It may help to think of the procedure as a recipe, in which every step is clearly explained. How will your materials be used, and how and when will they be measured? If each step is carefully explained, another person should be able to follow the procedure of the experiment and get the same, or similar, results.

Use the back of the paper or separate sheets if you need more space.

Comments/Suggestions:



Research Paper Rough Draft

Abstract

Name: _____

Due Date: _____

Parent/Guardian Signature: _____

On time: Yes/ No

Write an Abstract (recommended for 5th & 6th class)

An abstract is a one-page summary of your project. It should state your research question, purpose, and hypothesis. It should include your procedures, but you do not need to be as precise as you were in the procedures section; describe your steps more generally. Your results and conclusion should also be included. The abstract is meant to give a quick explanation of your project to someone before they start to read your paper and examine your display.

Comments/Suggestions:



HOW TO WRITE A BIBLIOGRAPHY CORRECTLY

1. BOOKS

Author. Title. City of publication: Publisher, Copyright date.

Example:

Madison, Arnold. Drugs and You: The Effect of Drugs on the Human Body. New York: Messner, 1995.

2. ENCYCLOPEDIA ARTICLES

"Article." Encyclopedia name. Last copyright, Volume number, Page (s).

Example:

"Drug Abuse." World Encyclopedia. 1989, Vol. 5, pp. 84-89.

3. MAGAZINE AND NEWSPAPER ARTICLES

Author (if known). "Article." Magazine: Volume number (Date, Pages).

Example:

Wisenberg, Sandi. "The Chemical World of Drugs and its Effects on Society." Miami Herald: October 1999, sec. D.p. 1

4. INTERVIEW

Last Name, First Name. Occupation. Address: Date Contacted.

Example:

Smith, Bob. Meteorologist. 2801 North 4 ~ Street Miami, Florida 33156: March 20, 2002.

5. INTERNET SITE

Web documents share many of the same elements found in a print document (e.g, authors, titles, dates of publication). Therefore, the citation for an Internet site often follows a format similar to that for print.

Author or Organization (Date). "Title of Article." Retrieval date and Internet address.

Example:

Everglades National Park. (1999). "habitats: Everglades National Park" Retrieved from the Internet on March 20, 2000. Available at : <http://www.nps.gov/ever/ecolhabitats.htm>

An example of a bibliography is given using the examples provided.

Bibliography (Sample)

"Drug Abuse." World Encyclopedia. 1989, Vol. 5, pp. 94-89

Everglades National Park. (1999). "Habitats: Everglades National Park." Retrieved from the Internet on March 20, 2000. Available at: <http://www.nps.gov/ever/ecolhabitats.htm>

Madison, Arnold. Drugs and You: The Effect of Drugs on the Human Body. New York: Messner, 1995.

Smith, Bob. Meteorologist. 1522801 Northwest 167th Street Miami, Florida 33156: March 20, 2002.

Wisenberg, Sandi. "The Chemical World and its Effects on Society." Miami Herald: October 1999, sec. D. p. 1.

***Note that the bibliography is written in alphabetical order
According to the first word of each entry***

Website Resources

Supplies (Many science projects can be made with inexpensive things found around the house or found at Dealz, Mr Price.

Great Sites for Science Ideas

<http://pbskids.org/zoom/activities/sci/>

www.eia.gov/kids/energy.cfm?page=teacher_experiments#sf_primary

www.sciencebuddies.org/science-fair-projects/project_ideas.shtml www.sciencebuddies.org/science-fair-projects/science_project_ideas.php <http://www.education.com/science-fair/elementary-school/>

www.stevespanglerscience.com

www.exploratorium.edu/snacks

<http://www.all-science-fair-projects.com/>

<http://scienceforkids.kidipede.com>

<http://www.neok12.com/>

<http://teacher.scholastic.com/dirt/index.htm> <http://www.sciencekids.co.nz/experiments.html>

<http://science.wonderhowto.com/how-to/>

<http://www.physicscentral.com/experiment/physicsathome/index.cfm>

<http://www.teachersource.com/category/science-fair-ideas>

<http://www.chromebattery.com/battery-kids/projects>

<http://www.funsci.com/>

Science Fair Project Examples to Get You Thinking

- How does light affect plants?
- Which dog food does your dog like best?
- Which silly putty/slime recipe is best?
- Which detergent removes grass stains best?
- Which detergent removes grease best?
- Crystal Growth
- How does the temperature of water affect the freezing time?
- What shape of glass causes water to cool off fastest?
- Test a variety of water and/or a variety of ways to remove contaminants from the water
- How can you get kidney beans to grow fastest?
- How can you affect the shape of a magnetic field?
- What is the biggest shadow you can make with a piece of paper 8.5 inches by 11 inches? What is the smallest shadow you can make with the same piece of paper?
- What is the effect of turning young plants upside down as they grow?
- What is the fastest way to cool a cup of hot water?
- How can you affect the time it takes for bread to rise?
- What happens when you soak egg shells in vinegar? What about when you soak them in lemon juice or other kitchen chemicals?
- What kind of fruit rots fastest?
- Which brand of paper towel stays strongest when wet?
- Which freezes fastest - Coke, Kool-Aid, strong salt water, or weak salt water?
- How can you stop cut apples from going brown?
- How does the color of light affect plant growth?
- Which materials insulate best against the cold?
- Which design of paper plane will fly the furthest?

Tip 1: Project Timeline

Student _____ Class _____ Date _____

The following is a list of due dates for each section of the project. Careful—falling behind makes everything more difficult! It is better to work ahead of the due dates in case problems arise.

Remember, sometimes scientists need to redo a part of their experiment or even the whole thing!

Working Plan	Time Line Due Date	Parent's Signature & Date	Comment
1. Share letter & packet with parents. Set up a Lab Notebook.	1/2/2017		
2. Return contract signed.	6/2/2017		
3. Select Topic / Problem Statement. • Identify Manipulated Variable • Identify Responding Variable	10/2/2017		
4. Complete topic research. • Cite three or more resources. • Form a Hypothesis.	13/2/2017		
5. Design an Experiment: • Identify Variables/Control • Write Procedures. • List and collect materials. • Create a Data Collection Table.	20/02/17		
6. Perform Experiment: • Collect Data • Take pictures • Create a graph	22/02/17		
7. Analyze Data • Write Results • Compare Results to Hypothesis. • Write Conclusion & Application.	27/2/17		
8. Write the Abstract & Bibliography.	2/03/17		
9. Create the Display Board.	6/3/17		
10. Turn in Science Fair Project	9/3/17		



Tip 2: Science Project Proposal Form



Name _____

Problem Statement (The question I plan to investigate in my experiment.)

Science Fair Project Question Checklist

1. Is the topic interesting enough to read about and work on for the next few weeks?	Yes / No
2. Can you find at least 3 sources of written information on the subject?	Yes / No
3. Can you design a "fair test" to answer your question (problem statement)? In other words can you change only one variable (manipulated/independent) at a time, and control other factors that might influence your experiment, so that they do not interfere?	Yes / No
4. Can you measure the dependent/responding variable, the changes in response to the independent/responding variable using a number that represents a quantity such as a count, length, width, weight, percentage, time, etc.?	Yes / No
5. Is your experiment safe to perform?	Yes / No
6. Will you be able to obtain all the materials and equipment you need for your science fair project quickly and at a very low cost?	Yes / No
7. Do you have enough time to do your experiment and repeat it at least 2 times more times before the school science fair?	Yes / No

I have discussed the project problem statement and the checklist with my parent(s) and I am willing to commit to following through with this project.

Student Signature

Date

I have discussed the project idea and the checklist with my child and I believe he or she can follow through with this project.

Parent Signature

Date



Powerstown Educate Together National School

Roll number 20384J

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Telephone: 01 8262552

Email: info@powerstownet.com

www.powerstownet.com

Dear Parent/Guardian,

Every child in the school is invited to participate in our Science Fair. This is a home-school project that is completed in partnership between parents/guardians and pupils. Projects are completed at home and are presented to school on Thursday 9th of March for our Science Fair on Friday March 10th. Children can complete projects individually, with siblings and/or with their friends. You and your child decide!

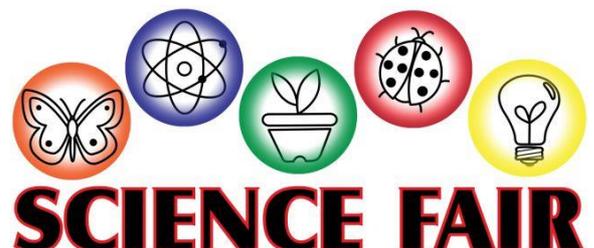
It should be a fun learning opportunity for you and your child to work together over the next five weeks on an educational project. It should also encourage your child to develop a good understanding and knowledge of "the scientific method".

This guide may be helpful during the next several weeks. Please remember:

- As a parent, your job is only to assist. This is an opportunity for your child to think and act like a scientist, and to create and discover his or her very own science project!
- Please allow your child plenty of time to make mistakes. He/she might even need to start the experiment again. Remember, real scientists constantly redo their studies by starting over again.
- Please make sure that your child understands everything that he/she writes and can explain the project to others.
- For safety reasons, please be available to assist your child with research and any portions of the experiment that may pose a safety risk.
- Please make time to visit the public library and use the Internet to assist your child with project research.
- It is recommended that you purchase the display board as soon as possible. Most craft stores, office supply stores, and superstores carry display boards for science fair projects.
- Remember, this is a multipart project. Your child must complete the science journal, research paper, display board, and presentation in order to receive full credit.

Thank you for your continued support!

PETNS Science Committee



P.E.T.N.S. Science Fair School Contract



I, _____, will submit an entry for the Powerstown Educate Together National School Science Fair due **Thursday, March 9th, 2017.**

I understand that this is a parent and child project and parents/guardians are encouraged to assist children complete project over a 5 week period

I have read the Science Fair Project Guide and I am looking forward to presenting my project to the Science Fair.

Student's Class: _____

Student's Name: _____

Student's Signature: _____

Parent's Name: _____

Parent's Signature: _____

Title of Project: _____

People who will work on the project: _____