

Brookview Elementary School

2018 Science Fair information packet

IMPORTANT DATES

- Registration forms are due on Wed Nov 21
 - Submit paper registration form to your classroom teacher or to the front office
 - Submit electronic registration form on PTA website or e-mail to Science Fair Chair
- Science Fair is on **Thursday December 6th** in gymnasium
 - Parents must attend set-up and event with their child(ren)
 - Poster board set-up is 5-6 pm
 - Science Fair is open to public 6-7 pm
 - Participants should be available to present their project and to answer questions 6-6:30 pm
 - Projects should not require electricity or excessive space during presentation

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WHY DO A SCIENCE PROJECT THIS YEAR?

Why not? It is a great way to have fun and learn something new. Learning in the classroom with your teacher is a great way to learn, but having the chance to study something that **you** want to learn about in a way that **you** think up and design **yourself** is totally cool!

HOW DO I DECIDE ON A SCIENCE PROJECT?

The first thing is to decide on a question that interests you. You can have your mom and/or dad help you find ideas. You can check out some of the web links listed at the end of this document or come up with some ideas of your own. It can be as simple as which brand of paper towel is the most absorbent, or as complex as determining what wavelength of light will allow plants grow to best, or which soap is the best at killing the most germs.

The key is asking a question that can be answered with an experiment. Make sure the topic is not too broad and does not have too many variables. To help answer your question, use the Scientific Method (described below) and make sure to read about the topic to gain more information. The most important thing is to learn and have fun while learning!

WHAT IS THE SCIENTIFIC METHOD?

The Scientific Method is the standard way to organize a science experiment or science project. The following steps should be followed.

1. Select a **QUESTION** to investigate.

- Explore a subject of interest or choose a specific question to investigate.
- Be specific and clear about what you are asking.
- Effective questions are generally those which make a comparison or explore a cause and effect relationship. For example: “Which brand of popsicle melts the fastest?” or “How does the size of a balloon affect its pressure?”

2. State a **PURPOSE** for your investigation.

The purpose of the investigation is a statement, which explains what knowledge the student would like to discover, or what they want to find out.

3. Make a **HYPOTHESIS** (prediction).

A hypothesis is a good **guess** about what the answer to the question will be. The student should try to predict, before doing the experiments, what will happen and why.

4. Develop the EXPERIMENT (procedure) to test the hypothesis.

The procedure is a step-by-step plan or experiment for testing your hypothesis. Try to keep the experimental design simple.

For most experiments, there will be an experimental group (the variable being tested) and a control group (something that the experimental group is compared to). Keep in mind sample size (If you are testing whether all saltine crackers contain the same number of salt grains on top, would you count 2 crackers or 100 crackers?).

A good procedure is one that another scientist can follow to see if they end up with the same results. You can use pictures and drawings to illustrate the process. Remember to make a list of materials that will be needed.

5. Run the EXPERIMENT and record the RESULTS.

Run the experiment according to the procedure. It is important to repeat the experiment several times to see if you obtain the same conclusion each time. The results (data collected) can be written information, pictures, forms, graphs or charts, etc. It might help to create a data collection form or checklist prior to starting your experiment.

6. Form a CONCLUSION that tells what the results of the investigation mean.

Study your results to form a conclusion statement, which tells the outcome of the investigation. Did your data support your hypothesis or not?

Your experiments could have either **proved** the hypothesis (that means that the prediction was right!) or **disproved** the hypothesis (this shows that the initial prediction was wrong, which happens very often in science!!). What was learned? How did the experiments disprove the initial prediction?

If you can't draw a clear conclusion, think about how you could do the experiment differently based on what you have learned.

CHECKLIST FOR THE SCIENCE FAIR PROJECT

Get started

- Choose a topic that you are interested in studying and learning more about. Choose a study that is **age-appropriate**. It is important that you are able to understand what you are presenting. Keep your study or project to one topic.
- Make a list of questions you want to know the answer to about your topic and decide on the purpose of your study.

Collect data

- Collect information and gather materials.
- Collect data, run experiments or test invention, make observations and record information. Keep NOTES or a NOTEBOOK to record everything you do to prepare for your study and what your observations and results are from your study.
- Support your findings with pictures, drawings, photographs, charts, graphs and models, etc.

Prepare your poster board

- Give your project a title. The title should be in the form of a question.
- Explain the purpose of the study or project. Be clear as to what it is you are studying and why. For inventions, explain what problem you are trying to solve.
- Present information you collected in easy to read graphs or tables. Use of drawings, pictures, or photographs may be helpful. Include NOTES with your research information, data, and any models, instruments, equipment or displays to illustrate your study.
- Remember to demonstrate clearly your use and understanding of the scientific method.
- Make sure that there are no spelling or grammar errors and that all titles and text are clearly presented. If text is done on a computer, **use a font of 28-34** so that it can easily be read!! Feel free to use bold, italics, color, etc to make the presentation creative and attractive! If the text is handwritten, be sure that you use print, not cursive, handwriting and that it is large enough to be easily read at

a distance. Use colored pencils, markers, paint, etc. to make the poster board attractive!

- Refer to the **Poster Board Examples** to help you arrange your information on the poster board. Electronic template is also available at <https://templates.office.com/en-US/Science-project-poster-TM00001151>. Tri-fold poster boards are inexpensive and easy to edit and reuse.

Science Project Title

Your name | Teacher's name | School

Problem / Question

Enter your question here (statement of the problem)

Hypothesis

- Add your answer / solution here
- Write hypothesis before you begin the experiment
- This should be your best educated guess based on your research

Project Overview

- Add a brief overview or summary of your project. (Use the Bullets button on the Home tab to remove the bullets.)

Variables / Research

Controlled variables	Independent variable	Dependent variable
• These are kept the same throughout your experiments	• The one variable you purposely change and test	• The measure of change observed because of independent variable • Decide how you will measure the change

Materials

Materials (detailed list)	Quantity (be specific)
Item	Amount

Procedure

Step 1	Step 2	Step 3	Step 4
Describe this step in your experiment			

Data / Observations

- Observation 1
- Observation 2
- Observation 3

Results

Chart Title

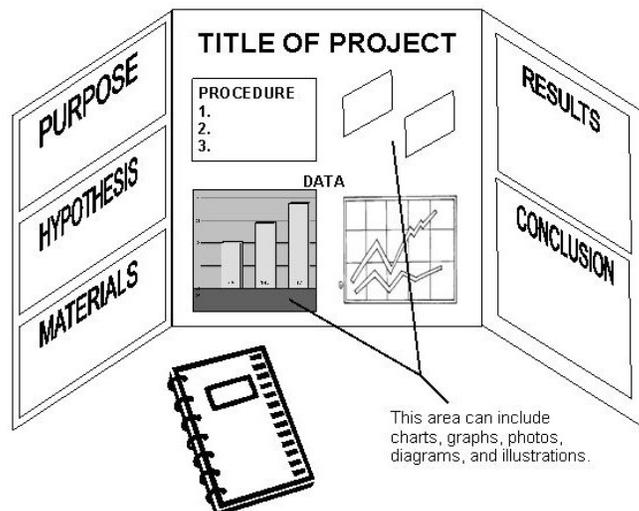
- Include results based on your experiments
- Result 2
- Result 3

Conclusion

- Brief summary of what you discovered based on results
- Indicate and explain whether or not the data supports your hypothesis

Works Cited

- Include print and electronic sources in alphabetical order



HOW PARENTS CAN HELP?

Remember that this is the student's project and the student is doing the work! However, kids cannot do it on their own; they will need the help, guidance and encouragement of their parents/caregivers. Here's what you can do:

- Give support and positive guidance.
- Make sure the child feels it is his or her own project.
- Make sure the project is age appropriate.
- Realize your child will need help understanding and acquiring information and materials, and using the major science process skills (researching, organizing, measuring, calculating, reporting, demonstrating, experimenting, collecting, constructing, presenting).
- Read and discuss this packet with the child.
- Help your child plan a schedule.
- Help your child design a safe project.
- Take your child to libraries, nature centers, etc. that can help your child find project information.
- Help the child use the internet appropriately when researching for projects or information.
- Buy or help find the necessary materials to complete the project.
- Help your child to keep a written record of all he or she does.
- Help the child assemble the poster board.
- Look over the project to check for good grammar, neatness, spelling and accuracy.
- Listen to the child practice the presentation several times to be ready for judges.
- Help transport your child and the science fair project to and from the school.

RESOURCES

There are many excellent resources to help you find a fun science fair project to try. Here are some websites with ideas for elementary school students (links are working and age-appropriate as of Nov 1, 2018).

- <https://www.education.com/science-fair/>
- <https://learning-center.homesciencetools.com/article/science-fair-projects-for-elementary/>
- <https://rediscoveredfamilies.com/science-fair-projects/>
- <https://www.icanteachmychild.com/science-fair-projects/>
- <https://www.parenting.com/gallery/easy-science-fair-projects-kids>
- <http://www.ars.usda.gov/is/kids/fair/story.htm>
- <http://school.discoveryeducation.com/sciencefaircentral/>
- <http://www.tryscience.org/home.html>
- <https://www.sciencebuddies.org/science-fair-projects/project-ideas>
- <http://www.juliantrubin.com/fairprojects.html>
- <http://chemistry.about.com/od/sciencefairprojects/a/sciproelem.htm>

VOLUNTEER INFORMATION

We will need organizers, judges, as well as help with set-up and clean-up! It you would like to lend a hand, please, contact Science Fair Chair Ekaterina Kadnikova (e-mail ekaterina.kadnikova@gmail.com) or the PTA. We will also have volunteer sign-up on Brookview PTA page by mid-November.

2018 BROOKVIEW SCIENCE FAIR PLANNER

Registration form is due on Wed Nov 21 Number of days left to register _____

Science Fair is on Thursday December 6 Number of days left _____

Name(s) SAMPLE _____

Project Title _____

Question: _____

My Hypothesis: _____

Steps to complete	By what date	Progress check
1. Gather the materials for the experiments		
2. Conduct the experiments (includes notes, sketches, and pictures in notebook as you work)		
3. Collect and organize data (graph, table, chart)		
4. Determine your conclusion and add information to your science notebook		
5. Plan science fair display board and get supplies ready		
6. Work on display board (proofread your writing before adding information to the board)		
7. Practice presenting your project (write note cards if that will help you remember what you want to say)		

NOTES

2018 BROOKVIEW SCIENCE FAIR PLANNING CALENDAR

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Nov 4	Nov 5	Nov 6	Nov 7	Nov 8	Nov 9	Nov 10
Nov 11	Nov 12	Nov 13	Nov 14	Nov 15	Nov 16	Nov 17
Nov 18	Nov 19	Nov 20	Nov 21 Registration form due	Nov 22 (no school)	Nov 23 (no school)	Nov 24
Nov 25	Nov 26	Nov 27	Nov 28	Nov 29	Nov 30	Dec 1
Dec 2	Dec 3	Dec 4	Dec 5	Dec 6 Science Fair 6-7 (set-up 5-6)		

TYPICAL JUDGING CRITERIA

Creative Ability/Originality

- There was a question asked.
- The approach to answering the question was creative and original.
- The creativity of the study was appropriate to the student's ability and grade-level.

Scientific Thought

- A logical hypothesis was formulated from the question asked.
- Experimentation was designed to prove or disprove the hypothesis according to the Scientific Method.
- The goals and objectives of the study were clearly defined.
- The scientific literature was examined, outside sources were consulted and are cited.

Skill/Scientific Method

- The student collected all the available data.
- The student identified control vs. experimental groups.
- Where applicable, sample size was considered.
- Experiments were repeated or repeated trials were conducted.
- Detailed notebook or log of data was carefully kept.
- Student analyzed data and presented it in a logical format (table, chart, graph, visual aids, etc.)

Clarity

- The student is able to explain what was done in the experiment.
- The student clearly understands the meaning of the results obtained.
- It is clear to the student whether the data actually support or fail to support the hypothesis.
- The poster board is well organized, with correct spelling and grammar in all text areas; data flows in a logical manner and can be understood without the student present.



Brookview Elementary School

FIRST ANNUAL SCIENCE FAIR

Thursday December 6, 2018

6:00-7:00pm in the Gymnasium



Students should register to participate in the Science Fair.

Look for Science Fair instructions and resources packet on Brookview website on November 1st (under Parent Resources tab)



Students participating in the Science Fair should be available to present their project and to answer questions during the first 30 minutes.

Parents/Guardians must attend set-up and event with their child(ren).



NOTE: Projects should not require electricity or excessive space for presentation

Project title: _____

Student name: _____

Grade and teacher: _____

Parental approval for participation in the science fair:

Parent/Guardian signature: _____

Parent/Guardian e-mail: _____



Please, return this registration form by Wednesday November 21st

