Gwendolyn Brooks Elementary School Science Fair

February 23rd 2016

HANDBOOK

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Dear Brooks Parents and Students,

The Gwendolyn Brooks Elementary School is proud to welcome you all to its annual Science Fair. It will be held on ***Tuesday, February 23rd, 2016*****,** in the Gym at Granger Middle School. All Brooks students and their families are invited to attend and participate.

We encourage parents and students to go through this information together.

Why a Science Fair?

The goal of the Brooks Science Fair is for students to have fun with science. Students need opportunities to experience science for themselves by asking questions and discovering answers. Everyone can do science, and a science project is the best hands-on way of enjoying and learning about science. A student's interest is actually greatest during the elementary years, so take advantage of this time with your children.

For students to learn problem solving, the best practice called "*Scientific Method*" is used (see page 8). Our 2nd graders and up have been introduced to this method at school.

What is required to participate?

1. **Registration**: Please register by submitting the registration form (available online or at the end of this handbook) by 02/05/2016. Individual projects are encouraged, however, teams of a maximum of *two* can work on a project. ***Please mention the name of your partner on the registration form***. Please consider turning in your form early.
2. **Choose a topic**: If your child/ children are interested in doing a project, help them choose an appropriate topic. Simple, well-researched question with a nice display is a key to a good project. Parental help is needed for direction and encouragement. However, learning in the child will be enhanced if he/she participates fully in the project. (Also see page 6 of handbook and the Appendix for more information.)
3. **Display the project**: Please present your project on a display board with relevant information. However, we encourage student participants to include the elements of the scientific method (please see page 8).

There are many resources available. Please use a resource that you are comfortable with, for example:

- Websites
- School library or public library, or
- It can be any topic related to day-to-day life.

The format of the science fair at Brooks is *non-competitive*. Each participant will receive a certificate of commendation at the end of the fair.

We would like to once again thank Brooks administration, staff and the PTA for their continued support of our STEM program and Science Fair!

For further questions you may contact Laura Swanson or Maggie Stauffer at stembrooks1@gmail.com

Sincerely,
Laura Swanson and Maggie Stauffer
STEM Coordinators
Gwendolyn Brooks Elementary School

Science Fair
Dates for your calendar

Date	Time	Event	Venue
11/23/2015	• 7:00-8:00pm	• Brooks Science Fair Orientation (For parents and students)	Brooks Multi-Purpose Room
	• 7:00 pm onwards	• ***Registration Begins***	Electronic registration or extra printable forms can be found from Brooks website STEM tab under "*Science Fair*" OR email Laura Swanson/Maggie Stauffer at stembrooks1@gmail.com)
	• After the Orientation	• Display Boards will be available at discounted rate ($3.50 cash only) ->	(while supplies last)
02/05/2016		***Registration Ends***	
02/23/2016	5:00-5:30 pm 5:50 pm 6:00- 8:00 pm	• Drop off project (*No Exceptions*) • Students must be next to their posters • Brooks Science Fair 2016	Gym, Granger Middle School Poster presentation is in the evening (students must be by their display for the presentation)

* In case you encounter difficulty in printing the handbook or form please contact Laura or Maggie at stembrooks1@gmail.com

Science Fair Rules

1. Each project will be classified by grade level.
2. Each student may enter only one project.
3. Individual projects are encouraged. However, students are allowed to work with a maximum of one partner on their science fair project. ***Both students*** *should register separately with the same project title.* ***Please mention the name of your partner on your registration form***.
4. Students must turn in a science fair project proposal using the electronic registration form on the Brooks STEM website (preferred!) or the paper form at the end of this Handbook to their classroom teacher or at the front desk. The student's parent/guardian must sign the proposal form. Additional safety approvals may be needed for some projects.
5. Parents and other responsible adults may *advise* the students in doing the project. However, parents should allow the students to do the actual work. The best projects are the simple ones, where students can demonstrate command of the subject matter and the experiment.
6. The three-sided display board (36x48) will be available at cost from the STEM Group. Please contact Laura/Maggie at stembrooks1@gmail.com after November 23rd, 2015.
7. Electrical switches and cords needed for exhibits must be in good working condition.
8. **Please avoid display of expensive or fragile items**. Valuable items essential to the project should be simulated or photographed.
9. The school, PTA and teachers assume no liability for loss or damage to exhibits. All students must agree to be careful and respectful of the work of student scientists when viewing the Fair exhibits.
10. **NO harmful animal or human experiments are ALLOWED.** Parents must carefully monitor any experiment that is performed as a part of a project**.**
11. Students should bring all the material required for the project.
12. A space of about 3 feet wide will be provided for the display board, experiment/model and any record book.
13. NO OPEN FLAMES, or LIVE ANIMALS or DRY ICE are allowed to be displayed on the day of Science Fair. You may take pictures or take a video and display it at the fair.
14. We have limited electrical outlets. So please mention in the form if you need one. Also mention any other special need for the project on the form.
15. No experiments involving peanuts will be allowed.

Getting Started

Choose a topic that you find interesting! You should be excited about your project!!!
Start with a question, related to a hobby, travel, or surroundings that you have been wondering about, like……
How does plant grow?
How is rainbow formed?
Why does a cut apple change color?

Choose a Question

Choose one question that will narrow the focus of your investigation. This will be the question that you are trying to answer with your project. For example, using the topic "plant growth," one question could be, "How does sunlight affect plant growth?"

Another question could be "Which plant food works the best?" or "Can plants grow in water?" You can choose from many questions in any topic. Below is a sample of science questions to be investigated.

- Why does the earth have seasons?
- How can you tell if a substance is an acid or a base?
- How are tides formed?
- Which laundry detergent is best?
- How does a camera work?
- How does it rain?
- What is the best conductor?
- How does an airplane fly?
- How does an electromagnet work?
- How do Air Balloons work?
- What color light is best for plant growth?
- How does blood get from the toes to the heart?
- How do muscles and bones work together in movement?

Research

Once you have a question to work on, do some research. You can get information from books, encyclopedias, pamphlets, television, field trips, interviews or the Internet. Look for information from several different sources. Become an expert on your topic!

Plan Ahead

Sometimes science experiments don't work. If you plan and conduct your experiment well in advance of the science fair and your experiment does not work, you will have an opportunity to retry or change your experiment. So, start early.

What if my experiment fails?

This happens sometimes, but ***don't worry,*** you should still present your work. Present what you did on your display board. In the conclusion section of your presentation, suggest ways to investigate *why* your experiment did not work. Experimental failure is common for scientists who usually repeat the experiment and if the experiment still does not work, they ask their question in a different way or redesign the way the experiment was conducted.

Displaying the Project

Your project board display is a very important part of your project since it explains to others what you have done and learned. The quality of your work will be judged on your written display as well as your ability to explain your ideas, methods and what you have learnt.

Displaying materials in front of your display board

If you have made a model, a demonstration or a collection, these should be displayed in front of your poster board, unless they are fragile or valuable. In those cases, please mount photographs of your model, invention, demonstration or collection on your board. If you have to bring fragile or valuable items to the Fair, ensure that you do not leave your project unattended. If your project does not fit in front of your poster board, please let a STEM member (stembrooks1@gmail.com) know in advance and he/she will be able to arrange a place for its display at the Fair.

Idea to set up the presentation on the table at Science Fair

The Scientific Method for Experiments

1. **Identify the problem (Purpose)**
   This is stated in the form of a question. (What information could be found by researching the question?)
   - Look in the books or websites
   - Get advice
   - Make observations
2. **Develop a hypothesis (Hypothesis)**
   A hypothesis is an *educated* guess. Or: *What* would be the answer to the question in mind?
   - Use the words "I predict if…. and the…"
   - Form the hypothesis and state it clearly so that it can be tested.
3. **Material used for experiment/investigation**
   Mention all the material used to complete the experiment
4. **Plan and conduct an experiment (Procedure)**
   - List each step that will be done or has been done.
   - Number each step in order and write down everything that has be done so that others will be able to repeat the experiment by reading the procedure.
   - Control the variables.
     A variable is something that can change or vary during an experiment. Remember that everything should be the same each time the test is conducted, except for the one variable being tested.
5. **Record the results after testing the hypothesis (Results)**
   Keep detailed records of methods and results
   - Make observations.
   - Collect data and record it in a journal (notebook).
   - Make tables, charts or graphs.
   - Write a summary of *all* the observations.
   - Draw pictures/take photographs to show the results and/or procedures.
6. **Develop a conclusion (Conclusion)**
   - Decide what the data tells about the hypothesis.
   - Decide how different is the hypothesis based on the results.
   - What new questions come up based on the results?
   - Communicate the results to others.

Brooks Science Fair Registration Form 2016

This form must be filled and signed by the student and parent/s and submitted to the STEM Coordinators, via your classroom teacher or handing it at school front desk, no later than February 5th, 2016. An email confirming your approved project will be sent at the parent's email listed below.

If you have any questions please contact Laura Swanson/ Maggie Stauffer at stembrooks1@gmail.com.

PLEASE PRINT :

Student's Name (As to be printed on the certificate): _____

Grade *(i.e., 5G)*:_____

Project Title: _____

Student Partner's Name (if doing the project in a pair) _____

Please briefly describe the project.
(list any hazards that may exist and what precautions will be taken to address them.)

_____
_____
_____
_____

Parental consent for your child's photo and work to be published on the district and/or school's web site:

YES ☐ No ☐

Special Requirements (*if any* like extra space, electrical outlet)_____
_____

Student's Signature: _____ Parent's Name:_____

Parent's Signature: _____ Date: _____

Phone: _____Parent's Email*: _____
(*PLEASE PRINT required for project approval confirmation)

FOR THE BROOKS STEM GROUP:

Comments_____
_____

Table # allotted:_____

Reviewer Initials: _____