

# BENJAMIN FRANKLIN ELEMENTARY

## 2019 SCIENCE FAIR HANDBOOK

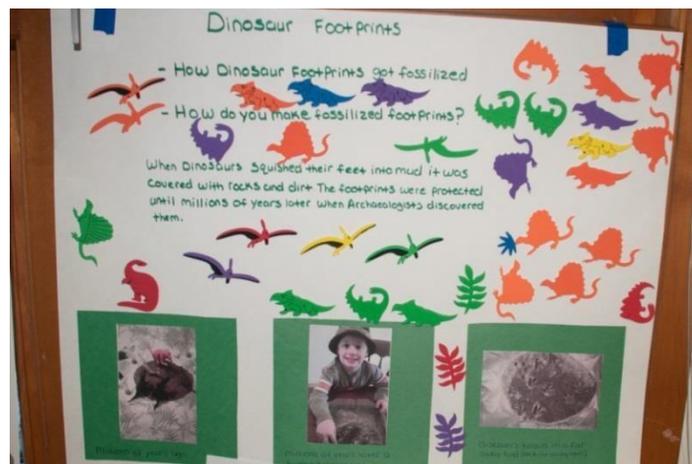
### Division A: Kindergarten, First, and Second Grade

Thursday, February 21, 2019

Please bring your poster board to the office during the school day on February 21<sup>nd</sup> so the posters can be hung up prior to the event

Registration forms (found at <http://www.benpto.com/>) should be returned to school by February 8th

Example poster from past years:



If you have any questions, contact Gail Quigley Smith at [gailqs22@gmail.com](mailto:gailqs22@gmail.com)

# SCIENCE FAIR OVERVIEW

All students attending Benjamin Franklin Elementary are welcome to participate in the annual science fair. This handbook contains the rules for the science fair, as well as useful information pertaining to how a student should go about preparing for the science fair, and sample experiments.

## Guidelines for Division A (Kindergarten, 1<sup>st</sup>, and 2<sup>nd</sup> grade)

- 1) Participants will make a poster about a science topic or experiment they have conducted. The poster should be on a white poster board of standard size (approximately 22" by 28"). The poster boards will be displayed at the science fair. Please write your name(s) and grade(s) on your display board, under your project title.
- 2) Poster boards should be brought to school on Thursday, February 21, 2019 during the day.
- 3) No experiments will be performed at the fair. Students may complete an experiment at home and illustrate it through pictures placed on the poster board.
- 4) Students may examine a collection of items instead of performing an experiment. Ask a one sentence question that you will find the answer to by collecting something. For example, "What kinds of leaves are in my backyard?"
- 5) All participants will receive a certificate of participation.

## Experiment Safety Guidelines

The following safety guidelines were put in place in an effort to make the fair a safe and fun experience for all attending:

- 1) No electric power, tape, thumbtacks, or other supplies will be available at the fair.
- 2) Animals, electrical equipment, hazardous chemicals, or heat sources may NOT be brought to the fair.
- 3) Mechanical equipment, glass items, or any item with sharp edges may NOT be brought to fair.
- 4) Parents must supervise children at all times during the fair.
- 5) No animals should be harmed in the process of scientific discovery by students.

# STEPS TO A SUCCESSFUL SCIENCE DISCOVERY PROJECT

**Step One:** The first step is to **observe** your environment. What do you see that interests you? Do you have any questions about something you see? Make sure you use your five senses.

**Step Two:** Ask questions and **compare** what you see to things that you already know about. Try to find similarities and differences. What questions do you have about your topic of interest?

**Step Three:** **Sort and organize** your ideas. The next step, after asking questions and comparing items, is to sort and organize your ideas. Try to narrow your questions down to just one that can be answered with a yes or no.

**Step Four:** Wonder, **predict**, and hypothesize. In this step, the student should use what they learned in the three previous steps to come up with a question they would like to investigate. For example, "What happens to plants in a closet?"

Once you have the question, make a prediction and test it! For example, "I predict that plants will die in a closet because there is not enough light for them to make food."

The student's genuine curiosity will form the basis of the science discovery project.

**Step Five: Experiment.** At this stage, the student should experiment, test, and then explore the results. Make sure you write down your experiment or what you are collecting.

For example, if testing how plants react to different levels of sunlight, you must first decide how you will answer the question. Then, you can design an experiment. For example, a student may try to grow one type of plant in an open field, in a dark basement, and under a large tree.

Identify the materials to perform your experiment. In the example above, you may need the following materials:

- three of the same type of plants
- camera to record what you find each day or notepad to draw the plant
- water for the plants
- three locations that meets the requirements of your experiment
- a journal to record your findings and other information you may learn about the subject

**Step Six. Results.** During this step, the student should take all the observations he or she made and write them down. You can do this by using graphs, drawing, tables, or writing down what you saw.

For example, the student may draw the plant's growth each day and make a chart of its height over time.

Refer to the poster board section of this handbook. At this point in the process, the student can start collecting the items that he or she would like to display on the poster board. For example, the student may like to illustrate their science discovery project with photographs and drawings.

**Step Seven: Conclusion.** The student should look at the results of the experiment and see if their prediction (or hypothesis) was correct. Don't worry if your hypothesis was wrong – that is how we learn!

During this stage, the student can also ask how the experiment could have been changed to get a different result. The student should be encouraged to think creatively and find new experiments and questions they can explore. For the plant experiment used in previous sections, they can ask "What would happen if the plants were covered with dark paper or light paper?", or "What would happen if you didn't give the plants any water?"

Another idea is to write down a few items that they learned from the experiment. This can help the student to make sense of their ideas and come up with new ones.

## REFERENCES THAT INCLUDE EXAMPLES OF SCIENCE FAIR PROJECTS

Benbow and Ann and Colin Mably. Master the Scientific Method With Fun Life Science Projects. Berkeley Heights, NJ. Enslow Publishers, Inc. 2010.

Vancleave, Janice. Guide to More of the Best Science Fair Projects. New York. John Wiley & Sons, Inc. 2000.

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

<http://chemistry.about.com/od/sciencefairprojects/a/sciproelem.htm>

<http://www.sciencekids.co.nz/projects.html>

<http://www.scholastic.com/resources/article/lets-investigate/>