



2018
BARDSTOWN ELEMENTARY
SCIENCE FAIR
Student/Parent Handbook

Student: _____

Teacher: _____

Parent: _____

Dear BES Parents and Students,

This handbook includes all of the information needed to be a successful participant in the Academic Fair for the Science category. Important dates to remember, possible "testable questions", web links, and more will be included. You may keep this packet at home to serve as a helpful resource.

Please feel free to contact me at any time if you have questions. I am available by email at stephanie.thompson@bardstown.kyschools.us



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FAQ's

When is the 2018 Science Fair?

Answer: All projects for the 2018 Science Fair need to be turned in on Tuesday, March 13th. The judging will take place on Wednesday and Thursday (March 14 and March 15). All participants will receive a certificate of participation, and winners will be announced in the morning on Friday, March 16th at 7:40 a.m. in the BES gym.

What is difference between a demonstration and an experiment?

Answer:

- A **demonstration** is making something to "show" during the science fair. Examples would include a model of the solar system, a reacting volcano, a phone made of string and cups, optical illusions, slime made of cornstarch and water, or sugar crystals.
- An **experiment** is working through the steps of the Scientific Method. During an experiment, students are researching and testing a question, collecting data, and drawing a conclusion based on their data.
- **Students are encouraged to conduct an experiment for our 2018 Academic Fair Showcase.**
- If students are passionate about "demonstrating", they will need to develop a testable question associated with their demonstration to make it an experiment.

- For example, if a student wanted to make a volcano, some sample testable questions to convert this demonstration an experiment could include:
 - Which white powder will create the best reaction in a homemade volcano?
 - Which liquid will create the best reaction in a homemade volcano?
- If a student wanted to make salt crystals, some sample testable questions to convert this demonstration into an experiment could include:
 - Does the type of salt affect the size of a salt crystal?
 - Can you make salt crystals in different liquids?
 - Does heat affect the size of a salt crystal?

Is the Academic Fair optional for my student?

Answer: Yes. All students in grades 3 – 5 are encouraged to complete a project and bring it to school on Tuesday, March 13th.

What needs to be on my child's Science Fair board?

Answer: Since students will be working through the steps of the Scientific Method, they need to have a space on their board to highlight each step. The recommended board components are as follows:



- A Title
- Testable Question
- Variables and Controls
- Research
- Hypothesis
- Materials Needed
- Procedure
- Data Collection (table, charts, pictures, journal entries,
- Results
- Conclusion

What is a testable question? What is a variable?

Answer: A **testable question** in science is something that can be observed over time while collecting data. Every testable question has a "**variable**" that can change or vary during trials. It is what you are "testing". The aspects of the experiment that are unchanged are the "**controls**". Controls are held constant or kept the same throughout all trials. See the next page for a table of examples.



Example:

Testable Question:	Variables (changing aspects):	Controls (aspects that are kept the same):
Does the height of a ramp affect how far a ball will roll?	The heights of the ramps: <ul style="list-style-type: none"> • Ramp A: 3 inches • Ramp B: 6 inches • Ramp C: 9 inches 	The ball, the material the ramp is made of, the starting point of the ball
Does the amount of sunlight affect the height of a seedling?	The amount of sunlight provided to the plant. <ul style="list-style-type: none"> • Environment A: In the closet (no light) • Environment B: In the bathroom (medium sunlight) • Environment C: On a window pane (sunlight for most of the day) 	Seeding, amount of water provided to the plant, amount of soil, type of soil cup that the plant is grown in.
Which type of dog food does my dog like the best?	Type of dog food <ul style="list-style-type: none"> • Type A: Purina • Type B: Fancy Feast • Type C: Pet Smart 	Dog, amount of food given to the dog, time of day the dog is fed.

Is my child's science project a class grade?

Answer: You will need to check directly with your child's homeroom teacher to see if your child's project will be graded.

Helpful Hints

Important notes to remember while doing your project

- Student hypotheses do not have to match their results
- Do not force the experiment to make a certain result! That's cheating!
- Your results and your conclusion should be aligned.
- Data collection and multiple trials of an experiment take several weeks. Don't wait until the last minute to get started.
- The more data you collect, the more convincing your results will be.
- Ask your parents for help!!
- Practice talking to people about your project. The more you talk about it, the more confident you will be during your presentation.

Science Fair Boards

Your Board Should Include:

- Title
- Your name and teacher
- The Testable question you plan to answer.
- The Variables and Controls in your experiment
- Your Research
- Hypothesis
- Materials List
- The Steps in Your Experiment/Your Procedure
- Data from your experiment (charts, tables, graphs, journals, etc.)
- Conclusion based on data
- **Be prepared to describe your project.**
- **You may add additional components if you choose.**

ACADEMIC FAIR ENTRY FORM ~ SCIENCE
PLEASE PRINT ALL INFORMATION

Name: _____ Grade: _____

Homeroom Teacher's Name: _____

Category: (Check One)

____ **Experiment** *{This is traditionally the most common type of science fair project. These projects should demonstrate a complete scientific experiment including a hypothesis, data collection, variables, and analysis. It is the design rather than the results that is the most important.}*

____ **Invention / Innovation** *{These types of projects typically have all the same components as do other sorts of science fair projects (including a backboard, problem/purpose, materials, hypothesis, observations and conclusion). However, these projects are focused around the development and evaluation (testing) of an invention, some type of new device, or a model.}*

____ **Study Project / Model** *{These types of projects typically have all the same components as do other sorts of science fair projects (including a backboard, problem/purpose, materials, hypothesis, observations and conclusion). However, with a study project there is no actual experiment performed by the student(s) themselves - rather they will rely on experimental data from other sources, or from observations that are not based on experimentation.}*

____ **Other:** (please explain which category you selected)

TITLE OF PROJECT: _____

Give a brief description of the project:

I have read, understand, and agree to abide by all Academic Fair rules and regulations for the science category. This project is completely mine and was created and completed by me within the last 12 months without direct, significant aid or assistance from anyone other than myself. Parental involvement in the project was limited to those aspects of the project that are consistent with the Academic Fair regulations.

Parent's Signature

Participant's Signature

BES Science Fair Judging Form

Judge's Name: _____ Student Name: _____ Grade: _____



Only fill out one of the charts on this side of the form and completely fill out the other side, for each project evaluated.

Scientific Content Evaluation - Experimentally Based Projects <i>This is traditionally the most common type of science fair project. These projects should demonstrate a complete scientific experiment including a hypothesis, data collection and analysis. It is the design rather than the results that is the most important.</i>									
	Excellent		Good			Needs Work			
Science fair format adhered to: (problem/purpose, materials, hypothesis, observations and conclusion are all present and professional)	8	7	6	5	4	3	2	1	0
The experimental design (procedure) is clearly laid out and is logical & sensible	8	7	6	5	4	3	2	1	0
Experimental variables were recognized, controlled and commented upon	8	7	6	5	4	3	2	1	0
The degree of difficulty & thoroughness is suitable for the students' grade level	8	7	6	5	4	3	2	1	0
A conclusion is clearly stated and is valid according to the observations	8	7	6	5	4	3	2	1	0
Total out of 40									

Scientific Content Evaluation - Invention/Innovation Projects <i>These types of projects typically have all the same components as do other sorts of science fair projects (including a backboard, problem/purpose, materials, hypothesis, observations and conclusion). However, these projects are focused around the development and evaluation (testing) of an invention, some type of new device, or a model.</i>									
	Excellent		Good			Needs Work			
Science fair format adhered to: (problem/purpose, materials, hypothesis, observations and conclusion are all present and professional)	8	7	6	5	4	3	2	1	0
The invention is useful and its development was a worthwhile goal	8	7	6	5	4	3	2	1	0
The invention has been developed into a reasonable working model for display	8	7	6	5	4	3	2	1	0
The degree of difficulty is suitable for the students age/grade level	8	7	6	5	4	3	2	1	0
The gathered information was used adequately to reach a reasonable conclusion	8	7	6	5	4	3	2	1	0
Total Mark out of 40									

Scientific Content Evaluation - Study Projects <i>These types of projects typically have all the same components as do other sorts of science fair projects (including a backboard, problem purpose, materials, hypothesis, observations and conclusion). However, with a study project there is no actual experiment performed by the student(s) themselves - rather they will rely on experimental data from other sources, or from observations that are not based on experimentation.</i>									
	Excellent		Good			Needs Work			
Science fair format adhered to: (problem/purpose, materials, hypothesis, observations and conclusion are all present and professional)	8	7	6	5	4	3	2	1	0
Problem/Purpose is clearly stated - and is clearly the focal point of the project	8	7	6	5	4	3	2	1	0
The project has scientific relevance	8	7	6	5	4	3	2	1	0
The degree of difficulty & thoroughness is suitable for the students' grade level	8	7	6	5	4	3	2	1	0
The gathered information was used adequately to reach a reasonable conclusion	8	7	6	5	4	3	2	1	0
Total Mark out of 40									

Completely fill out this side of the sheet, for each project that you judge.

After you have totaled up the results, turn this sheet to Mrs. S. Thompson in the Science Lab

<u>Originality and Creativity</u>	Excellent	Good	Needs Work
The project is highly imaginative and well thought out in terms of the procedures and techniques used	8 7	6 5 4	3 2 1 0
Creativity is shown in the design of the project and/or the use of materials	8 7	6 5 4	3 2 1 0
Judge's discretion	4	3	2 1 0
Total out of 20			
<u>Exhibit's Effectiveness</u>	Excellent	Good	Needs Work
The layout of the exhibit was logical, intuitive and self explanatory - and it can easily be understood	8 7	6 5 4	3 2 1 0
The exhibit was highly attractive and did an excellent job of backing up the presentation as it was given	8 7	6 5 4	3 2 1 0
Judge's discretion	4	3	2 1 0
Total out of 20			
<u>Presentation Skills and Communication</u>	Excellent	Good	Needs Work
The presenter(s) confidently gave a clear, logical and enthusiastic presentation	8 7	6 5 4	3 2 1 0
An understanding of the topic is effectively communicated and questions are handled skillfully	8 7	6 5 4	3 2 1 0
Judge's discretion	4	3	2 1 0
Total out of 20			

Scientific content score out of 40: _____ See the other side	+	Originality and creativity score out of 20: _____	+	Exhibit's effectiveness score out of 20: _____	+	Presentation skills and communication score out of 20: _____
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= Total Score out of 100: _____

