

Dear Parents/Guardians:

Power Glen will be having a Science Fair on **Thursday February 15, 2018**. Your child will participate in the fair by preparing a project. This should be an exciting experience for your child and our school! Most of the project will be completed at school with the facilitation of the classroom teacher and students will have multiple conferences with their science teacher to ensure deadlines are being met.

Your child's participation in the Science Fair will prove to be beneficial in these ways:

- Reinforcement of grade level science, literacy and math skills
- Fostering curiosity, awareness, and creativity
- Increased scientific knowledge and researching techniques
- Growth in ability to work independently
- Having fun with science!

In addition to the opportunity of working on a project, the Science Fair provides students with an increased awareness of science and an opportunity for them to develop positive attitudes about themselves and their work. The science project allows children to use critical thinking and problem solving skills learned in science and in math.

Over the past few weeks, our students have chosen a topic of experimentation or innovation and have been doing some research and planning so we can hit the ground running upon our return in January. They should have an 'inquiry' question (something that they are wondering about) that can be realistically tested at home or in the classroom during the month of January.

With a well organized plan, the project should not become a last minute rush job. There are a number of ways that parents can help with this project. To help you decide what your input could be, there are few guidelines on the back of this page.

If you have any questions, please feel free to contact the school..

Ms. DaCosta, Ms. Whittal, Mrs. Keeping, Mr. Brown, and Mr. Wright.

Parent Input Ideas

Student	Parent
Directs the project	<i>Gives constructive criticism and suggestions</i>
Asks questions	<i>Directs the student as to where to go to find the answers</i>
Does background reading	<i>Encourages a varied bibliography, including website URL's</i>
Formulates a question and hypothesis	<i>Advises</i>
Gathers materials	<i>Suggests places to go for materials and information</i>
Assembles, constructs ...	<i>Shows how to use a tool and make measurements ...</i>
Experiments, measures, collects data	<i>Helps review the criteria and makes suggestions</i>
Makes charts and graphs	<i>Allows students to make mistakes and self correct</i>
Draws conclusions	<i>Points out interesting aspects of the project</i>

Suggested Timeline

Task	Completion Date
Introduction, Background Research, Testable Question, and Hypothesis	<i>December 22</i>
Information about experiment (variables, materials, procedure) and observations/data	<i>January 19</i>
Analysis of data, conclusion, and discussion	<i>January 26</i>
Board completed	<i>February 2</i>
Oral presentation	<i>February 14</i>

Please see the Google Drive folder for more detailed information on each of these tasks

SCIENCE FAIR

Name: _____

Complete this checklist to ensure you have everything ready for the Science Fair on **Thursday February 15, 2018.**

1. I have completed all of the required sections:

____ Introduction

- a brief introduction about your **topic** (not necessarily specifically about your *experiment*). Tell why you are doing the project. What interests you about it?

____ Background Research

- what information do you know about your topic that will drive your experiment? What do you know about your independent and dependent variables? Must cite sources.

____ Testable Question (Causal Question)

- what, specifically, is the question that your experiment is trying to answer. It should ask whether changing one variable (the independent variable) has an effect on another variable (the dependent variable).

____ Hypothesis

- a prediction about the outcome of your experiment, supported by your research and your own schema

____ Info about your Experiment

1. **Variables** - must include a list of your Independent, Dependent and Control Variables
2. **Materials** - a detailed list of all the materials you need to do your experiment
3. **Procedure** - a numbered set of detailed steps that would allow another person to repeat your experiment just the way you did it

____ Observations / Data

- collected in an organized manner
- communicated in a meaningful way using tables, diagrams, photos and graphs

____ Analysis / Conclusion

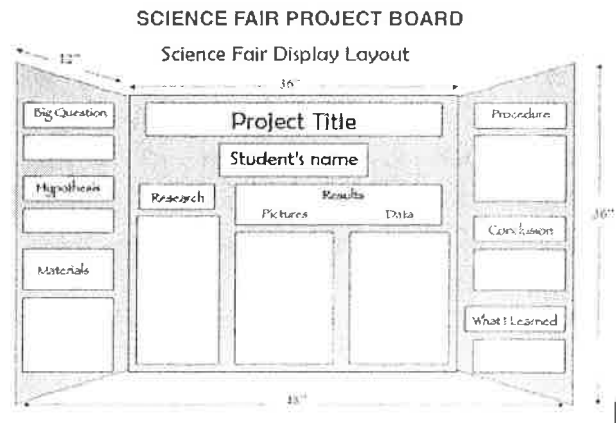
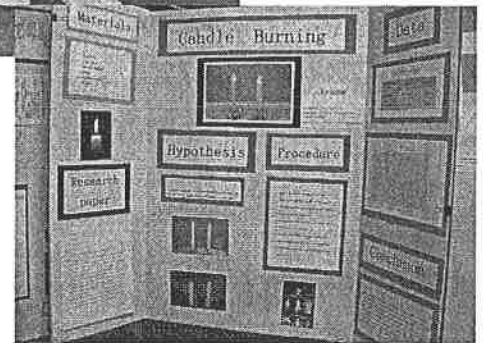
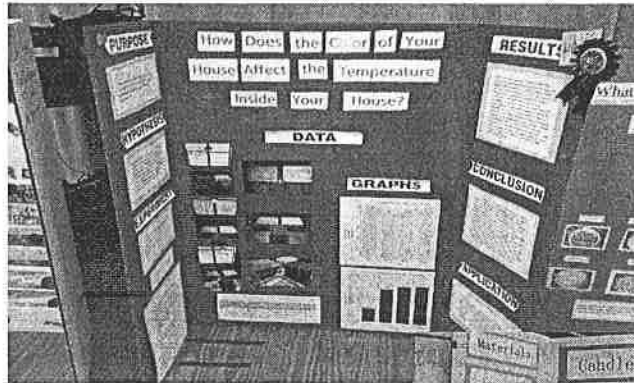
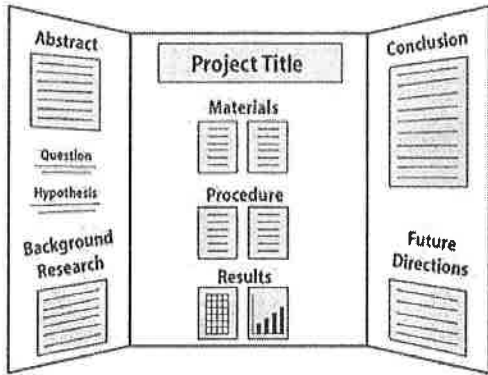
- makes sense of the data; what do the numbers mean?
- answers whether the hypothesis was supported or not

____ Discussion

- what did you learn
- did anything surprise you?
- did anything go wrong?
- would you do anything differently if you could do it again?
- what new questions do you have? how could you extend your experiment?
- what real world applications might your experiment relate to?

2. My Display Board:

- _____ I have edited for spelling and grammar and made the corrections
- _____ My board has my project title and my name in full view
 - title should be able to be read from across the room
- _____ I have placed all my sections on my Science Board
 - text at least 16 font
 - headings should be able to be read from several feet away
- _____ I have used colour to make things stand out
- _____ All my pictures, graphs, tables and diagrams have titles to tell what they are
- _____ All my pictures and visuals have been carefully (straight) attached to my board
- _____ My display board communicates my experiment clearly
- _____ My display board looks awesome!



Look up "Science Display Boards" on Google for ideas, but make sure your board has all the sections required.

3. My Oral Presentation:

- I have prepared a 1-2 minute "Elevator Speech" that will be INTERESTING to my listener and will briefly and clearly EXPLAIN the important details of my experiment
- I have prepared cue cards for my speech
- I have practiced my speech in front of friends, classmates, family
- I can present FLUENTLY and CONFIDENTLY
- I am ready to go!!
- I know my content so that I am prepared to answer questions that the judges may have

I am proud of all my hard work!!

Diamond Trail Science Fair Judging Rubric: EXPERIMENT

Criteria		Level of Achievement									
Scientific Method	Testable Question <i>A question designed to determine if one or more variables has an effect on an outcome</i>	1 <small>unclear</small>	2	3	4	5	6	7	8	9	10 <small>complex inquiry</small>
	Hypothesis <i>Makes a prediction about the question that is <u>supported</u> with evidence from own schema/research</i>	1 <small>simple prediction</small>	2	3	4	5	6	7	8	9	10 <small>detailed prediction with justification</small>
	Procedure and Variables <i><u>Variables</u> (Dependent, Independent, Control), <u>Materials</u>, and <u>Procedure</u> are detailed and clear enough to recreate</i>	1 <small>unclear no variables</small>	2	3	4	5	6	7	8	9	10 <small>detailed prediction with all variables</small>
	Observations / Data <i>Data is collected in an <u>organized</u> manner and <u>communicated</u> in a meaningful way (data table, graph, diagrams, photos)</i>	1 <small>graphs, tables etc. not present</small>	2	3	4	5	6	7	8	9	10 <small>data is represented in a meaningful way to show results</small>
	Analysis / Conclusion <i>Makes sense of data; states if the hypothesis is correct or not; and supports ideas based on evidence collected during observations of experiment</i>	1 <small>not linked to experimental results</small>	2	3	4	5	6	7	8	9	10 <small>conclusions are thoroughly supported with evidence</small>
	Research Information <i>Included in <u>introduction and discussion</u>. It serves to drive the experiment during initial stages, and aids in reflection after the experiment is concluded. It should be properly cited to provide credit to original authors/researchers</i>	1 <small>no additional research included</small>	2	3	4	5	6	7	8	9	10 <small>research drives experiment and student gives detailed bibliography</small>
Interview	Presentation <i>1-2 minute oral presentation of important project info (ie, background, question, observations, results, next steps)</i>	1 <small>lacks information no scientific vocab</small>	2	3	4	5	6	7	8	9	10 <small>uses scientific vocab to explain experiment</small>
	Response to Questions <i>Students become the 'expert' on their topic, and can further the learning of judges by clarifying information</i>	1 <small>difficultly answering all questions</small>	2	3	4	5	6	7	8	9	10 <small>answers questions with finesse and confidence</small>
Visual	Board Display <i>Used to show data and information in a meaningful way. It is the main source of communication of their ideas, research, experiment with other student scientists</i>	1 <small>unorganized, with many spelling errors</small>	2	3	4	5	6	7	8	9	10 <small>organized, attractive board with proper conventions</small>
Idea	Originality	1	2	3	4	5	6	7	8	9	10
	BONUS—Scientific Validity	1	2	3	4	5	6	7	8	9	10
FINAL MARK (possible 110):											
Comments:											

Power Glen Science Fair Judging Rubric: INNOVATION

Criteria		Level of Achievement									
Scientific Method	Causal Question <i>A question designed to solve a problem through technology, inventions, or intervention</i>	1	2	3	4	5	6	7	8	9	10
	Design Process <i>Initial models are shown through illustrations, brainstorming and models</i>	1	2	3	4	5	6	7	8	9	10
	Development of Innovation <i>Student demonstrates the process of inventing through the use of multiple prototypes</i>	1	2	3	4	5	6	7	8	9	10
	Procedure <i>Each prototype is displayed in an organized manner. Failure from each prototype is clearly communicated and leads to the construction of successive models</i>	1	2	3	4	5	6	7	8	9	10
	Conclusion <i>Student displays a working model of an innovative application that will have human or commercial benefit</i>	1	2	3	4	5	6	7	8	9	10
	Research Information <i>Included in introduction and discussion. It serves to drive the innovation during initial stages, and aid in reflection after the innovation is constructed. It should be properly cited to provide credit to original authors/researchers</i>	1	2	3	4	5	6	7	8	9	10
Interview	Presentation <i>1-2 minute oral presentation of most important project information (ie, causal question, observations, results)</i>	1	2	3	4	5	6	7	8	9	10
	Response to Questions <i>Students become the 'expert' on their topic, and can further the learning of judges by clarifying information</i>	1	2	3	4	5	6	7	8	9	10
Visual	Board Display <i>Used to show data and information in a meaningful way. It is the main source of communication of their ideas, research, experiment with other student scientists</i>	1	2	3	4	5	6	7	8	9	10
Idea	Originality	1	2	3	4	5	6	7	8	9	10
	Scientific Validity	1	2	3	4	5	6	7	8	9	10
FINAL MARK (possible 110):											
Comments:											

