Science Fair 2017
Thursday, March 30, 2017

Important Facts for Students:
- 5th grade students must fill out the Cascade Ridge 2017 Science Fair Project Registration Form by January 27th. This form is available on the PTSA website. Click the Science Fair link. 5th grade students must follow the 5th grade requirements and due dates with their classes.
- Science boards can be purchased as part of the online project entry form (boards – $9ish). Payment will be made online or by check made out to Cascade Ridge PTSA. Boards will be delivered to classrooms in early March. Order early.
- You will be turning in a display, which you will bring to the Cafe at the designated time.

Important Dates:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Date Due</th>
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<tr>
<td>Topic/Question Proposal <em>You must wait for teacher approval before moving on to further steps.</em></td>
<td>January 20</td>
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<tr>
<td>Formal Topic/Question/Hypothesis Form</td>
<td>January 27</td>
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<tr>
<td>Science Fair Project Entry Form (online – PTSA website)</td>
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<tr>
<td>Research Notes and Bibliography</td>
<td>February 8</td>
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<tr>
<td>Science Investigation Write-Up (It is okay if conclusion and data/results are not complete yet)</td>
<td>March 1</td>
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<tr>
<td>Project Set Up After School (12:45-3:00 PM or 5:00-7:00 PM)</td>
<td>March 29</td>
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<td>THE SCIENCE FAIR!</td>
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<td>· Projects explained to judges during the school day.</td>
<td>March 30</td>
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<tr>
<td>· Family and friends Science Fair Celebration: 6:00-8:00 PM (displays taken home that night)</td>
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The Science Fair Process

You will go through several steps in order to successfully plan, carry out, and reflect on a scientific investigation.

FIRST, you will use the Topic/Question Formation Sheet to come up with some possible investigative questions about your topic of interest. Your questions MUST be testable. The Science Fair is not a time to build a model or to create a how-to presentation. The Science Fair is about choosing a guiding investigative question that allows you to experience the whole process. You must wait for teacher approval before moving beyond this step.

SECOND, you will fill out your formal Topic/Question/Hypothesis Form with your topic of choice, approved investigative question, and your hypothesis (a possible answer to your question that can be tested by further investigation).

THIRD, you will read, read, read and fill out your Research Notes/Bibliography as you do! Great scientists read plenty of material to become more knowledgeable about their topic. You will choose at least three sources relating to your topic, and take notes from each of them.

FOURTH, you will write up your plan for your investigation using the Investigation Write Up. Your write up must be clear, concise, and easy to follow. For class, you will write up as much as you can by the due date. It is okay if your data, results, and conclusion aren’t ready until the Science Fair because of the time you may need to complete your investigation. Then, you will conduct your experiment, taking careful notes and observations as you go!

FIFTH, you’ll put together your Science Fair display in a way that is organized, logical, and easy for viewers to read and enjoy!

SCIENCE FAIR SET UP: Wednesday, March 29 (12:45-3:00 PM or 5:00-7:00 PM)

PROJECT EXPLANATIONS TO JUDGES: During class, March 30

FRIENDS AND FAMILY SCIENCE FAIR: Thursday, March 30 (6:00-8:00 PM)
Step 1: Topic/Question Formation
Name: _______________________

Due: January 20, 2017

Your job is to select a topic that lends itself to a scientific investigation. Pick something you’re interested in, since you’ll be spending a lot of time with it!

My topic is ________________________________

Next, you need to come up with some potential investigative questions. You’ll only use ONE, but we would like you to brainstorm a few (please list them in your order of preference). Your teacher will review and approve, or ask you to make changes.

To help you get a start on your question, here are some samples:

The Effect Question
What is the effect of ___________ on ________________?
- sunlight
- eye color
- brands of soda
- temperature
- oil
- the growth of plants
- pupil dilation
- a piece of meat
- the size of a balloon
- a ramp

The “How Does __ Affect __” Question
How does the __________ affect ________________?
- color of light
- humidity
- color of a material
- the growth of plants
- the growth of fungi
- its absorption of heat

The “Which/What and Verb” Question
Which/what ________________ (verb) ___________?
Which laundry detergent cleans mustard stains the best?

In each of these, you are thinking about your manipulated variable will be (the ONE thing that you will change) and what your responding variable will be (what you’re actually measuring).

Your turn! Please list three possible questions (in the order of your preference) below.

1.

2.

3.
Step 2: Topic/Question/Hypothesis
Name: ________________________________________
Due: January 27, 2017

Once your teacher has approved or helped you to adjust your investigative question, you can fill out this “formal” informational sheet about your investigation. You’ll write your topic and question, and then answer your question with a hypothesis. Your hypothesis should respond directly to your question.

My topic is _________________________________.

My investigative question is: ________________________________

My hypothesis is: ________________________________
Step 3: Research Notes and Bibliography
Name: __________________________________________
Due: February 8, 2017

You will need to find research background information on the main process or the topic involved in your investigation. A great resource person would be Ms. Moore for books, or you can use the Internet.

Instructions:
1. Find at least three sources of information. You may use the Internet, books, magazines, encyclopedias, etc. If you use the Internet, make sure that your websites are quality sites. Remember, a search engine (like Google) is not a source. It brings you to a source.
2. Write down at least three facts that are related to your project from each source (a total of at least nine facts).
3. Cite your resources in a bibliography. You can ask your teacher if you need specific help for formatting. Sample website and book citations are below.

Book:

Website:

Resource 1: __________________________________________
Citation: __________________________________________________________________________
1. ________________________________________________________________________________
2. ________________________________________________________________________________
3. ________________________________________________________________________________
Resource 2: __________________________________________

Citation: _____________________________________________

1.______________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2.______________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3.______________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Resource 3: __________________________________________

Citation: _____________________________________________

1.______________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2.______________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3.______________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Step 4: Investigation Write-Up  
Name: ___________________________  Due: March 1, 2017

Each of the following things are expected to be on your final display board.

**TITLE:** Think of an interesting or catchy title.

**PROBLEM/QUESTION:** Must be something that can be tested. Pick something that has one **manipulated variable** that **can be tested**.

**HYPOTHESIS/PREDICTION:** What is your guess? Restate the question entirely. Do not change the meaning of the problem/question.

**MATERIALS:** A numbered or bulleted, detailed list of materials that would be needed to conduct the investigation. Include quantities, amounts, types, etc. Be specific.

**DIAGRAM:** Detailed diagram of the investigation set-up with labeled variables, amounts, and times. It is a simple (stick figure) diagram that someone could use to set-up the investigation. The important thing to remember is to label your diagram! The more specific and clear your labels are, the easier it will be for someone else to replicate your investigation.

**MANIPULATED VARIABLE:** The ONE thing that was changed on purpose to find an answer to a question or to make a comparison.

**RESPONDING VARIABLE:** The change(s) that happen in your experiment as a result of manipulating (or changing) ONE variable.

**CONTROLLED VARIABLES:** Things that are kept the same to make the test fair. These are the same so that you can see the effects of the manipulated variable. Think thoroughly about this- materials, environment, duration, are some things (but not necessarily all) you might want to consider.
PROCEDURE: List the steps in the investigation in sequential order. These are directions that someone else could follow in order to complete your investigation exactly the same way that you did (without you being there). These are not a summary of the process you went through, nor are they an explanation of what you think will happen.

Sample: Will a plant grow more if fed water, Lemon Juice or Fruit Punch?
1. Measure and record the height of all plants.
2. Feed plants 1/4c of water, fruit punch, or water, daily.
3. Measure and Record the height of plants daily.
4. Do this for 3 weeks.
5. Look at the results (data) to find out which plant grew the most.
   Repeat the investigation 2 times and compare results.

DATA/RESULTS: Collect the data. Share the data in a chart, diagram, include photographs, or tables. You may represent the data as percentages, averages, graphs, etc.

CONCLUSION: This is your opportunity to tell people how your investigation turned out. You will revisit your hypothesis and share your data. Here’s how to start:
“**My hypothesis was supported/not supported by the results of my investigation.**”
Then, share your data. In other words, tell us what you found using your data as evidence.

DISCUSSION PARAGRAPH: (Use what you discovered to answer questions and share what you learned.)
- Analyze (What was good, bad? What worked, didn’t work?) and reflect on what you learned about your results and data.
- How might you change or modify your investigation to make it better for next time or to learn something new?
- Make a real world connection from what you learned. For example, how can you apply this to your life or how could you use this information to change something?

REMEMBER: Sometimes in science, things DON’T go as we plan. THAT’S OKAY! That’s science! Write down what happens and talk about it! Just because your hypothesis was inaccurate or your plan went off course, it doesn’t make you “wrong”! It makes you a scientist!
Step 5: Display
Name: ________________________________________
Due: March 30, 2017

Your final Science Fair product will be a free-standing display of all of your hard work along the way. You may choose how to display your information, but it must be done in a clear, organized, logical way. Think about how people read (left to right, top to bottom) and use that to guide your formatting. Make sure you have all the required elements on your board or on the table top.

All items included in your display must be typed. The one exception is any observation notes or data you might take by hand- those may be neatly handwritten.

Make sure you have the following items on your display board:

- Title
- Your name
- Problem/Question
- Hypothesis/Prediction
- Materials
- Diagrams/Photos/Graphs/Charts
- Variables-Manipulated, Controlled, Responding
- Procedure
- Data/Results
- Conclusion
- Discussion
- Bibliography
- Something for the table

In this space, you will put photos, drawings, graphs, diagrams, etc. Remember--you should put an item from your investigation on the tabletop in front of your display.