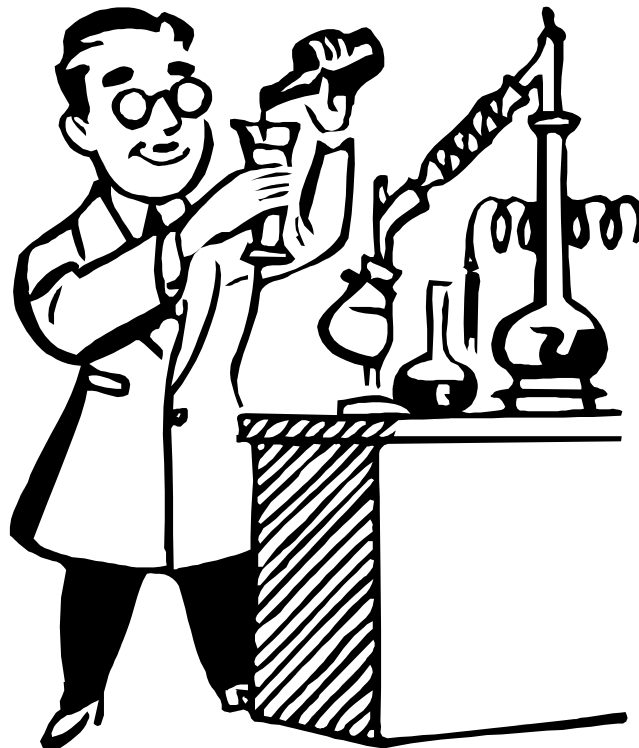




Phelps Luck Elementary
Science Fair
2009-2010



Student Packet
K-4th



Your Best Science Question

(Turn into Home Room Teacher. See page 3 for more information.)

Use this form to narrow down your ideas and double-check that you have considered all the important things listed below.

Check List For Selecting Question



- a. Do I have high interest in learning more about this topic?
- b. Can I find research material on the question/topic?
- c. Does the question require experimentation and testing in order to answer it?
- d. Can I get all the necessary materials to do the experiment?
- e. Can I conduct the experiment on my own?
- f. Will I be able to run repeated tests or test many subjects?
- g. Will I be able to measure my test results in some numerical way?
- h. After completing my research and experiments, will I be able to use my new knowledge in some practical way?
- i. Does my question and experiment meet the Science Fair Guidelines?
- j. Do Mom/Dad approve of my project plan?

Examples for Final wording of Question: *Use one of the models below or your own wording if these do not fit your question. (See Packet p. 2 for complete examples)*

How does _____ affect _____ ?

What is the effect of _____ on _____ ?

Which _____ is the _____ ?

My Best Science Question

Parent Approval

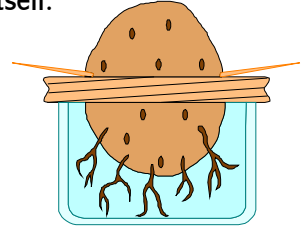
_____ Date _____

Teacher Approval (Return to student)

_____ Date _____

Guidelines for Preparing Your Science Project

1. Select a Topic that is of interest to you and may be of interest to others. Create a question about your topic that you would like to answer.
2. Keep your project design simple.
3. The size of your project may not exceed 3 ft. wide by 3 ft. tall.
4. All projects must be durable and safe. Your project must be able to stand by itself.
5. Posters or papers explaining the project should be neat.
6. No harmful chemicals, live animals, or explosives may be used.
7. Begin Today!



10 Steps to Science Fair Success

1. Select a topic.	Complete this task by: February 12 Teacher signature required
2. Create a science question about this topic. (Turn in "Your Best Science Question" Sheet p.1)	
3. Research your topic.	February 26
4. Develop a hypothesis or an educated guess about what the results might be.	
5. Plan your experiments to test your hypothesis. (Show test plan to your teacher)	March 5
6. Experiment & record your observations and results using a data chart, tally sheet, journal, or daily log.	March 26
7. Analyze your results. Can you make a graph to demonstrate your results?	
8. Write your conclusion.	April 2
9. Write a brief summary of your project.	
10. Create your Science Fair Display or Backboard. (Bring your completed project to school on April 12)	April 9

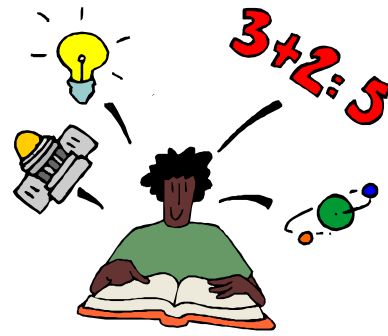
Science Fair Project is due 12 April 2010.

1. Selecting a Topic

Where to look for Topic Ideas: Media Center or Library

Science Fair Web Sites:

- www.ipl.org/youth/projectguide/
- www.scifair.org
- www.sciencemadesimple.com



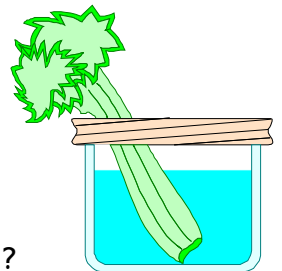
Select a topic from things you like and are of interest to you. Make a list of these things and think of questions related to each thing. Choose one topic/question for your project.

Things I Like	Question
Example: Basketball	Example: How will the temperature outside affect the bounce of my basketball?

Remember, your question must be answered through testing or experimenting, not by looking in a book or building a model. Can your topic be investigated through experimentation?

2. Creating a Question

Your question should be worded so that it is clear and precise. Use the following examples to best express what you are trying to find out.



Examples of wording

1. How does _____ affect _____?
How does the type of fertilizer affect a plant's growth?
2. What is the effect of _____ on _____?
What is the effect of air temperature on the bounce of a basketball?
3. Which _____ is _____?
Which brand of paper towel is the most absorbent?

Fill out and turn in "Your Best Science Question" sheet to your teacher from page 1.

3. Research your Topic

Resources

Books, Magazines, Films or Filmstrips, Newspapers, Pamphlets, Agencies, Organizations, Stores, Museums, Computers, etc.

Record all the places you did research. What books did you use? What magazines did you use? Remember to record your resources in a bibliography so that the authors get credit for their ideas. (A bibliography is a listing of your resources so that someone else could go and find the same information).



4. Develop a Hypothesis

A hypothesis is an educated guess of what you think the answer to your question will be based on your research.

Examples of Wording a Hypothesis

1. If _____ then _____.
2. I predicted that _____ would occur when I _____.
3. I think that _____.
4. My hypothesis was that _____.

You should have a hypothesis by February 26.

5. Plan Your Experiments to Test Your Hypothesis

Make your list of Materials for your experiments.

Create “The Recipe” for your Experiments.

Make your step-by-step procedures for your science experiment clear and specific. Your “recipe” or procedure should allow someone else to duplicate your experiment and get similar results. Refer back to your question and hypothesis to make sure your experiments will answer your question.

Write down your experimental procedures (your recipe for the experiment).

Things to think about while planning your experiment

- How much time will you need?
- Will you do repeated trials or use duplicate test subjects?
- What will you be observing and recording?
- What materials will you need?
- Where will you conduct your experiment?
- What are the exact steps to follow in running a test or trial?



You should have a plan for the experiment to test the hypothesis by March 5.
Show this Plan to Your Teacher.

6. Experimenting and Recording your Data

Collecting Data (the information you will learn by doing your experiments)

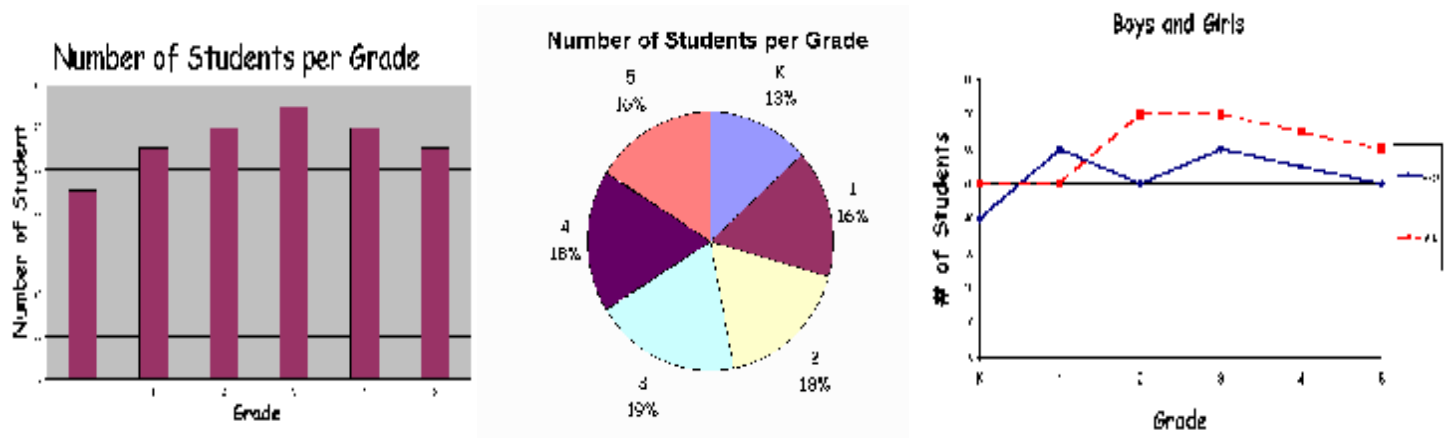
Three ways to observe & record

1. Measuring (data chart)
2. Counting (tally sheet)
3. Describing (journal or diary) – be sure to date entries

7. Analyze Your Results

Look at your data. Is it complete? Are the entries dated and in order? Is everything labeled with titles and units? Is your log easy to understand?

Demonstrate your results in a graph. A graph is like a picture of your results. What kind of graph should you use?



You should have finished with the experiment and have analyzed the data by March 26.

8. Write your Conclusion

The conclusion is your chance to share your results. It is where you let everyone know if your original hypothesis was correct or incorrect. You need to be honest in reporting your results.

Conclusion Guidelines

1. The conclusion needs to be in paragraph form and needs to be put on your science fair display board with your graph.
2. Your conclusion should only be based on your actual data.
3. It should include:
 - a. Your Question
 - b. Hypothesis
 - c. Actual results (Data)
 - d. Do the results agree or disagree with your hypothesis?
 - e. Do your results lead to any further questions?
4. Have someone review your rough draft before making your final draft.

9. Write your Summary

The summary is your chance to give a brief overview of your project. Write your summary once your research and experimentation are complete.

Your summary should include:

1. A statement of your Science Question
2. A statement of your Hypothesis
3. A Short Outline of your Experiment
4. Your Actual End Results

You should have your conclusion and summary written by April 2.

10. Create your Science Fair Display (Backboard)

Remember to abide by Science Fair guidelines in creating your display.

Your display should include:

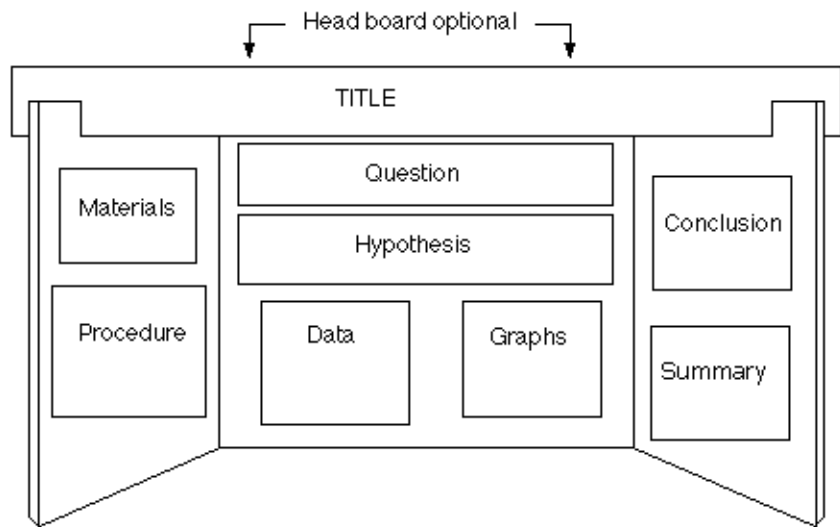
- a. Your Question
- b. Hypothesis
- c. Materials List
- d. Procedure
- e. Graphed Results
- f. Conclusion
- g. Summary
- h. Display Board Label (on back of Board)

You may want to include:

- Daily log
- Pictures, Diagrams
- Research Summary

Your display table may include:

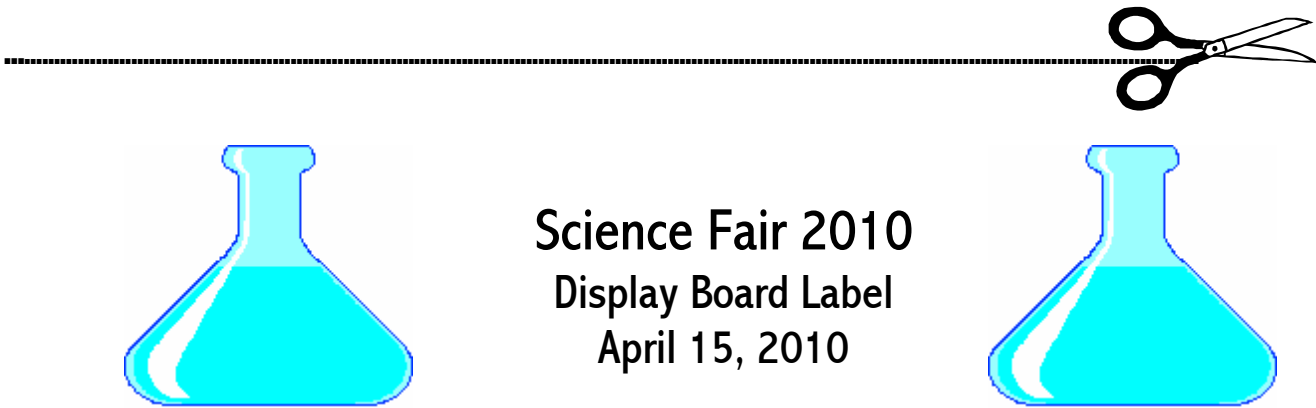
- Your daily log
- Research folder
- Experimental equipment
- Models or samples



Congratulations! You did it!!!

Bring your completed project to school on Monday, April 12. 3rd and 4th Grade Projects will be judged on April 13. No late entries will be accepted for judging.

ATTACH THIS LABEL TO THE BACK OF YOUR COMPLETED DISPLAY BOARD



Name: _____ Grade: _____

Home Room Teacher: _____

Project Title: _____

Science Question Investigated: _____
