

Science Fair Packet

4rd – 5th Grade

**NEWCASTLE ELEMENTARY
SCHOOL
2012 SCIENCE FAIR**

**Friday, May 11th
6 – 8 pm.**

Dear Newcastle Parent,

This science fair guide gives you and your child all the information you need to participate in the 2012 Newcastle Science Fair.

This may be the first time that your child has been given the opportunity to participate in a science fair. Things you should know:

Please consider letting your child do a project. Science is all about asking questions, and no one asks better questions than an elementary school child.

If your child can't think of a topic immediately, take a look at the suggestions on the PTSA website (look at the link to the Science Fair). Choose a project that is both interesting to your child and that your child can be a big participant in.

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SCIENCE FAIR QUESTIONS AND ANSWERS

WHY ENTER THE SCIENCE FAIR?



It's fun to discover! It is your chance to learn about something you are interested in. You'll have fun doing it too! Some teachers will require you to enter. Otherwise it is up to you. We hope to see you there.

CAN I DO A PROJECT WITH A PARTNER?

Yes. A partner can be great! Or you can do it individually. You may not have groups of more than 2 people.

HOW DO I PICK MY TOPIC?

What interests you? What have you been learning in school that you are still wondering about? Talk to your family, your teacher, or the librarian. There are lots of great topics; you just have to find one!

HOW DO I KNOW MY TOPIC IS OK?

Almost any topic is great! Look at the rules listed on the registration form for direction. Ask your teacher if you have more questions.

WHAT'S SCIENTIFIC INQUIRY AND DO I HAVE TO USE IT?



Think of Scientific Inquiry as your helper. It can help you start and complete your project. It's a guide to help you solve mysteries or to answer questions.

Are there videos I can watch that will guide me through the process?

Yes, videos showing most steps of the scientific method are available online at the PTSA website

SCIENTIFIC INQUIRY (How Do Scientists Find Out Things?)

Scientific Inquiry is the way to make sure you explore your question thoroughly.

The cool thing about science is that when you ask a question, that question can take you to really interesting places. You could discover something new!

1. ASK A QUESTION

What is my topic? Phrase your topic as a question using all things you are testing and HOW you are measuring.

2. MAKE A PREDICTION

Form a hypothesis and predict. What do I think will happen? Use all words from question and the word "THAN".

3. GATHER MATERIALS

What materials will I need to answer my question? Make a list of everything you will use. Don't forget the tools you use for measuring.

4. PLAN A PROCEDURE

What steps do I take to answer my question? Write this out. It is like a recipe for your experiment. *See example below!

5. CHOOSE YOUR VARIABLES

What is going to change in your experiment (manipulated variable)? What is going to remain the same (controlled variables) for each time? What do you need to keep the same to make your experiment fair? What are you measuring or are the results (responding variable)?

6. GATHER DATA AND RECORD RESULTS

What happened? Write down your data and your results. This should include a data table or a graph to show what happened. Photos can also really add to your project.

7. CONCLUSIONS

- 1 – Was your hypothesis supported or not supported?
- 2 – What happened in the experiment?
- 3 – List all data from smallest to largest.
- 4 – State the differences between what you tested (subtract).

Use this as a draft for your Science Fair Project (all information MUST be clearly labeled on your display).

TITLE

Question: _____

Hypothesis: _____

Materials needed: _____

Diagram of setup (include labels):

Controlled Variables (what stayed the same): _____

Manipulated Variable (what did **you** change): _____

Responding Variable (what result changed): _____

Procedure (step by step): _____

Data/Results: _____

Conclusion: _____

Reflection: Answer Each Question

What did you learn?

What question(s) do you still have?

What challenges did you face?

If you were to do this again, what would you change?

Sample Investigation:

Question: Will the plant grow taller in clay soil or in sandy soil?

Hypothesis: I think the plant will grow taller in clay soil than sandy soil.

Materials: (a numbered list)

1. 2 plant pots
2. 4 Wisconsin fast growing
3. plant seeds
4. 2 cups of sandy soil
5. 2 cups of clay soil
6. measuring cup
7. ruler
8. watering can

Diagram:

Controlled Variables
(What was the same in the entire experiment)
pots light water

Manipulated Variable
(What did you change to test your hypothesis)
type of soil

Responding Variable
(What was the different result because of the change you made)
amount of plant growth in height

Procedure: (numbered steps)

1. Place 2 cups of sandy soil into pot.
2. Plant 2 Wisconsin fast growing plant seeds in sandy soil 5 cm deep.
3. Repeat steps 1 through 2 with clay soil.
4. Place pots on sunny window sill.
5. Water plants with 5 tablespoons of water at the same time each day.
6. Measure height of plants each day in cm and record on data sheet.
7. Repeat steps 5 through 6 for 2 weeks.

Data/Results: (this can be a table, graph, pictures, etc. of what you observed or what happened)

Date:	Clay soil plant height in cm	Sandy soil plant height in cm
2/1/07	0	0
2/2/07	0	0
2/3/07	2	1
2/4/07	3	2
2/5/07	3	3
2/6/07	5	5
2/7/07	6	5
2/8/07	7	6
2/9/07	8	6
2/10/07	10	7
2/11/07	12	8
2/12/07	14	8
2/13/07	15	9
2/14/07	17	10

Conclusion: (answer the question. Explain the data- "put the numbers to words!")

My hypothesis was supported. The plant grew taller in the clay soil than in the sandy soil. The plant in the sandy soil only grew 10 cm by the 14th day and the plant in the clay soil grew 17 cm by the 14th day. The clay soil plant grew 7 cm taller than the sandy soil plant.

Reflection: I learned....

SAMPLE SCIENCE FAIR DISPLAY BOARD

Your display board presents your project to other people. This is how you show off your hard work! We are suggesting classic tri-fold displays available at most art or office stores. If you want to use something else, ask your teacher if it is ok to use. If you want to create a new way to display your project, go for it! Just remember to do your best work.



Suggestion for Display Board

<p><u>Question</u> What do I want to know?</p>	<p><u>Project Title</u></p> <p>My Name My Grade My Teacher</p> <p>Use this middle panel to show what happened in detail:</p> <p>You can use text (words) to explain your procedure, materials, and observations.</p> <p>You can also use drawings, photos, data tables, and graphs. (This will add color and interest to your display.)</p> <p>Add anything that shows what you did and conveys your results</p>	<p><u>Variables</u> What's changing? What's staying the same?</p>
<p><u>Prediction</u> What do I think will happen?</p>		<p><u>Gather Data and Record Results</u> What happened?</p>
<p><u>Materials</u> What materials did I use?</p>		<p><u>Conclusions</u> Why did this happen?</p>
<p><u>Procedure</u> How did I go about answering my question?</p>		<p><u>Reflection</u> What do I want to know next?</p>

Use the space in front of your board for your "hands on" display (not everyone will have one). People will probably touch your stuff, so think about what you want to share.