March 13, 2013

**Dear Fourth Grade Parents**,

Your child will be taking part in a science fair homework project, an exciting event that encourages students to think like young scientists. During the next few weeks your child will be designing a science project that uses the scientific method to solve a problem. We hope you agree that the educational benefits are numerous, as students develop skills in writing, oral presentation, creative thinking, and problem solving.

We are going to have a Fourth Grade Science Fair on Wednesday May 1, 2013. Parents are invited to come and view the projects and ask the scientists questions regarding their research. Mr. DiPalermo’s and Mrs. Meiner’s classes will showcase their projects from 9:30-10:45. Mrs. Byrne’s, Mrs. Boyen’s, and Mrs. Weichenhain’s classes will showcase their projects from 1:45-3:00. **The project is due to school on Wednesday May 1st.** Students will be giving oral presentations to the 3rd grade classrooms on Thursday May 2nd. Please do not send projects to school prior to the due date. Projects will be sent home with students on Friday May 3rd.

We ask that you encourage your child and monitor his or her progress along the way. Your support is key to a successful project, but please do not allow your involvement to extend any further in order to promote student learning and student ownership of the project! It is important that your child wrestle with problems and try to solve them. Guide your child whenever and wherever you can, but let the final project reflect your child’s individual effort and design. We have attached a scoring rubric so students can see what we are looking for in each category.

**Note**: ***Students should write or use the computer to type all information in their own words. Do not include text that has been COPIED word for word or photocopied. Students should only include their own original work in their own FOURTH GRADE WORDS.***

Please let us know if you’d like more information on creating a successful science fair project. If you have any questions, do not hesitate to contact us. We look forward to watching your child enjoy this unique opportunity for scientific discovery.

Sincerely,

The Fourth Grade Team and

Mrs. Acord and Mr. Krause SEM Consultants

**Inquiry Science Project - Directions**

**Step 1: Choose a Topic**

• Choose a question that interests you OR come up with your own question. Make sure your question is able to be tested. **DO NOT PROCEED TO THE NEXT STEP UNTIL YOU RECEIVE TEACHER APPROVAL!**

**Example:** **How does certain soap remove a mustard stain?**

**Step 2: Research the Topic**

• Once you have decided on a topic, you should research it carefully by finding out everything you can about the topic. Research is the process of collecting information. Do use many references from printed sources (books, journals, magazines and newspapers) as well as electronic sources (computer software and on-line services). You can also gather information from professionals (instructors, librarians, etc.).

**Step 3: Design and Conduct your Experiment**

• Next, design an experiment for the project. To do this use a series of steps called the scientific method (listed below). Record each step in a journal or notebook. You could just staple a few pieces of paper together to create this.

**1. Question** (the title of your experiment) Example: How does certain soap remove a mustard stain?

**2. Hypothesis** (what you think will happen and why) Example: I think Wisk would get the stain out better because it is advertised on TV as the best stain remover.

**3. Materials**

 Example: 3 towels

3 kinds of washing soap

A jar of mustard

**4. Procedure**

 Example:

1. Get 3 towels flat on a table.

2. Put mustard on all three towels.

3. Fold all three towels and rub together.

4. Wash each towel in washing machine with different detergent.

5. Take each towel out of washing machine and check to see which soap cleaned better.

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| Week Of | Task | Check when completed |
| March 13-March 22 | Project directions sent home. Choose your topic. Begin learning about your topic. Visit the library and do some research. Tell your teacher your science fair experiment question by Friday, 3/22.My experiment topic or question is:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Teacher Initials when approved: \_\_\_\_\_\_\_\_\_ completed |
| March 25-April 5 | Decide how to set up your experiment. Write your research question and hypothesis. Write the materials and procedure for your experiment in your journal or notebook. Read it to your family and make sure you have listed every step. |  completed |
| April 8-April 19 | Conduct the experiment and record data. (Note: If you are doing an experiment that takes a lot of observation over a period of time, you may need to begin the project last week). Analyze your data. Include charts, graphs, tables, averages, etc. Write your conclusion. Was your hypothesis correct? Tell what factors may have influenced the outcome and what you would change next time. Remember to take photos or draw pictures to document your experiment if appropriate. |  completed |
| April 22-April 26 | Make the display board. Use your computer skills to make it look nice if you can! ☺ Include color drawings or photos of your graphs, data, and project. Mount them nicely for an attractive looking display. Consider a hands-on display (3-D model) if appropriate. Glue rubric to the back. |  completed |
| Week of May 1st | Bring your project to school on Wednesday May 1st. Family and friends are invited to view the exhibits at this time (see schedule).  |  completed |

Westview School Fourth Grade Science Fair

Due \_\_\_\_\_\_\_\_\_\_\_\_\_\_

The Science Fair will be held in the classroom on Open House. This is a six week project that is based on the scientific method of experimentation. It is important to start now. Each project needs to be an experiment, not a demonstration. It must be approved by your teacher. Each student will be provided a list of possible experiment choices and a journal to complete their work. Students will need to purchase a display board (approximately 2 ft. x 3 ft. – a small variation is ok) to complete for Open House. An example will be provided in the information packet. This project will be worth 50 points.

The steps to complete the project are as follows:

Week 1

A. Choose a topic with a written question. Have them approved by \_\_\_\_\_\_\_

B. Provide written evidence of research of your topic and question.

C. Write a hypothesis (educated guess based on the research).

 Due by \_\_\_\_\_\_\_

Week 2

A. Start writing in the journal per directions.

 1. Title Page

 2. Table of Contents

 3. Topic and question

 4. Your research and what you learned from it

 5. Hypothesis

Due by \_\_\_\_\_\_\_

B. START the experiment.

 1. Record actions taken, observations, and changes.

Week 3

A. Continue experiment and journaling.

B. Start plan for visual aids.

 1. Visual aid choices – (must have at least two different types)

 a. Photos, graphs, charts, tables, drawings

C. Journal check – due by \_\_\_\_\_\_\_

Week 4

A. Continue experiments and journaling

B. Start planning your display board

C. Journal check – due by \_\_\_\_\_\_\_

Week 5

A. Continue to work on project – experiment, journal, visual aids, display board

B. Journal check – due by \_\_\_\_\_\_\_

Week 6

A. Complete journal.

B. Complete display board.

C. Prepare short speech with an overview of your experiment.

 1. Topic, question, hypothesis, supporting research, steps in the experiment, results, and

 conclusion

Due at 9:05 a.m. on \_\_\_\_\_\_\_

**Possible Inquiry Science Fair Questions**

Choose a project that you can do over a fairly short time span. Try to answer a question or solve a problem. You may get help from adults, but the work must be yours, so you must do the thinking and the work.

**Here are some possible questions you could use:**

1. Will chilling an onion before cutting it keep you from crying?

2. What type of plastic wrap best prevents evaporation?

3. Do all brands of paper towels pick up the same amount of liquid?

4. Which paper towel is the strongest?

5. Do batteries stored in the freezer power a toy car longer than those stored at room temperature?

6. Does an ice cube melt faster in air or water?

7. Does hot water freeze faster than cold water?

8. Which frozen liquid melts the fastest: water, milk, or soda pop?

9. Do different brands of popcorn leave different amounts of un-popped kernels?

10. Are all potato chips equally greasy? (you can crush them to get uniform samples and look at the diameter

of a grease spot on brown paper) or Is greasiness different if different oils are used (e.g., peanut versus

soybean)?

11. Do all brands of diapers absorb the same amount of liquid?

12. Do all brands of bubble gum make the same size bubble?

13. Does chewed gum lose mass?

14. How do different factors affect seed germination? Factors that you could test include the intensity,

duration, or type of light, the temperature, the amount of water, the presence/absence of certain

chemicals, or the presence/absence of soil. You can look at the percentage of seeds that germinate or the

rate at which seeds germinate. Choose one variable to test.

15. Does the presence of detergent in water affect plant growth? (pollution)

16. How does the type of water you feed a plant affect its growth? (tap water, distilled water, etc.)

17. Can plants grow without soil?

18. Does air temperature affect the growth of plants?

19. Do plants that are kept in the light 24 hours per day grow taller than those that are kept in the light 8

hours a day?

20. Do the roots of a plant always grow downward?

21. How are different soils affected by erosion?

22. How does exercise affect body temperature?

23. How long does it take the heart to return to normal after exercise?

24. Does viewing television affect pulse rate?

25. What brand of microwave popcorn pops better?

26. Will bananas brown faster on the counter or in the refrigerator?

27. How much salt does it take to float an egg?

28. Which dissolves better in water – salt, sugar or baking soda?

29. What kind of juice cleans pennies best?

30. What brand of raisin cereal has the most raisins?

31. Can the design of a paper airplane make it fly farther?

32. Can you tell what something is just by touching it?

33. What kinds of things do magnets attract?

34. What foods do mealworms prefer?

35. Can you tell where sound comes from when you are blindfolded?

36. Does warm water freeze faster than cool water?

37. Do different varieties of apples have the same number of seeds?

38. What materials dissolve in water?

39. On which surface can a snail move faster - dirt or cement?

40. How do worms sense their environment? Are worms sensitive to light?

41. Do mint leaves repel ants?

42. Do ants like cheese or sugar better?

43. Do all objects fall to the ground at the same speed?

44. How fast do objects with different masses fall? Do they fall at the same speed?

45. Does the size of the wheels on a toy car affect the distance it travels?

46. Does a ball roll farther on grass or dirt?

47. Which brand of battery lasts longer?

**2013**

**Westview School**

**4th Grade**

**Inquiry Science Fair**

**Project Directions**



**Due Dates**

**March 13th-Project Begins**

**March 22nd- Inquiry Question Due**

**May 1st-Projects Due/Science Fair**