

Friday, February 5, 2010

Dear Parents and Guardians:

As part of Pleasantdale Elementary's Science Curriculum, all fourth grade students will plan, create and display an individual project. The project must be an experiment that demonstrates application of the scientific method. Students will present the results of their experiment to the class. We believe this type of experience allows students the opportunity to challenge themselves, use their creative skills, and grow through oral presentation.

Today the project was introduced to the students. They need to choose a project idea and return a filled out plan sheet by Wednesday, February 10. Teachers will look over the plan sheets to ensure that the idea is appropriate, and return them to students by Friday, February 12. Students must perform the experiment at home and prepare a display board that explains the process and results. All projects are due at school by Friday, March 5. Please review your child's choice and make sure you can purchase the needed materials.

Scientific method is the process scientists use to conduct experiments and the science process skills we have taught students are life skills that apply to everyday life. We have been practicing using the scientific method with hands-on activities. Today's introduction, along with the packet students were given today, should provide the necessary information to complete the project. We will also be providing assistance in class as noted on the Project Calendar.

Parents are encouraged to support their child in this activity, and we ask that these guidelines be followed:

Please Do:

- Help your child follow the timeline for on-time project completion.
- Help your child get appropriate materials.
- Help your child use a word processing or computer program (if not handwritten).
- Assist your child in proofreading from his/her handwritten draft.
- Allow your child to make a mistake on the first try, and encourage him/her to try again.

Please Don't:

- tell your child what the project idea should be (If you feel the choice is inappropriate, ask your child to think of another.),
- record data or write a conclusion,
- draw diagrams, pictures or paste things onto the project board,
- make the equipment or perform the experiment for the child.

Please read through the materials in this packet, discuss them with your child, sign the **Parent Signature Form**, and return it to school by Monday, February 8. **The Project Plan Sheet** is due Wednesday, February 10. If you have questions, contact your child's teacher at 708-246-4700. Thank you!

The Grade Four Team

Scientific Method Project Requirements

1. Return **Parent Signature Form** by Monday, February 8, 2010.
2. Choose a project idea and turn in a **Project Plan Sheet** by Wednesday, February 10, 2010.
3. Perform experiment at home and take careful notes that record your observations. You need to design and use a data sheet.
4. Create the requirements for the display board.
5. Bring display board to school by Friday, March 5, 2010.

(detach here)

Parent Signature Form

Return this form by Monday, February 8.

I have discussed the science project with my child and we are aware of the due dates for the **Project Plan Sheet** (February 10, 2010), and **Project Display Board** (March 5, 2010).

Posters turned in after Friday, March 5, 2010, will be lowered one letter grade, and after March 12, 2010, two letter grades. Posters will not be accepted after Monday, March 19, 2010.

student name

parent signature

PROJECT PLAN SHEET (Due Wednesday, February 10, 2010)

For Scientific Method

Name _____ Date _____

The question you want to answer:

Hypothesis:

Procedure (What are the steps you will take to do this experiment? Number the steps.)

_____ Approved _____ Not Approved

Suggested Changes:

Rubric: Scientific Method Poster

Name: _____

CATEGORY	3: Excellent	2: Good – Sincere Effort	1: Poor – Needs Revisions
Title X1	Describes experiment using some creative language; is most prominent on poster.	Describes experiment and is most prominent on poster. No attempt at using creative language is made.	The title is not creative <u>and</u> is not most prominent on the poster.
Question X1	Is a clear question that is answered with the experiment.	Is a question, but confusing and/or not answered with the experiment.	Not in question form <u>and</u> not related to experiment.
Hypothesis X2	Formulates a logical guess about what will happen with a reason.	Formulates a logical guess about what will happen; however, no reason is given.	Incomplete, little thought given.
Materials X2	All materials are listed. Measures and amounts are accurate.	All materials are listed, but measures or amounts are inaccurate or incomplete.	Some materials are missing.
Procedure X2	All procedures are written in step form; all steps are present and easy to follow.	Steps are not written in step form. Or steps may be unclear or hard to follow.	Steps are missing.
Data X2	The data is organized, labeled and neat. The graph/chart used includes accurate measurements and scaled appropriately.	The data is unorganized, or labels are needed, or the scale is inappropriate.	The data is confusing, missing data, or unrelated to experiment.
Results X2	Restates the question and discusses how data answer the question.	Does not restate the question or data does not 'prove' the question was answered.	The written results show the student had little understanding of the experiment or questions and data do not match.
Conclusion X2	Restates hypothesis, says whether hypothesis was correct or incorrect, and says how results relate to life choices.	Missing one of: <ul style="list-style-type: none"> • restate hypothesis • correctness of hypothesis • relate to life choices 	Missing two or more of: <ul style="list-style-type: none"> • restate hypothesis • correctness of hypothesis • relate to life choices
Overall Poster Quality X1	All requirements are excellently placed with superior neatness. There is no more than one convention error.	All requirements are placed on the poster, and an attempt was made at neatness. There are no more than 4 convention errors.	The placement of poster requirements is not neat or some requirements may be missing. There are 5 or more convention errors.

If any requirement is missing the student will receive zero points for that category.

Total: _____ / 45 points

Scientific Method: Oral Presentation

Your presentation should include the following elements:

- Share the title of your experiment and why you chose it.
- Tell the audience the question you set out to answer.
- Share your hypothesis and why you thought this.
- Briefly, in your own words, explain what you did to perform the experiment. **DO NOT** read the materials and procedure from the poster board. You should be able to talk about what you used and what you did without the poster's help.
- Share the results—what was the answer to your question?
- Explain whether your hypothesis was correct or incorrect.

Remember the poster is only with you for display. The audience will look at it while you talk. You will need to be able to talk about your experiment without its help.

Scientific Method Project Ideas

1. Which paper towel absorbs the most water?

Materials:

4 different brands (same ply) of paper towels

Liquid Measuring Cups of 1/2 cup of water

Timer

Suggestion: Fill measuring cup with 1/2 cup of water, insert paper towel into cup for 30 seconds, remove towel, hold over cup for 5 seconds, allowing to drip into the cup, measure/record amount of water left in cup

Data Table:

Bar Graph

2. Which brand of paper towel is the strongest?

Materials:

4 different brands (same ply) of paper towels

Rubber bands

Cups

Pennies (you will need a lot)

Tablespoon of water

Data Table:

Bar Graph

3. Which burns faster thick or thin candles?

Materials:

1 – thick candle and 1 – thin candle both with the same mass

Matches

Paper plates

Matches

Timer

Data Table:

Bar Graph

4. Which material is the best insulator?

Materials:

Styrofoam cup

Paper cup

Plastic cup

*All cups must be the same size and shape

Timer/Clock

One pot of hot liquid (your choice of liquid)

Thermometer

Data Table:

Bar Graph

5. Which brand of popcorn leaves the fewest number of un-popped popcorn?

Materials:

4 – different brands of popcorn, same flavor, same number of ounces per bag
Bowl

Microwave – set for the same time for each bag/ allow microwave to cool between bags

Data Table:

Bar Graph

6. Which brand of diaper is most absorbent?

Materials:

4 – different types of diapers

Measuring cup

Water

Timer

Suggestion: Pour 1 cup of water over open diaper, lift diaper up for 10 seconds, if diaper does not drip, repeat.

Data Table:

Bar Graph

7. Which kitchen plastic garbage bag is the strongest?

Materials:

4 – different type of tall kitchen garbage bags

Bricks

Data Table:

Bar Graph

8. Which type of nail polish dries the fastest?

Materials:

4 – different types of nail polish, same color

Timer

Cotton Balls

Suggestion: Wash hands. Polish all five nails with the same polish. After 30 seconds, drag cotton ball over thumb. If cotton fibers stick to the nail repeat with index finger at 1 minute mark. Repeat until no cotton fibers stick to nail. Remove all polish, wash hands, dry hands, repeat steps with new brand of polish.

Data Table:

Bar Graph

9. Which brand of French fries is the best value?

Materials:

4 – different type of fast food small fries

Calculator

Suggestion: Count number of French fries and divide cost by the number of the fries in the order. This will then become your price per fry. Compare to other brands.

10. Which brand of chocolate chip cookies has the most chips?

Materials:

4 different brands of chocolate chip cookies

Hot water (1 cup) per cookie

Strainer

Bowl

Suggestion: Dissolve cookie in one cup hot, not boiling, water. Once completely dissolved, strain and count chips.

Oral Presentation Rubric : Science Project Presentation

Student Name: _____

CATEGORY	4	3	2	1
Enthusiasm	Facial expressions and body language generate a strong interest and enthusiasm about the topic in others.	Facial expressions and body language sometimes generate a strong interest and enthusiasm about the topic in others.	Facial expressions and body language are used to try to generate enthusiasm, but seem somewhat faked.	Very little use of facial expressions or body language. Did not generate much interest in topic being presented.
Speaks Clearly	Speaks clearly and distinctly all (100-95%) the time, and mispronounces no words.	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces no more than one word.	Often mumbles or can not be understood OR mispronounces more than one word.
Stays on Topic	Stays on topic all (100%) of the time.	Stays on topic most (99-90%) of the time.	Stays on topic some (89%-75%) of the time.	It was hard to tell what the topic was.
Posture and Eye Contact	Stands up straight, looks relaxed and confident. Establishes eye contact with everyone in the room during the presentation.	Stands up straight and establishes eye contact with everyone in the room during the presentation.	Sometimes stands up straight and establishes eye contact.	Slouches and/or does not look at people during the presentation.
Volume	Volume is loud enough to be heard by all audience members throughout the presentation.	Volume is loud enough to be heard by all audience members at least 90% of the time.	Volume is loud enough to be heard by all audience members at least 80% of the time.	Volume often too soft to be heard by all audience members.
Comprehension	Student is able to accurately answer almost all questions posed by classmates and teacher about the topic.	Student is able to accurately answer most questions posed by classmates and teacher about the topic.	Student is able to accurately answer a few questions posed by classmates and teacher about the topic.	Student is unable to accurately answer questions posed by classmates and teacher about the topic.
Listens to Other Presentations	Listens intently. Does not make distracting noises or movements.	Listens intently but has one distracting noise or movement.	Sometimes does not appear to be listening but is not distracting.	Sometimes does not appear to be listening and has distracting noises or movements.