SCIENCE FAIR

Y.I.S. 5th Grade Science Fair

Fifth graders will be participating in the Science Fair held at Yorkville Intermediate School. **All students will be completing and presenting an individual project.**

Application forms must be turned into students' classroom teachers by **Friday, February 19th**

The fair projects involve discovering new information through the use of the **SCIENTIFIC METHOD**. The scientific method is a process by which scientists test their ideas.

Selecting a Topic:
Look around you!!!

- What interests you?
- What do you want to know more about?

Ideas:

- Color
- States of matter
- Mold
- Saturation
- Plants
- Solar energy
- Pulleys

Where can I find ideas?

- School library
- Family
- Internet
- YIS Science Fair Website
- Public Library

Science Fair Schedule

Thursday, January 28th
Parent Meeting-
6:00 p.m. Library

Friday, February 19th
Science Fair application due
Science Fair board money due

Wednesday, March 30th
Completed Science Fair boards due to school

Wednesday, April 6th
Students will set up projects in the afternoon

Thursday, April 7th
8:45 – 12:45 – Projects will be judged.
1:30 – 3:35 – Open to visitors.

Friday, April 8th
8:35 – 9:35 Cleanup

The Scientific Method

1. **Question–**

   A scientist begins by stating a problem in question form. Suggested starters include, "What will happen if…" or "How does _____ affect…"

   Example: "Will bean seeds grow in recycled materials?"

2. **Hypothesis –**

   The scientist makes an educated guess about what the problem will be. This educated guess is called the hypothesis. A good hypothesis is clear, brief, and "testable". Your hypothesis should be written in the form of a statement. Do not start with "I think" or "I hope".

   Example: "Bean seeds will sprout in recycled materials that provide a moist environment."

3. **Materials –**

   A complete list of materials is needed for your investigation.

A POOR materials list (Not specific enough)	***A GOOD materials list***
o bean seeds o milk cartons o gravel o soil o plastic wrap o cardboard o etc.	o 20 half pint milk cartons o gravel o potting soil o cardboard box cut into small pieces o 80 bean seeds of the same variety o Styrofoam pellets o shredded black and white newspaper

4. **Procedure –**

   List the steps you took in the order you did them. Be specific enough that another student could easily repeat this experiment.

   Example:

   Step 1. Prepare the 20 milk cartons for planting:
   - Cut off the tops of all cartons
   - Rinse them thoroughly
   - Punch seven holes in the bottoms for drainage
   - Put in one scoop of gravel …

5. **Results of Data –**

   You need to write a paragraph about the results of your investigation. You should also add a graph, table, pictures or chart to show your results. It does not matter if your hypothesis was correct or not; that's not the purpose of this.

6. **Conclusion –**

   Finally, you will analyze the result and write a conclusion explaining whether the hypothesis was correct and what you learned from your experiment. You may also include what you might change if you were to do the experiment again.

Where Can I Find Information?

- ✓ **The Internet –**
  There are many different places on the internet to get ideas and suggestions. ****** Not all project ideas from these websites or the Internet will be accepted by your teacher. Make sure your project is measurable, and it is not just a demonstration. ******

  www.all-science-fair-projects.com

  www.sciencebuddies.org

  http://www.sciencefairadventure.com

  http://www.sciencebob.com

  http://school.discoveryeducation.com/sciencefaircentral

- ✓ **Books –**
  There will be books available to look at in the YIS library. If you would like copies, please let your teacher or librarian know.

- ✓ **Ask your family for ideas!**

Designing Your Display

A visual display is a great way to present your project to others. As with all parts of the science fair project, take the time to PLAN your display carefully! Your display board should have:

1. **A GOOD, EYE-CATCHING TITLE**
2. **LABELS FOR EACH STEP OF THE SCIENTIFIC METHOD**
3. **DRAWINGS, GRAPHS, PHOTOGRAPHS, SAMPLES (OF PROCEDURE, RESULTS, ETC.)**
4. **CLEARLY STATED, BUT BRIEFLY WRITTEN SECTIONS**

Your presentation should be:

1. **STURDY**
2. **ATTRACTIVE**
3. **WELL ORGANIZED**
4. **DESIGNED TO SIT ON TOP OF A TABLE:**
   (standard size trifold board)

Judging

You will be presenting your project to your class and to a judge. Be prepared to discuss the various steps you followed to complete your project. Practice explaining your project to someone. This will help you be calm on "The Big Day". The judges are very nice and will be interested in what you did and what you learned.

The judges may ask you any or all of the following questions:

1. How did you come up with your project idea?
2. What is your variable?
3. What did you learn from your project?
4. How close were your hypothesis and conclusion?
5. Did you learn anything new from your project?
6. What was the most interesting part of completing your project?

Planning the Oral Presentation

The oral presentation is a very important part of your project. Practice will make the difference in how well you present yourself AND your project. Rehearse in front of a mirror, and then make a practice presentation before a "live" audience! (Family and friends are great for this!) The following things should be included in your oral presentation:

1. **Make introductions.**
   First, introduce yourself. "Hello. My name is ____." (Shake the judge's hand!) Next, introduce the project. "The title of my project is ____." Then explain all the parts of your project. These should all be shown on your display!

2. **Show your results.**
   If you have a log, charts, or graphs, show them to the judges. If they are on the display, point them out and explain each.

3. **Explain your conclusion.**
   If you feel you had some problems with experimentation, don't be afraid to talk about them. Even the best scientists have to overcome obstacles along the road to discovery.

4. **Discuss what you learned.**
   Tell what you discovered about the topic or about the scientific process itself. Explain what you would do differently if you were to repeat this experiment or conduct another.

5. **Invite questions.**
   Ask the judges if they have any questions or items they would like explained further.

6. **Say thank you!**
   Don't forget to thank your listeners for their attention and interest.

Name: _____Teacher: _____

Science Fair Experiment Grading Rubric

THE TASK: The Science Fair Experiments involve discovering new information through the use of the **SCIENTIFIC METHOD.** The scientific method is a process by which scientists test their ideas. Your teacher will provide you with a Science Fair Packet, which includes all the information you need to get started on your project. Have fun!

I will assess my students' work for the following dimensions: **This dimension will be weighted:**

⊟ **Content:** Does the student demonstrate a thorough understanding of the Scientific process: question or purpose, hypothesis, procedure, materials, results, conclusion, title? Does the student show a solid knowledge about the variable? **4**

⊟ **Communication:** Did the student communicate in a clear and effective manner? Did the student answer questions? Did the student use visual displays of data to express and facilitate understanding of the material? _____

⊟ **Craftsmanship:** Does the student's work reflect care, craftsmanship, and quality? Is the work polished and attractive? Visually appealing? _____

⊟ **Competence:** Does the student's work reflect competence in the experimental approach. _____

COMMUNICATION:

Oral Presentation/Judging	(3 Points)	(2 Points)	(1 Points)
Identifies variable	Student independently and easily identifies the variable during the science presentation.	Student identifies the variable during the science presentation *with guidance*.	Student is unable to identify variable.
Use of visual display	Visual is used to enhance the presentation by following a logical sequence.	Visual is used but not used in a logical sequence.	Visual is not used.
Gives the results in own words	Student independently restates the hypothesis, and compares it to the results found. Student states how they could use their experiment in real world/improve their experiment.	Student restates the hypothesis, and compares it to the results found *with prompting*. Student states how they could use their experiment in real world/ improve their experiment *with prompting*.	Student does not restate the hypothesis, nor do they compare it to the results found. Student does not state how they could use their experiment in real world/ improve their experiment. *(with prompting)*
Oral presentation	Good eye contact; able to explain and discuss experiment and results thoroughly in a logical order, (including all steps).	Relied heavily on notes or display; little eye contact. Student is able to discuss experiment and results accurately *with guidance*.	No eye contact; could not adequately discuss experiment or results. Student is unable to discuss the experiment and results accurately *with guidance*.

Initial Score: ____ x Weighing factor ( ) =

CONTENT (All sections in content area must be labeled on your board):

Purpose and Question:	There is a clear purpose and question for the experiment. **(5 points)**	There is a purpose and question for the experiment, but it is unclear. **(4 points)**	The question and purpose are not related to the experiment. **(3 points)**	The purpose and/or question is missing. **(2 points)**	There is neither a question nor a purpose. **(1 point)**
Hypothesis:	There is a hypothesis that is related to the project. **(5 points)**		There is a hypothesis, but it does not relate to the project. **(3 points)**		There is not a hypothesis. **(1 point)**
Materials:	All of the materials are listed on the poster and are specific. **(5 points)**	All of the materials are listed on the poster, but are not specific. **(4 points)**	There are 1-3 materials missing from the list and are not specific. **(3 points)**	There are 4-5 materials missing from the list. **(2 points)**	There are more than 5 materials missing from the list, or list is missing. **(1 point)**
Procedure:	All steps are included and are specific. **(5 points)**	Each step included but may not be specific. **(4 points)**	1-2 steps are missing. **(3 points)**	3 steps are missing. **(2 points)**	There are 4 or more steps missing from the list, or procedure is missing. **(1 point)**
Variable Knowledge	X	X	Very knowledgeable. Variable is identified on board. **(3 Points)**		Little or no variable knowledge demonstrated. There are two or more variables; or no variables. Variable not labeled on board. **(1 Points)**
Trials	X	X	There were at least 3 trials (If more, there was an odd amount of trials). **(3 Points)**	There were 2 trials or there were an even amount of trials. **(2 Points)**	There was only 1 trial. **(1 Point)**
Results of Data (paragraph form):	The results of data are in written form fully explaining results and what the data represents, including an average of all 3 trials. **(5 points)**	The results of data are missing 1-3 pieces of information from the trials in the explanation of the data. **(4 points)**	The results of data are missing 4-5 pieces of information from the trials in the explanation of the data. **(3 points)**	The results of data are missing 6 or more pieces of information from the trials in the explanation of the data. **(2 points)**	There is no explanation of the results of data. **(1 point)**
Graph	The graph is labeled (title, x-axis, y-axis, key) **(5 points)**	The graph is missing one part. **(4 points)**	The graph is missing two parts. **(3 points)**	The graph is missing three parts. **(2 points)**	The graph is missing more than three parts. **(1 point)**
Conclusion	The conclusion answers the question, states if the hypothesis was correct, and matches the results shown. There is discussion about the experiment and its outcomes. **(5 Points)**	The conclusion answers the question, states if the hypothesis was correct, and matches the results shown. Little discussion about the experiment and its outcomes. **(4 Points)**	The conclusion answers the question, states if the hypothesis was correct, and matches the results shown. There is not discussion about the experiment or its outcomes. **(3 Points)**	The conclusion may not answer the questions or state if the hypothesis is correct. It may not match the results shown. There may be no discussion. **(2 Points)**	The conclusion does not answer the question. It does not state if the hypothesis was correct. The conclusion does not match the results. **(1 Point)**

Initial Score: ____ x Weighing factor (4) =

CRAFTSMANSHIP:

Visual Appeal	The format of the display is unique and creative. All steps are typed. There are no conventional errors. **(5 Points)**	The format of the display is mostly neat. There are 1-3 conventional errors. **(4 Points)**	The format of the display is a little distracting. There are 4-5 conventional errors. **(3 Points)**	The display is confusing. There are 6-7 conventional errors. **(2 Points)**	The display is very messy and not understandable due to 8 or more conventional errors. **(1 Point)**
Label	There is a title and labels for each section. All elements present (title, question, purpose, variable, hypothesis, procedure, materials, results, conclusion). **(5 Points)**	There is a title but there may be 1 label missing from sections. **(4 Points)**	The important sections don't stand out. There is a title, but there may be 2 labels missing from sections. **(3 Points)**	. There may not be a title **or** 3 labels missing. **(2 Points)**	Less than 3 parts are clearly labeled. **(1 Point)**
Size	X	X	X	The display is standard size. **(2 points)**	The display is **not** standard size as required. **(1 point)**

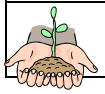
Initial Score: ____ x Weighing factor ( ) =

COMPETENCE:

Experimental Approach	Experiment was appropriate and effective to test the stated question. **(4 Points)**	Experiment did not test the stated question. **(3 Points)**	Experiment was not performed. It was a demonstration or model. **(1 Point)**
Measurable	Experiment is measurable. **(4 Points)**	Experiment is measurable, but was not measured appropriately. **(3 points)**	Experiment is not measurable. **(1 Point)**
Knowledge Gained	Shows familiarity with use of the scientific method and how it applies to the experiment performed. **(4 Points)**	Shows some familiarity with use of the scientific method and how it applies to the experiment performed. **(3 Points)**	Demonstrates little/no knowledge gained, nor scientific skills. **(1 Point)**

Initial Score: ____ x Weighing factor ( ) =

TOTAL Score:

	Glow
	Grow

Science Fair Application

Return to your teacher for approval by
Friday, February 19th

Name:
Classroom Teacher's Name:
Question:
Real World Purpose:
Hypothesis (Do not start with "I think" or "I believe"):
Variable:
What are you going to be measuring?

Parent Signature _____

Name_____ Teacher_____

The fifth grade team orders science fair boards (tri-fold boards) each year in bulk. We will be selling trifold boards for $4.00. The color options will be white, red, orange, yellow, green, blue, purple, black. If you would also like to purchase a white header, you can buy a header **and** board for $6. If you would be interested in purchasing any of these, indicate below and tell how many you'd like to buy. All payments and applications need to be in by Friday, February 19th. Checks can be made to Yorkville Intermediate School.

_____ **I am interested in purchasing a board(s) and/or header(s) from the school.**

_____ **No thanks, I will get my own science fair board.**

If purchasing a **tri-fold board and/or a header**, please select the color and quantity from the colors listed below ($4.00~ BOARD ONLY, $6.00 BOARD AND HEADER)

BOARD:

_____ White
_____ Red
_____ Orange
_____ Yellow
_____ Green
_____ Blue
_____ Purple
_____ Black

HEADER:

_____ White

Total Amount Enclosed $_____