6th GRADE

SCIENCE FAIR

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Dear Parents and Students, September 2014

The 6th Graders in the School District of Marshfield will be having a Science Fair! We hope that with your enthusiastic encouragement your student will enjoy the discovery of science by preparing a project for the fair. All students in 6th grade will participate in the fair. This will be an exciting experience for your child!

 The goals of the Science Fair are to:

 -Reinforce grade level science, literacy and math skills
 -Foster curiosity, awareness, critical thinking skills and creativity
 -Increase scientific knowledge
 -Learn research techniques
 -Grow in ability to work independently
 -Have fun in science!

 Attached is a Science Fair Project Selection Form. Please complete the form with your child and have your child return it to their teacher by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sixth Grade Teachers,

 Mr. Abbrederis

“*Science is not merely a collection of facts printed in an encyclopedia. It is a living adventure of the human spirit.” (Source unknown)*

**6th Grade SCIENCE FAIR**

**Purpose:** The purpose of the science fair is to offer an opportunity to students to explore, investigate and experiment curriculum related science topics while becoming more proficient in utilizing the scientific method and developing presentation skills.

**Objectives:**

1. To emphasize and support Wisconsin science standards
2. To develop literacy skills
3. To provide a focus for students to apply skills and concepts learned in science, art, computer science, math, and language arts
4. To help students develop self-confidence, organization and productive work habits

**Grade 6 Learning Targets**

**SCIENCE:**

* + - Identify questions to investigate
		- Use a variety of resources and equipment to carry out scientific method
		- Identify variable that need to be controlled in order to conduct a fair test
		- Distinguish between observation and inference
		- Make scientific observations, interpret data, and form conclusions based on those

 observations

* + - Defend and explain the validity of the investigation to others

**RESEARCH and INQUIRY**

F.6.1 Use a variety of media to research a topic

F.6.2 Create a bibliography of cited material

**MATH**

E.6.1 Evaluate a set of data to generate or confirm/deny hypothesis

**ART**

VA-G8.3 Develop the ability to make aesthetic decisions

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**HELPFUL HINTS:** **Welcome to the Science Fair!**

 Success is when you ask your own question, complete your project with a smile, and know more than when you started. Enjoy this time of discovery and fun.

➢For daily reading, choose a science book that can be a research resource for your project.

➢A **Report** is part of the process. Use your words.

➢The project is not to look store bought. It needs to be made by you.

➢When you use websites for research; verify the site is “correct”.
 ➢ Anyone can create a website; this does not mean its information is correct!
 ➢Make sure the website is run by a recognized group, such as a college or organization

 DOT “org”, “gov”, or “edu” are generally trustworthy for accuracy.

➢What is an acceptable science fair project?
 ➢Something that answers a question to which you do not know the answer
 ➢Something you can figure out youself
 ➢Something you can change somehow, add another variable, and then predict the outcome. That’s an experiment!

➢What is **NOT** an acceptable science fair project?

➢Reproducing results found on a website. That is NOT an experiment, it’s a reproduction.

➢A demonstration is NOT an experiment (i.e. volcano).

➢A collection or model is NOT an experiment (i.e. rock collection/model of solar system)

➢Parents, it is best to guide and answer their questions with questions. You may know the answer, but help them discover it themselves. For example, you may want to show them which paragraph in the book to re-read rather than giving them the answer.

**Examples of project ideas.** Many of these are *no* cost projects.

**Behavioral/social/ sciences:**

What conditions impact productivity while doing homework?

What brand of skin moisturizer lasts the longest?

How do different liquids affect the health of a tooth?

How do different types of movement affect human heart rate?

What brand of raisin cereal has the most raisins?

Which dish soap makes the most bubbles?

Which paper towel is the strongest?

With which type of battery do toys run the longest?

Which brand of popcorn pops the most kernels?

Which brand of popcorn pops the fastest?

Which plastic trash bag is the strongest?

Which brand of disposable diaper absorbs the most liquid?

**Physical sciences:**

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

Does a ball-roll farther on grass or dirt?

How much salt does it take to float an egg?

Does an ice cube melt faster in air or water?

Can you tell what something is just by touching it?

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

Can things be identified by just their smell?

Will more air inside a basketball make it bounce higher?

Do all colors fade at the same rate?

Does the width of a rubber band affect how far it will stretch?

How far can a water balloon be tossed to someone before it breaks?

**Biological sciences:**

What is the best way to reduce odor in shoes or skates?

At what temperature does a yogurt culture grow best?

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

Do different kinds of apples have the same number of seeds?

Does a plant grow bigger if watered with milk or water?

Do ants like cheese or sugar better?

Does holding a mirror in front of a fish change what a fish does?

What color of birdseed do birds like best?

**Earth sciences:**

What conditions affect the sleep of puppies?

How is the rate of melting snow affected by color?

Which materials keep ice cubes from melting for the longest time?

Does baking soda affect the temperature of water?

Does the color of water affect its evaporation?

Can you separate salt from water by freezing?

Will water with salt evaporate faster than water without salt?

**Environmental sciences/ecology**:

Does recycled paper decompose more quickly than non-recycled paper?

What type of window covering is best for saving energy?

What type of food and feeder will attract the most cardinals?

How much of an orange is water?

Does the color of light affect plant growth?

How much weight can a growing plant lift?

Does it matter in which direction seeds are planted?

**Bibliography Samples**

**Book with one author**

Author --Last Name, First Middle Name or Initial. Title-Underlined. City of Publication: Publisher, Date of Publication.

Hamann, Grizelda K. What it is Like to be as Fabulous as I am: a True Story. Marshfield, WI: MMS Press, 2007.

**Book with two authors**

Author --Last Name, First Middle Name or Initial **and** First Name Last Name. Title- Underlined. City of Publication: Publisher, Date of Publication. Hamann, Grizelda K. and Bitzy Reissman. English Rocks. Marshfield, WI : MMS Press, 2009. **Et.al** means “and others”

**Books with three or more authors**

Author --Last Name, First Middle Name or Initial, et.al. Title-Underlined. City of Publication: Publisher, Date of Publication.

Hamann, Grizelda K, et.al. Seven Teacher Stories. Marshfield, WI: MMS Press, 2012.

**Books with no author**

Title-Underlined. City of Publication: Publisher, Date of Publication.

Amazing Bats. Chicago: Rand McNally, 2012.

Be sure to add **ed.** here

**Books with an editor and no authors**

Editor Last Name, First Name, ed. Title-Underlined. City of Publication: Publisher, Date of Publication. Flegel, Maria, ed. Talent Show Tricks. Chicago : Children’s Press, 2009.

**Reference work (Print)**

What you looked up—in quotation marks. The title of the work used—underlined. Date of Publication.

“Gangsters.” The World Book Encyclopedia. 2009.

**Personal Interview\***

Who you interviewed—last name first. The words **Personal Interview**. Date you interviewed the person.

Bunyan, Paul. Personal Interview. 21 Jan 2011.

**Reference work (online)\* Use this only for eb.com, worldbookonline.com, and wikipedia**

What you looked up—in quotation marks. *The title of the work used—in italics*. Date of Publication. Electronic source (usually the word **Web**). Date you viewed it. Use **n.d.** if there is no publication date “Flappers.” *Wikipedia*. 2011. Web. 21 Jan. 2011.

**Internet Sources\***

Editor or author (if available). *Name of Site*. Date of Publication (if available). Medium of Publication (usually the word **Web**). Date of access. URL. *Great Women of the 1920’s.* 1997. Web. 20 Jan. 2011. (http://www.women1920.org).

**Explanation of Judging Expectations:**

1. **PROBLEM STATED:** Student clearly states problem as a question, provides evidence that it comes from the student’s personal interests or experiences, and represents a genuine learning opportunity for the student.
2. **HYPOTHESIS:** Hypothesis is brief and complete, testable, and clearly addresses the stated problem.
3. **PROCEDURES AND MATERIALS STATED:** Procedures are outlined in a step-by-step fashion that could be followed by anyone without additional explanations. All relevant materials are listed.
4. **OBSERVATIONS AND DATA STATED:** Experiment was performed several times. Data is shown through tables, graphs, charts or pictures.
5. **CONCLUSION:** Conclusion restates the hypothesis, identifies if the hypothesis was correct or incorrect, explains the results, and relates the results to the real world.
6. **VISUAL DISPLAY:** Project is appealing and neat, and is readable at approximately 2 feet distance. It is well organized and clear, makes striking use of inventive or amusing visuals and/or models, and uses language and spelling flawlessly.
7. **3 OR MORE RESOURCES:** Students have clearly indicated 3 credible sources.

**Hypothesis:** (predict what will happen)

I think that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because (my research shows) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 *Example problem:* Which paper towel is more absorbent?

 *Example hypothesis:* I think Brand X will be more absorbent because it’s a more popular brand, it is

thicker and the people I interviewed said that the more expensive brands would work better.

**Materials**: List the materials that you will need for your experiment

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4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 9.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 10.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Variables:** List the variables that you will control, the variable that you will change and the variables that will be the results of your experiment.

My controlled variables (stays the same)

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

My independent variable (this changes from one experiment to the next; it is what you are testing.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

My responding variables might be (the result of the experiment) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**FINAL CHECKLIST for SCIENCE FAIR PROJECTS**

***BEFORE*** turning in the project, check to see that:

* Paper, labels and letters on the display are firmly in place. Be creative. You may mount 3-d items on the board however they must be securely fastened.
* The student’s name and grade/homeroom and category are on a label on the right corner of the board.

This label is attached on the top of the board so that it can be flipped to the back during judging.

* Any display items other than the board are marked on the bottom with the student’s name.
* Display items with many pieces are not loose. They are in a display case or other “holder”.
* NO harmful materials and NO live animals are part of the project display.

 (Use drawings or photos to represent those items.)

* All parts of the project are clearly and neatly labeled.

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 **6th GRADE SCIENCE FAIR**

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**PROJECT SELECTION FORM**

**Return this form to your teacher by** \_\_\_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**\_\_

**Student’s first and last name (printed)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Homeroom** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The problem that will be investigated:**
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**The project will be (please check one):**
⃞ **BEHAVIORAL/SOCIAL/HEALTH SCIENCES:** This includes projects related to health, psychology, or consumer/product testing. Examples would be perception studies, aptitude and attitude surveys, product comparisons, and various exercise studies.

⃞**EARTH SCIENCES:** This includes projects involving the earth and physical phenomena. Examples for this category would include weather, astronomy, rocks/minerals, and water.
**No** collections or models.

⃞**ENVIRONMENTAL SCIENCES/ECOLOGY:** This includes projects that involve the environment and the relationships of living things to each other and/or the environment. Examples of the projects in this category are studies of organisms in their habitat, relationships between various organisms, and studies on how people’s actions affect the environment.

**Teacher’s signature** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Parent’s/Guardian’s signature** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Date** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_