

Dear SMLS Parents and Students:

December 19, 2011

This year's Science Fair will be held on Thursday, February 2, 2012 from 6:30-8:00 p.m. Group projects will be displayed in the gym and available to view from 6:30-8:00 p.m. Individual projects will be available to view in the classrooms from 7:00-8:00 p.m. Students will be setting up their display boards at the end of the school day on Thursday for that evening. Students are expected to be stationed at their display on Thursday night as visitors will be interacting with them.

Individual teachers will be letting students know which day(s) they would like to have students bring their projects to school. Teachers will be providing feedback and grading each project. For those students in the 7th grade, feedback will also be provided by a science professional; each student will meet with one of the volunteer professionals to explain their project and to receive feedback.

This letter explains the steps needed for your child to complete this project. Remember, a science fair project involves tests (or experiments) to find an answer to a question, and is not just an opportunity to show what you know about something. Topics will be finalized by Friday, December 23rd. Students should begin working on their project as soon as possible.

If your child is in grades Kind., 2, 4, 6, 8, they will be doing a group project as a class and their classroom teacher will be working with the students in class.

If your child is in grades 1 and 3, he/she will need to prepare a tri-fold display board for the Science Fair. You may purchase a board (available at Michaels, Meijer, Office Max) or you may make your own out of a cardboard box, foam core or poster board. Your display board should be eye-catching, well-organized and each section should be clearly defined. Please make it colorful and interesting to look at. **All** students must also keep a notebook to document their work. In the notebook they should keep track of all key things done to complete the project, as well as note observations made during the experiments and their results.

If your child is in grades 5 or 7: Fifth and Seventh grade students will prepare a power point presentation which will take the place of their display board. This will be an extension of the technology coursework being introduced by Mrs. Sidwell at school. **All** students must also keep a notebook to document their work. In the

notebook they should keep track of all key things done to complete the project, as well as note observations made during the experiment and their results.

The steps or sections of a successful science fair project are:

1. **Title/Research Question**: This is the question each student will answer by conducting experiments. This should be prominently shown right at the top of each student's display board. **Please note that if necessary, students can talk to Mrs. Lockwood about changing the wording on the science fair topic they receive to make it more "researchable" (or doable) and/or to pick a different topic.** It is important to make sure your topic is one in which you can test something multiple times, collect the data and average the information (data) and/or look for simple patterns.
2. **Background Internet/Library Work**: Students should spend some time trying to find out information about their topic. Look on the Internet and/or find some books at the library. Luckily, current "junior scientists" can learn much about a given topic from information found on the Internet. They might even find some sample science projects to help them figure out how to approach their topic. But most importantly, students need to do some reading on their topic to help understand it better. Students should also share some of what they learned from this background information on their display board.
3. **Hypothesis**: This is a statement that will explain what students THINK will happen as a result of completing some internet/library reading. It is often referred to as an "**educated guess**." The hypothesis needs to be written clearly on the display board explaining "why" students thought something was going to happen.
4. **Experiments**: Students should "experiment" to figure out what will happen when they test something multiple times. Record all your steps and results (data) in your notebook. If your experiment cannot be duplicated on the night of the Science Fair in the form of a demonstration, have someone take pictures of you performing all of the steps of your experiment. These pictures should be shown on your display board.

5. **Results:** Students should explain exactly what happened as a result of their testing/experiments. If you can graph your results, that would be best. This can be displayed on your board. Some projects lend themselves more effectively to graphing than others. If you cannot provide a graph, a few simple sentences on your display board explaining the results of your experiments will be fine.

6. **Conclusion:** This is a final statement that tells everyone what you have learned from your experiments. You should relate this back to your hypothesis and determine whether your "educated guess" was correct or not. Please refrain from using the term "prove"; proving something would require far more testing than we can do for this project. Use the term "support" instead. It is not necessary to be correct in your hypothesis to have a good project. The conclusion should be prominently displayed on your board.

Students should practice explaining "what they did and how they did it" when conducting their project. Allow your child to practice telling you, grandma and grandpa, a neighbor, friends, babysitter, etc., all about what they have done. This will help students feel calm and prepared on Science Fair night. Many people will be asking your student questions that night as they tour the fair. Practice helping them be able to answer those questions, not simply reading from their notecards or board.

Parents, please note that teachers will be discussing these steps at length with your child in the classroom. Students are free to ask me questions at any time from now until the night of the Science Fair. If you have questions or concerns, please feel free to contact me. Also, please sign and return the bottom portion of this page by Friday, December 23rd. We are all looking forward to seeing everyone's exciting work and results on February 2nd.

Blessings,

Mrs. Lockwood

klockwood@mightymessengers.org (269) 327.0512

****PARENTS:** I have attached a "hypothetical" project which will give you an idea of how to proceed with the steps above. Please complete the form below and return it to your child's teacher.

.....
Student: _____

Topic: _____

WE HAVE READ AND UNDERSTAND THE SCIENCE FAIR LETTER. WE KNOW THAT IF WE HAVE QUESTIONS WE CAN ASK MRS. LOCKWOOD AT ANY TIME.

Student

Parent

Sample (Hypothetical) Science Fair Project

Do Not Copy as Your Own!!!

1. **Title/Research Question:** Which brand of disposable diaper will hold the most water?
2. **Background Internet Information:** (The display board information might look something like this): I went on the Internet to find information on three different types of diapers. They all said they could hold lots of liquid. They all talked about having many different layers of material to absorb stuff. Some also talked about these things called molecules, and how there are spaces between them to hold things. So the more layers and the more spaces within those layers seems to be important.
3. **Hypothesis:** I think Pampers' brand diapers will hold the most liquid. I based this educated guess on the stuff I read, whereby Pampers are the most expensive, and therefore must be the biggest and have more layers.
4. **Experiments.** (The display board information might look something like this): I went to the grocery store with my Mom and purchased these three kinds of diapers: Luvs, Huggies, and Pampers. I made sure that each type was for the same sized child. At home, I took one of each kind of diaper out of the package. Holding each of the diapers over the sink, one at a time, I poured $\frac{1}{4}$ cup of colored water into the "seat" of the diaper. None of the water leaked through. Then I poured another $\frac{1}{4}$ cup of colored water into each sample (now I have poured a total of $\frac{1}{2}$ cup of water into each diaper sample) and water leaked through the Luvs brand diaper. The other two brands were still holding all of the moisture. Next I poured another $\frac{1}{4}$ cup of colored water into the seat of each brand of diaper. Water leaked through the Luvs brand diaper and the Huggies brand diaper. The Pampers brand diaper still was not leaking. Next I poured another $\frac{1}{4}$ cup of colored water into the seat of each of the diapers brands. Water is leaking through the Luvs brand diaper and the Huggies brand diaper but the Pampers diaper is still not showing any signs of leakage. **I repeated this experiment four (or more) additional times, with a fresh diaper of each brand, and recorded what happened each time.**
5. **Results.** (In this example, results could be shown on a graph, showing how much water each brand of diaper held for each of the five experiments. The graph should also show an average for the five different times)
6. **Conclusion.** As a result of experimenting five different times, I have determined that Pampers brand diapers hold the most liquid. My experiments showed that my hypothesis was supported. I guess being the most expensive in this case was indeed the best, in that it must have had the most room in its layers to absorb the water.