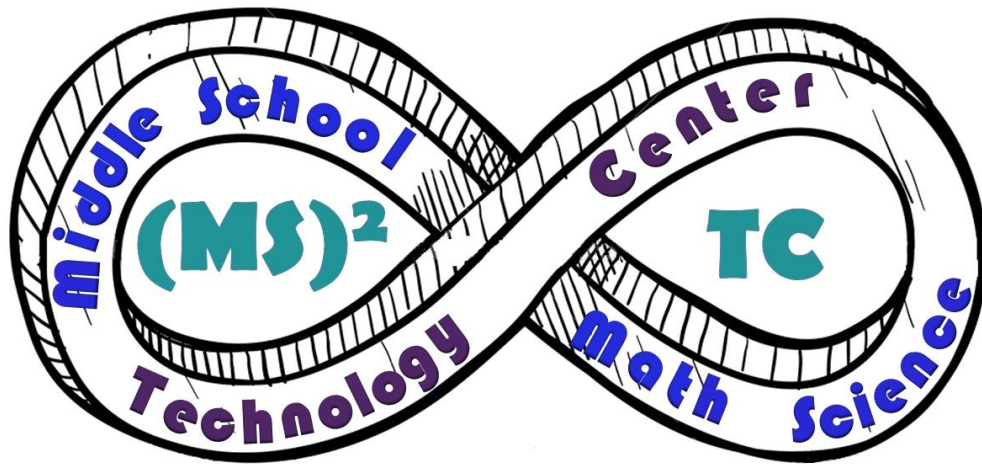


(MS)²TC Science Fair Project Packet
6th Grade



Name: _____

Teacher: _____

Dear Students and Parents/Guardians,

All students at (MS)²TC are required to complete a Science Fair project to turn in to their science teacher. From there, the best projects will be chosen by the Science departments at Butcher Educational Center to compete in the 58th Annual Science and Engineering Fair of Metropolitan Detroit (SEFMD).

A completed Science Fair project consists of five things: an abstract, a display board, a written project report, an oral presentation and a project log notebook. We will review all of the components of the project in class, **however it will be up to you to perform your experiment as well as complete the components of the project at home.**

Enclosed is a schedule outlining due dates and important information regarding your student's project. Ample time has been scheduled and work has been spread out, so students can complete the work at a comfortable pace. The 6th grade Science Fair projects will be due on **Monday, February 2, 2015.**

This is a **major** project and will be reflected in your child's grades in Science and ELA. The primary objective of this project is to have students approach a problem scientifically. This includes:

1. Asking questions and forming hypotheses
2. Creating experiments to test those hypotheses
3. Organizing data and drawing conclusions
4. Writing about scientific research

The project must be **experimental** in nature as opposed to research oriented. In other words, students must do a test or experiment (**cannot be a model**) to determine the answer to their question instead of just looking it up in a book. We encourage students to pick topics that they are genuinely interested in, since they will be working on these projects for the next several months. Topics must be in the **Physical Science** genre. Topics must also be "**original**" - something students do not already know and must be on **grade level**.

Project guidelines state that all work must be done by the students; however, assistance may be provided by teachers, parents, etc. It is very difficult to work alone without the exchange of ideas, so we encourage you to brainstorm with your student on different ideas and possible topics your student may want to pursue. Attached is a list of Guidelines and Project Ideas. Please take a moment to review these with your student in order to generate topic ideas. Be advised that all components will be graded by rubric. Rubrics will be distributed as necessary in the appropriate subject class.

Preliminary Science Fair Proposals are due on **Wednesday, October 29, 2014.**

Please contact us with any questions you might have. We look forward to working with you to make this a valuable learning experience for your student.

Sincerely,

Mrs. Duddles, Ms. Michaelson, Mrs. Purvis, and Mr. Bullis

(MS)²TC Timeline for 6th Grade Science Fair Project 2014 - 2015

INITIAL DRAFT

(Preliminary proposal must be approved
by Science teacher)

Wednesday - October 29

Initial draft due

Turn In To:

Science

FINAL DRAFT

Monday- November 10 (on or before)

Final (correct) proposal due

Science

LOG NOTEBOOKS

Wednesday - December 03

First log check

Science

Wednesday - December 17

Second log check

Science

Wednesday - January 14

Third log check

Science

PROJECT

Monday - February 02

Final project paper and Abstract due

ELA

Monday - February 02

Project display board due

Science

PRESENTATION

Week of February 23

Multimedia oral presentation due

ELA

6th Grade Project Display Board Exhibit will be Thursday, February 5, 2015
@ Butcher Educational Center

58th Annual Science and Engineering Fair of Metropolitan Detroit is March 10 - 13, 2015
@ Cobo Center

Dear Parent/Guardian:

Please review the requirements for the Science Fair Proposal and help your child to ensure that those requirements have been met, before turning in the proposal.

- All measurements must be in METRIC UNITS (Ex. 2.5 cm paper)
- The **PROBLEM** must be stated in the form of a question (Ex. Will plants grow taller in blue or green light?)
- The **HYPOTHESIS** must be an "If... then" statement. (Ex. If I add more salt to the water then the water temperature will rise.)
- The **MATERIALS** must be in a list and must be very specific (Ex. NOT "water" but "3 liters of tap water.")
- The **PROCEDURE** must be in numbered steps (NOT in paragraph form). Be very specific.

All students have signed for receipt of the Science Fair Packet and have agreed to share these with you.

----- (Detach Here) -----

PARENT ACKNOWLEDGEMENT

I have seen the timeline and will assist my child in meeting the requirements and due dates for the project. I have reviewed the requirements for this proposal with my child.

My Child,

_____ Section _____

Parent Name _____ Signature _____

Student Name _____ Signature _____

Home phone number _____ E-mail _____

Helpful Ideas and Websites

Project Ideas (You are NOT limited to just these projects.)

- What things can you do to improve the efficiency or effectiveness of your clothes dryer or water heater or any device? For example, can you take actions or make changes that will decrease the length of time it takes your dryer to get a load of towels dry?
- What can you do to reduce noise pollution in a room? What factors contribute to noise pollution inside a residence?
- Is the brightness of glow-in-the-dark (phosphorescent) materials affected by the light source (spectrum) used to make them glow or only by the intensity (brightness) of the light? Does the light source affect the length of time a phosphorescent material will glow?
- What is the best thickness of insulation for preventing heat loss?
- Is light bulb lifespan affected by whether the bulb is run at full power? In other words, do dim bulbs last longer/shorter than bulbs run at their power rating?
- What type of box material gives you the best sound for your speaker?
- When comparing different brands of batteries, is the battery that lasts the longest at a high temperature the same brand that lasts the longest at a cold temperature?

- Does the bounciness of a golf ball relate to its ability to be hit a long distance?
- Does the species of wood affect the rate at which it burns? Its heat output?
- Does the mass of a baseball bat relate to the distance the baseball travels?

- What soils best support structures, such as buildings?
- Does air temperature affect how long soap bubbles last? Does relative humidity?
- What materials [glow under black light](#)? Can you use the UV light to find invisible, possibly smelly, stains in your carpet or elsewhere in your house?
- What type of plastic wrap prevents evaporation the best?
- What plastic wrap prevents oxidation the best?
- How do differences in surfaces affect the adhesion of tape?
- Does the power of a microwave affect how well it makes popcorn?
- How does the pH of soil relate to the pH of the water around the soil? You can [make your own pH paper](#), test the pH of the soil, add water, then test the pH of the water. Are the two values the same? If not, is there a relationship between them?

- Which brand of rechargeable batteries delivers charge the longest before needing to be recharged? Does the answer depend on the type of battery-operated device?
- Test the efficiency of different shapes of fan blades.
- Determine whether ethanol really does burn more cleanly than gasoline.
- Can you build your own electrochemical cell or battery? Test its output and efficiency.
- Try to see if there is a correlation between two different factors, such as sunspot activity and mean global temperature or skipping lunch and low test scores. How valid would you expect such a correlation to be?
- What type of cooling mat is most effective at removing excess heat from a laptop computer?
- Which types of produce induce ripening or premature rotting in other produce?

Helpful Websites

<http://www.societyforscience.org/ISEF/primer/index.asp>

<http://nces.ed.gov/nceskids/graphing/Classic/> - Graphing

<http://scienceclub.org/scifair.html>

<http://www.accessexcellence.org/RC/scifair.php>

http://www.sciencebuddies.org/science-fair-projects/project_finding_information.shtml - Research Paper

<http://www.sciencebuddies.org/>

Use the [Topic Selection Wizard](#) tool:

- Answer a short questionnaire about your interests & hobbies
- It uses your responses to recommend ideas you will enjoy
- http://www.sciencebuddies.org/science-fair-projects/project_ideas.shtml

<http://www.all-science-fair-projects.com/>

<http://school.discoveryeducation.com/sciencefaircentral/>

<http://www.bibme.org/> - Creating a Works Cited page

<http://easybib.com/> - Creating a Works Cited page

Final Project Paper Outline *(Specific instructions will be given in ELA class.)*

Title Page: Must include the title of your paper (should be related to your topic), your name, grade level, school name [(MS)²TC], name of your Science and ELA teachers and date (**all centered aligned**).

Table of Contents: List of the parts of your paper and the page number for each part.

Abstract: The Abstract is a short summary of the project and includes the key highlights of your experiment: purpose, procedure, and conclusions. Following are some tips on writing your abstract from the SEFMD:

- The abstract is the first part of judging at the SEFMD and may determine whether your project will be accepted for further judging or not.
- Approximately 250 words.
- An abstract should include the (a) purpose of the experiment, (b) procedures used, (c) data, and (d) conclusions.
- Indicate if your results supported your hypothesis or enabled you to attain your objective. May also include any possible research application.

Research: **500 – 750 words**

Introduction: What is the chief reason you are writing the paper? State also how you plan to approach your topic. Explain briefly the major points you plan to cover in your paper. State your thesis and the purpose of your research paper clearly.

Body: This is where you present your information to support your thesis statement. Background information that reflects the knowledge you have acquired, through your research, on the topic of your experiment. You should be providing the reader with useful background information for your project. Information that is not your own must be cited.

Conclusion: A summary of your interpretation of the information acquired through research.

Acknowledgments: This is your opportunity to thank anyone who helped you with your project, from a single individual to a company or government agency.

Works Cited: This is a list of citations to books, articles, and documents used for the research paper. **MINIMUM OF 5 sources (Online sources are permitted but avoid unsourced websites such as Wikipedia, Ask.com, or yahoo Answers)**. The sources should include books, journals, encyclopedias, professional magazines, and reputable websites.

Please note that this is a sample project paper outline. Your student will be given time in ELA class to learn how to write a project paper and to write the project paper.

Specific Requirements for All Projects

(as dictated by SEFMD rules & guidelines)

- The main theme for all projects must be a Physical Science topic/concept.
- The project **MUST be an experiment in Physical Science**- something that can be tested repeatedly, and has MEASURABLE RESULTS that can be recorded and analyzed.
- **NO** biological specimens, human and animal testing/subjects/tissue, pathogenic agents, recombinant DNA, or controlled substances.
- **All work** completed on the project must be **recorded in the log notebook** (log notebook must be a bound composition book).
- All measurements **MUST** be in METRIC units.
- The proposal **must be approved before any work begins.**
- You cannot use the words "better" or "best" in your problem because they are not measurable.
- The Science project has 5 major parts: the display board showing the experimental proof (photos with captions or actual apparatus), the log notebook, the abstract, the final project paper, and the oral presentation.
- A grading rubric will be provided for each of the parts.
- STUDENTS ARE **NOT** ALLOWED TO WORK IN GROUPS. Each student must turn in their own project.
- Project display board must stand on its own (tri-fold project boards only).
- Project display board must **NOT** exceed size restrictions set by the SEFMD. Junior Division display boards must **NOT** exceed these dimensions: 36" wide x 108" high x 24" depth.
- Display boards **CANNOT** include:
 - live material
 - cultures, fungi
 - chemicals, dry ice
 - food (human or animal)
 - valuable equipment (make use of photographs instead)
 - no electricity will be available
 - anything potentially hazardous to the public is prohibited
 - identifying photos of student/people

6th Grade SCIENCE FAIR PRELIMINARY PROPOSAL:
Initial DRAFT

NAME: _____ SECTION _____

DUE DATE: _____

APPROVED

REJECTED

(TEACHER INITIALS)

PROBLEM: (Written in the form of a question. Do not use the words better or best!)

HYPOTHESIS: (Begins with "If.. then" statement – an educated guess about what you think the outcome/results will be).

WHAT WILL I MEASURE:

UNITS I WILL MEASURE: [Seconds (s), grams (g), Liters (L), centimeters (cm), kilometers (km), kilometers per hour (km/h), heart beats per minutes, number of objects remembered in one minute, etc.]

Parent Signature _____ Date _____

Work Phone # _____ Cell Phone # _____

Student Signature _____ E-mail _____

6th Grade SCIENCE FAIR PROPOSAL:
FINAL DRAFT

NAME: _____ SECTION _____

DUE DATE: _____

APPROVED

REJECTED

(TEACHER INITIALS)

PROBLEM: (Written in the form of a question. Do not use the words better or best!)

HYPOTHESIS: (Begins with "If... then" – an educated guess about what you think the outcome/ results will be.)

WHAT WILL I MEASURE:

UNITS I WILL MEASURE: [Seconds (s), grams (g), Liters (L), centimeters (cm), kilometers (km), kilometers per hour (km/h), heart beats per minutes, number of objects remembered in one minute, etc.]

Parent Signature _____ Date _____

Work Phone # _____ Cell Phone # _____

Student Signature _____ E-mail: _____