

The Montgomery County Science Research Competition

For over 50 years the science teachers of Montgomery County have seen the value for all students to be involved in student science research. Beginning in 1956 the MCSRC has been held for all county students in grades 6-12. The projects are always projects that involve the student in what is called the “Inquiry Cycle” . It takes the following format:

A Student Research starts with:

- 1) **Project selection** by using student interest followed by having the student complete ...
- 2) **background research** on what is already known. This is followed by the development of a ...
- 3) **testable question**– one in which quantitative data can be taken. The next step is to ...
- 4) **design an experiment** with complete procedures to detail the step by step process that the experimenter will follow. Then, based on this experimental design, the student ...
- 5) **takes their quantitative data** and records it in an organized manner using data tables. Following the data taking, the student then ...
- 6) **analyzes the data** by using graph and statistical analysis to identify patterns in the data. Based on this analysis, ...
- 7) **conclusions** are made which answer the initial question raised as well as other patterns seen in the analysis. The findings are also compared with what is already known as discovered in the background research, along with applications of the findings and future potential areas of study. The final step is ...
- 8) a **presentation** (written and oral) to a group of scientists or peers. During the presentation, questions may be raised that could lead the student researcher to a new question or area of study that brings them back to step one of the process. At the competition, the student will have put his/her project on a project board and make their presentation to a group of professional judges.

Many people ask “The 5 W’s of Science Projects”

- Who can do these projects and compete?
- Where can they be done?
- When is the project to be completed ?
- What can students do to succeed?
- Why should students do it?

Who ?

- Any student can do a project
- At the MCSRC competition, the directors determine the eligible age limits are gr. 6-12 from any public, private, parochial or home school in the county.
- To be eligible to compete at the International Science & Engineering Fair, the student must be in grades 9-12 (or ages 15-18)

Where Can the Project Be Done?

- Home
- School
- University
- Laboratory
- Industrial Setting
- Medical Center
- Outside, in the Field ... or wherever you need to go!

(Form 1 C must be completed if done in an institution outside the school or home)

When? (What is the Timeline for doing a project?)

- September (or during summer)- Begin project selection by reviewing books, websites and having discussions with teachers and/or scientists
- October- Identify area of study and do background research on topic to develop testable question.
- November- Write up experimental design and have it approved. Complete all protocol forms for project approval. Gather materials for experiment. Begin data taking.
- December-January- Complete data taking and begin analyzing the data
- February- Finish analysis and conclusions
- March- Make display board, practice presentation and make presentations at MCSRC
- April- If selected student goes to Delaware Valley Science Fair to compete.
- May- If selected, present science project at the International Science & Engineering Fair and/or National competitions at other times during the year

What? To succeed in the completion of the project, students need to:

- Select a project that interests them
- Use credible resources for their background research
- Design their experiment as a “controlled experiment”— one in which only one variable is changed and the others are held constant
- Consult a mentor or teacher to review the experimental design before they begin; then carefully follow the procedures
- Record the progress of their work in a log book and accurately record the measured data using data tables
- Look for patterns in their data and precisely make their analysis followed by clearly written conclusions
- Present their findings in an organized manner on a project board or poster
- Thoughtfully prepare their oral presentation, identifying the important parts of their research and presenting practical applications.

Why? (Why is a science research project a worthwhile experience?)

1. Teaches lifelong learning skills
2. Teaches organization
3. Teaches time management
4. Teaches cooperation
5. Teaches long-term project planning
6. Allows for creativity
7. Teaches public speaking skills
8. Students learn more in-depth knowledge of research topic

To find out more information come to one of the Rules and Regulations meeting held at the IU.

It is required for each school that will participate to have attended at least one of the Rules and Regulations meetings.

Check the website for dates of the meetings and for other fair dates and information.

For further information contact the Director at :

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