Science Fair Projects and The Scientific Method

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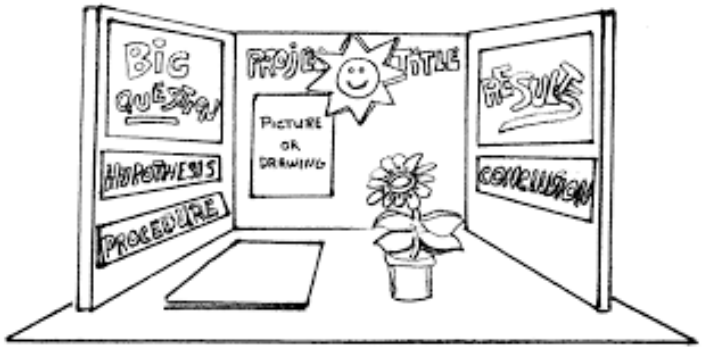
2015-16



What is the Scientific Method?

- The scientific method is a way to ask and answer scientific questions by making observations and doing experiments.\

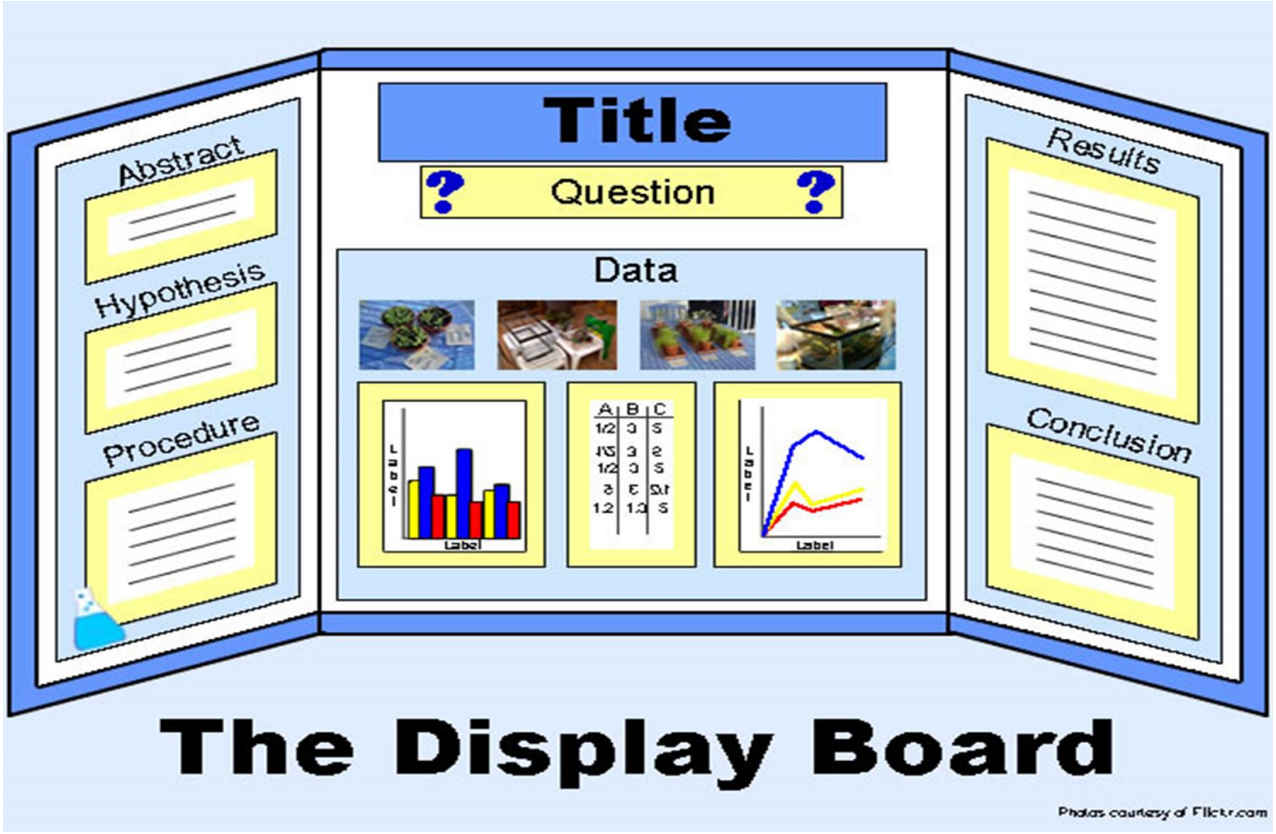
- The steps of the scientific method are to:
  - **Ask a Question**
  - **Do Background Research (Research Plan)**
  - **Construct a Hypothesis**
  - **Test Your Hypothesis by Doing an Experiment**
  - **Analyze Your Data and Draw a Conclusion**
  - **Communicate Your Results**

Science Activity: Using the Scientific Method to complete a Science Fair Project.

What does the Scientific Method look like on a Science Project?

A science fair project includes:

- Problem
- Rationale - Purpose
- Hypothesis – Educated Guess
- Procedure
- Data
- Results
- Conclusion
- Research Paper
- Bibliography
- Abstract



What is a Rationale?

- The rationale is the purpose or reason for completing the scientific activity.

What is a Hypothesis?

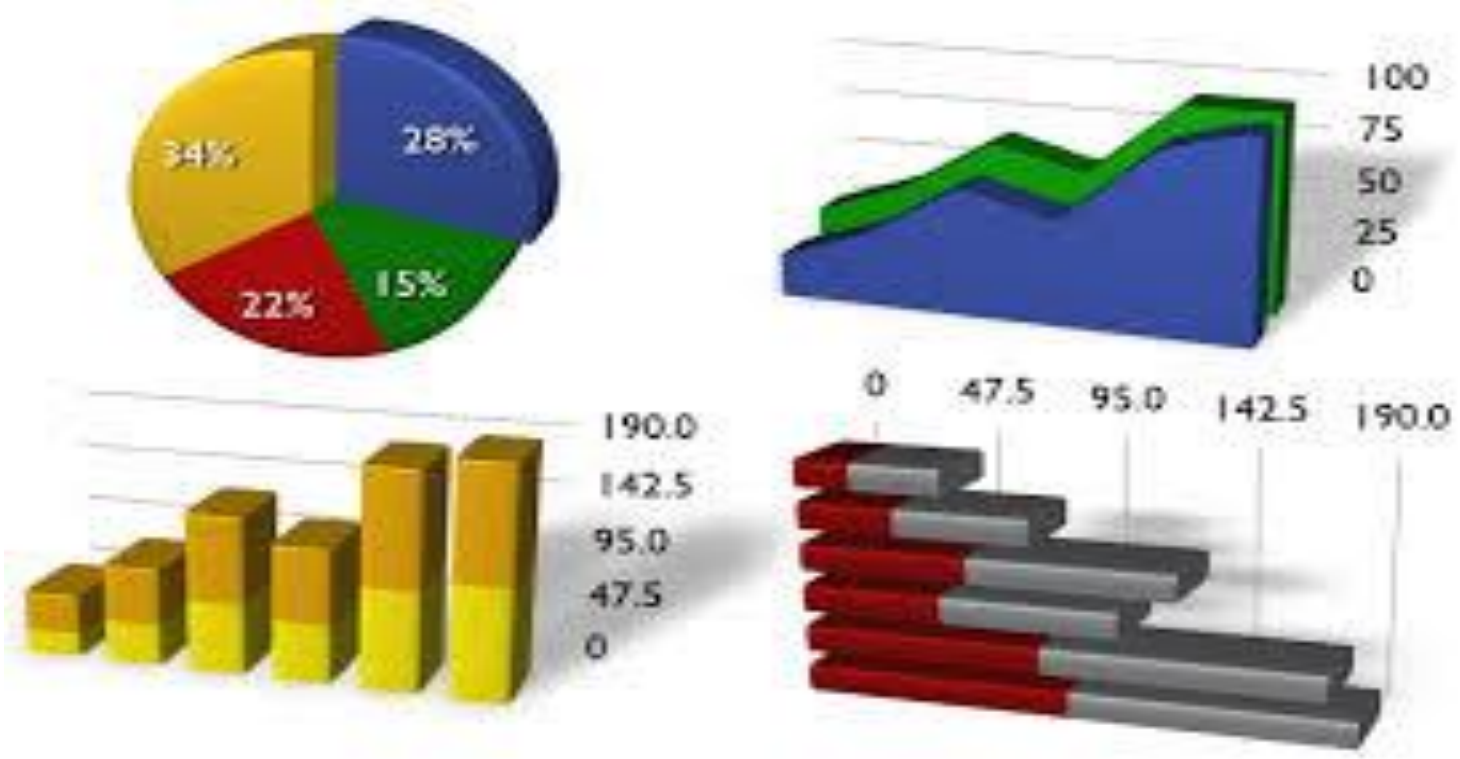
- A hypothesis is an educated guess as to what you believe the outcome will be.

What is a Procedure?

- The procedure is the method in which you will test your hypothesis.

What is Data?

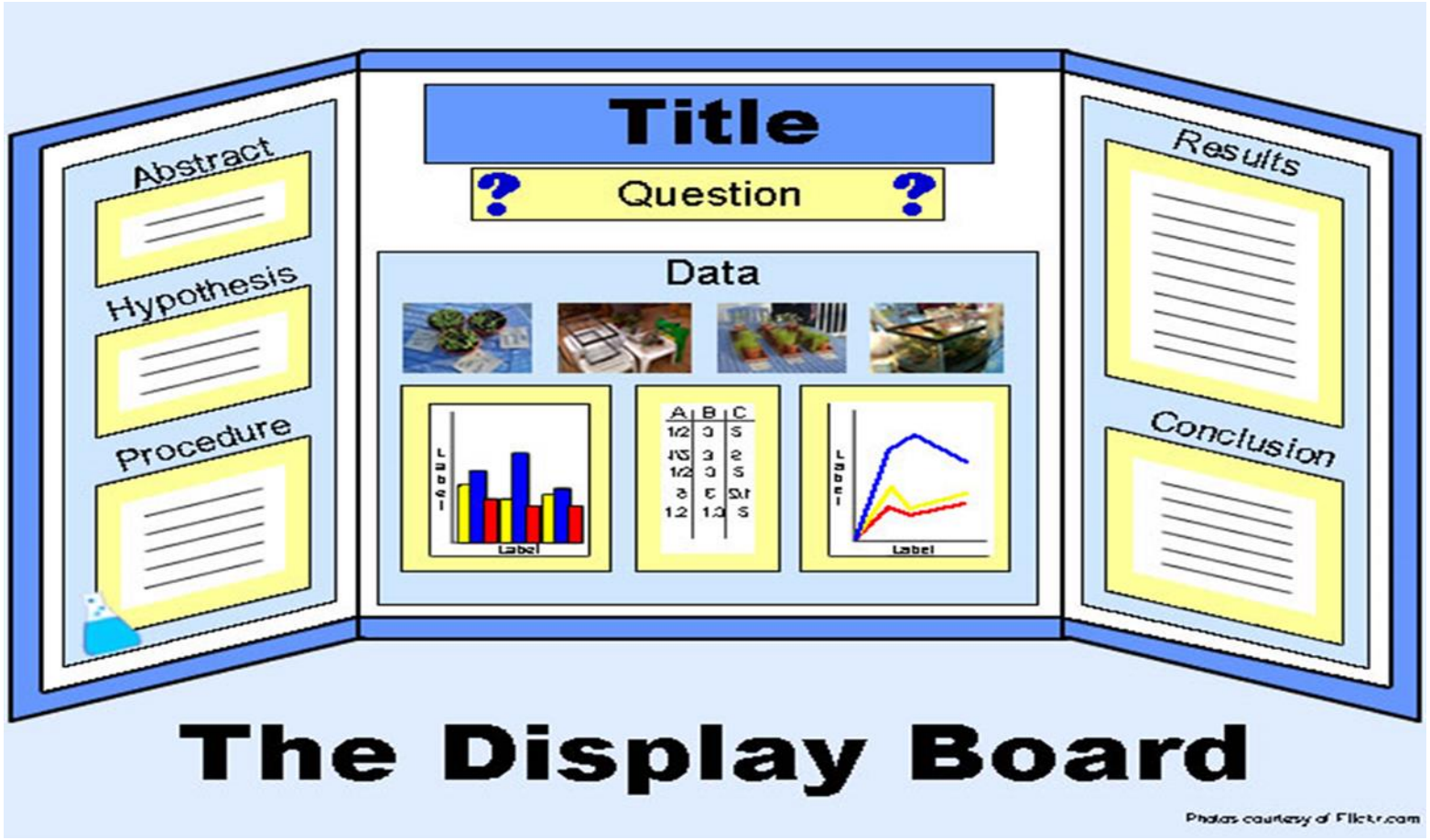
- The evidence collected to show the experiment was conducted and the results are accurate.



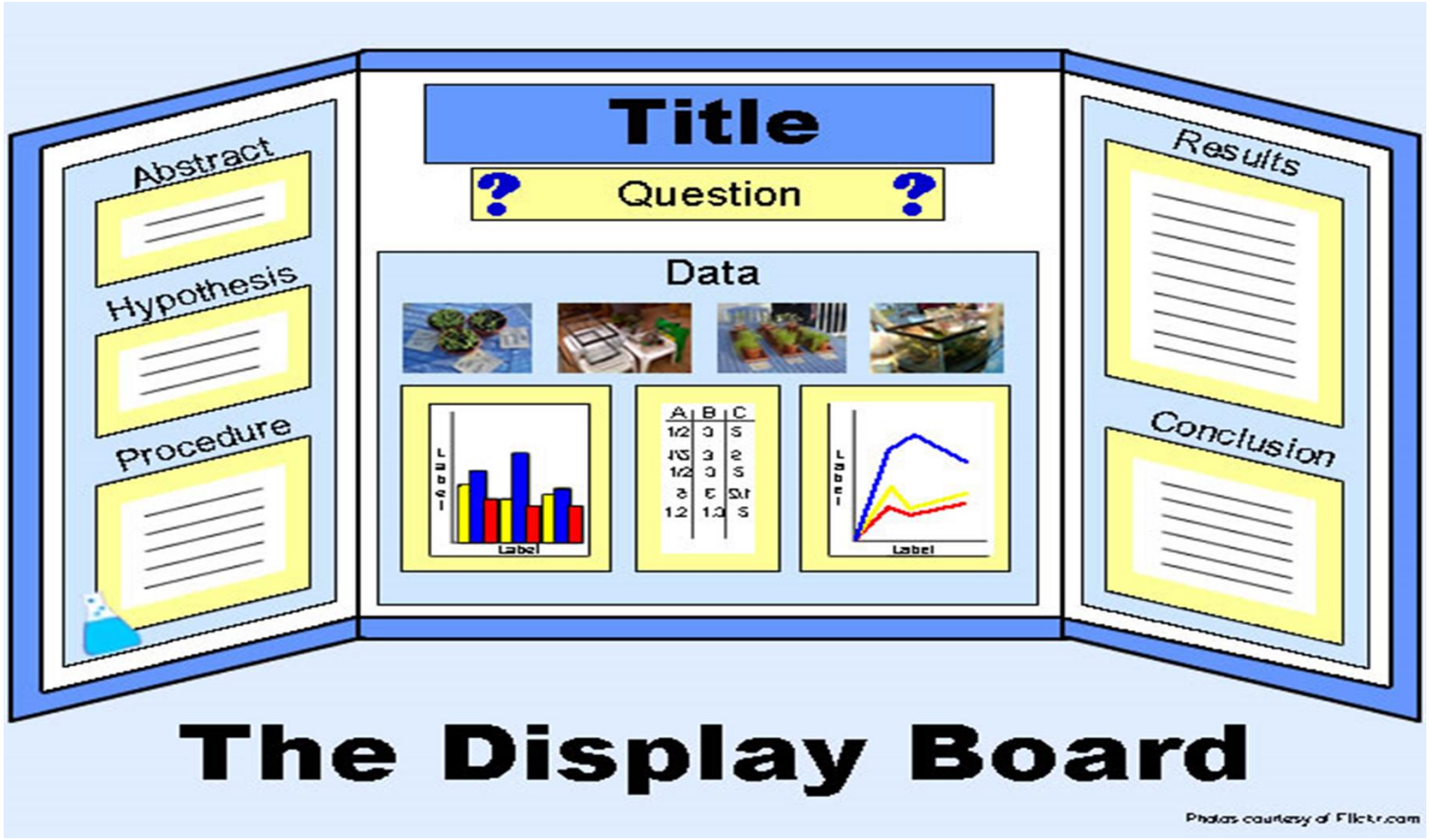
What is a Conclusion/Result?

- The conclusion is the final analysis of the science experiment.
- The results of the study shape the conclusion and offers the next steps.

How would the Scientific Method look on a Project Board?



Other Components of the Science Fair Project



What is an Abstract?

No more than 250 written words which describe the:

- **Purpose of the Experiment**
- **Procedure**
- **Data**
- **Conclusions**

The Abstract can be located on the Project Board.

Research Plan

- A research plan should be written and approved before any experimentation and should accompany all projects.

Should include:

- A rationale or purpose for the experiment.
- A hypothesis, research questions, and expected outcomes of the experiment.
- Detailed research methods and conclusions such as procedures, risk and safety, and how the data will be analyzed.
- Bibliography – At least 5 major references.

Bibliography

- A bibliography contains academic references used to complete the research and project.
- References may include science journals, the Internet, books, etc.

Log Book

- A composition notebook which chronicles from the beginning to end of the experiment.

Websites for Science Fair Ideas

- http://www.education.com/science-fair/elementary-school/
- http://www.sciencekids.co.nz/projects.html
- http://www.parenting.com/gallery/easy-science-fair-projects-kids
- https://silverbeach.bellinghamschools.org/websites-science-fair-projects
- http://chemistry.about.com/od/sciencefairprojects/a/sciproelem.htm
- http://www.moneycrashers.com/elementary-science-fair-project-ideas/
- http://www.terimore.com/
- http://www.sciencebuddies.org/science-fair-projects/Intro-Chemistry.shtml