

what if...

Find a general topic that interests you and write down the question that you want to answer.

Ask a Question

The scientific method starts when you ask a question about something that you observe: **How, What, When, Who, Which, Why, or Where?**



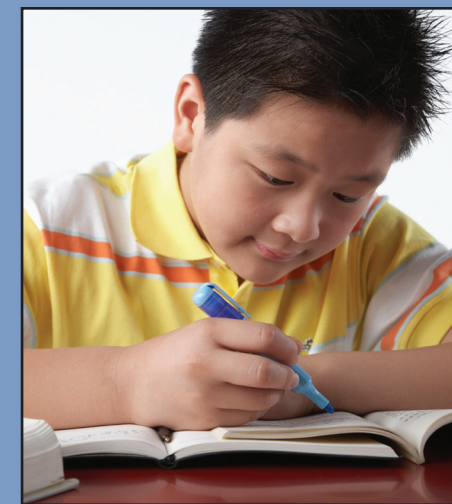
And, in order for the scientific method to answer the question, it must be about something that you can measure, preferably with a number.

www.sciencebuddies.org

- > Topic Selection Wizard
- > Science Fair Project Ideas
- > Your Question
- > Engineering & Programming Project Tips

question word table

network



Do Background Research

Learn from the experience of others.

So that you can design an experiment, you need to research what techniques and equipment might be best for investigating your topic. Rather than starting from scratch, savvy investigators want to use their **library** and **Internet** research to help them find the best way to do things.

identify key words

math bibliography

www.sciencebuddies.org

- > Background Research Plan
- > Finding Information
- > Bibliography
- > Research Paper

“If [I do this],
then [this]
will happen.”

Quantities whose values can change are called variables.

Construct a Hypothesis

A hypothesis is an educated guess about how things work: “If [I do this], then [this] will happen.” You must state your hypothesis in a way that you can easily measure, and, of course, your hypothesis should be constructed in a way to help you answer your original question.



www.sciencebuddies.org

- > Variables for Beginners
- > Variables
- > Hypothesis

measure photos notebook



Test with an Experiment

Your experiment tests whether your hypothesis is true or false. It is important for your experiment to be a **fair test**. You conduct a fair test by making sure that you change only one factor at a time while keeping all other conditions the same.

You should also repeat your experiment several times to make sure that the first results weren't just an accident.

Your experimental procedure is like a step-by-step recipe for your science experiment.

www.sciencebuddies.org

- > Experimental Procedure
- > Materials List
- > Conducting an Experiment
- > Laboratory Notebook

review data

Look at the results of your experiment with a critical eye.



variables

label

graphs

Analyze Data

Once your experiment is complete, collect your measurements and analyze them to see if your hypothesis is **true or false**.

THINK! TRY AGAIN

Scientists often find that their hypothesis was false, and, if so, they will construct a new one. Even if the hypothesis was true, they may want to test it in a new way.

www.sciencebuddies.org

- > Data Analysis & Graphs
- > Summarizing Your Data
- > Sample Spreadsheet
- > Conclusions

abstract final report display board

A picture speaks a thousand words!

Communicate Results

To complete your science project, you will communicate your results to others in a **final report and/or a display board**. Professional scientists do almost exactly the same thing by publishing their final report in a scientific journal or by presenting their results on a poster at a scientific meeting.



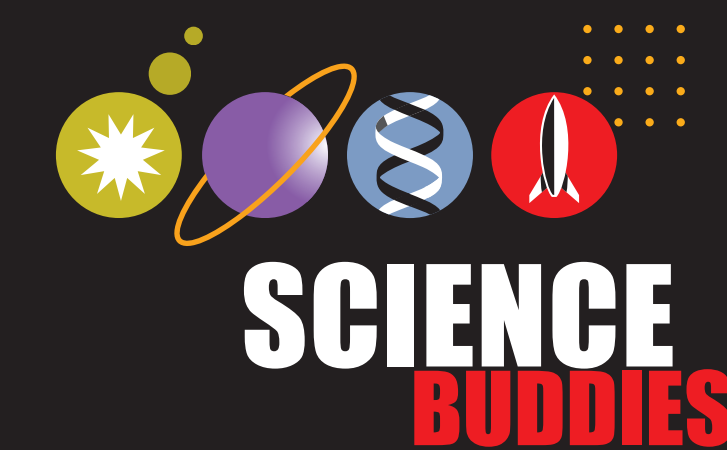
be positive be confident

www.sciencebuddies.org

- > Final Report
- > Science Fair Project Abstract
- > Display Board Design, Tips, and Samples
- > Science Fair Judging

THE SCIENTIFIC METHOD

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



Seagate Technology is proud to be a Presenting Sponsor of Science Buddies, a non-profit organization.