

# STEPS OF A SCIENTIFIC INVESTIGATION



## The Question

Ask a question to start a scientific investigation. It might be based on an observation you have made or a particular topic that interests you. Think what you hope to discover during your investigation, what question would you like to answer? Your question needs to be about something you can measure and will typically start with words such as what, when, where, how or why.



## Background Research

Talk to your science teacher and use resources such as books and the Internet to perform background research on your question. Gathering information now will help prepare you for the next step in the Scientific Method.



## Hypothesis

Using your background research and current knowledge, make an educated guess that answers your question. Your hypothesis should be a simple statement that expresses what you think will happen.



## Experiment

Create a step by step procedure and conduct an experiment that tests your hypothesis. The experiment should be a fair test that changes only one variable at a time while keeping everything else the same. Repeat the experiment a number of times to ensure your original results weren't an accident.



## Data

Collect data and record the progress of your experiment. Document your results with detailed measurements, descriptions and observations in the form of notes, journal entries, photos, charts and graphs.



## Observations

Describe the observations you made during your experiment. Include information that could have effected your results such as errors, environmental factors and unexpected surprises.



## Conclusions

Analyze the data you collected and summarize your results in written form. Use your analysis to answer your original question, do the results of your experiment support or oppose your hypothesis?



## Communication

Present your findings in an appropriate form, whether it's a final report for a scientific journal, a poster for school or a display board for a science fair competition.