observation: You observe something
form a hypothesis: A tentative explanation for a scientific observation question.
testable: A hypothesis is testable if it can be supported or rejected by carefully
designed experiments or observational studies.
falsifiable: Describe a hypothesis that can be ruled out by data that show the
hypothesis does not explain the observation.
experiment: A carefully designed test, the result of which will either support or rule
out hypothesis
independent variable: the variable or factor being deliberately changed in the
experiment group.
dependent variable: the measured result of an experiment analyzed in both the
experimental and control groups.
sample size: the number of experimental subjects or the number of times an
experiment is repeated. (the number of participants)
statistical significance: A measure of confidence that the results obtained are real
and not due to change.
scientific theory: an explanation of natural world that is supported as a large body
of evidence and has never been disproved.
experimental group: the group in an experiment that experiences the
experimental intervention or manipulation.
control group: the group in an experiment that experiences no experimental
intervention or manipulation.
placebo: a fake treatment given to control groups to mimic the experience of the
experimental group.
correlation: a consistent relationship between two variables
anecdotal evidence: an informal observation that has not been systematically
tested.
peer review: a process in which independent scientific experts read scientific
studies before they are published to ensure that the authors have appropriately
designed and interpreted the study.

Presenting A Report:

1. Introduction: history, definitions, and hypothesis.
   what is already known.
2. Material and Methods (procedure)
   the experiment description

3. Results: Tables and Graphs of results

4. Discussions and Conclusions

5. References
The way scientist's work results in the formation of universal laws and (facts) and theories (how they are explained).

The whole process begins with an observation. To know more about the observation, one researches known descriptions similar to what has been observed. As an example, let a piece of a pebble fall and one sees that it speeds up until it reaches the ground. Depending on the time period of which the observation was looked up in scientific books, different amounts and explanations were found.

After recording what was observed and what has been known about it, one may come up with a hypothesis, an educated guess, of how this process works.

Following the hypothesis, one does experiments and collects data. By analyzing the results, either the hypothesis is accepted or rejected. If rejected, one has to start with a new hypothesis and does the experiment again. If accepted, the hypothesis tentatively becomes the explanation of the fact or theory and a description of the fact becomes a principle. When a theory and or principle repeatedly appears to be true through experimentation, the principle becomes a law.

There is one point, which should be mentioned that sometimes observations are faulty. For example, when the sun rises and sets, the ancient people assumed that the earth was the center and the sun moved around it. However, this observation was proven to be a fallacy. The earth moved around the sun.