

## Chapter 1 Objectives

Understand the correct meaning and usage of each of the following terms: chemistry, experiment, hypothesis, observation, scientific law, scientific method, and scientific theory.

Describe and explain the scientific method.

Compare and contrast the terms observation and experiment.

Compare and contrast the terms hypothesis, theory, and law in the context of the scientific method.

## Chapter 1 Outline

Introduction: What is Chemistry?

Scientific Method

    Reiterative Process

    Data and data collection

        Experiment vs observation

            Hypothesis

            Independent variable

            Dependent variable

        Qualitative vs quantitative

    Analysis

        Law

        Theory

**Homework:** work problem 17 AND briefly explain each of your answers.

**Class participation assignment:** one common misunderstanding about the scientific method is the amount of data needed to support a law or theory. Choose one of the suggested crowdsourcing science projects. Sign up and volunteer some of your time to the effort. Write a brief (one paragraph) summary about the project including its objective, a description of the data, the role that volunteers are asked to perform, and your initial impression. Extra credit will be awarded to students who stick with their project and give periodic updates about their experience throughout the semester. The initial summary may be submitted by hardcopy or email.

Citizen Science list:

    Zooniverse

    CosmoQuest

    BeeSpotter

EyeWire  
Mark2Cure  
Monarch Watch  
Stardust@home  
Smithsonian Digital Volunteers  
Nature's Notebook  
eButterfly  
eBird  
Cities at Night