



### **Inquiry**

#### **Hypotheses**

*When you make a prediction and give your reasons for that prediction, you are forming a hypothesis. A hypothesis is a statement of the expected outcome of an experiment or observation, along with an explanation of why this will happen.*

*A hypothesis is never a guess. It is based on what the scientist already knows about something. A hypothesis is used to design an experiment or observation to find out more about a scientific idea or question. Guesses can be useful in science, but they are not hypotheses.*

#### **Dependent and Independent Variables**

*In all experiments, there are things that can change (vary). These are called variables. In a “fair test”, scientists must decide which things will be varied in the experiment, and which things must remain the same. In this investigation you will make measurements to determine whether or not rocks (or models of rocks) have changed. This is the dependent variable. The kinds of rocks you test or the different temperatures you use are called the independent variables. All other variables must be controlled; that is, nothing else should change.*

discuss what a hypothesis means. You may wish to read the information about hypotheses in the **Inquiry** box. Then answer the following questions:

- a) Why is a hypothesis not the same as a guess?
  - b) Why do you think a hypothesis is useful in setting up a fair test?
  - c) Do you think that a hypothesis has to be correct? Why or why not?
2. There are several different parts to this investigation:

#### **Part A: Preparing for the Investigation**

#### **Part B: Chemical Weathering**

#### **Part C: Climate and Weathering**

#### **Part D: Water and Weathering**

#### **Part E: Biological Weathering**

#### **Part F: Sharing Your Results**

All groups will do Parts A and F. Your group will be assigned to do one other part. Your teacher may decide that you should do some parts as a class.

Your group will be responsible for the following:

- forming a hypothesis to test the effects of weathering on rocks;
- designing a “fair” test (a test that is objective and systematic) using the materials available;
- deciding what measurements you will make, how you will make your measurements, and when you will make measurements;
- carrying out your test and recording the data along the way.

Once you have been assigned your part of the investigation, find out which other groups are working on the same part. Work together as you form your hypothesis and conduct your tests.