

## 6.0 FORMING A HYPOTHESIS OR STATING THE PURPOSE

Once you have selected and researched your topic, you will need to identify the problem. Phrase your problem as a question and phrase your hypothesis as a statement. Be specific in stating your hypothesis or purpose, but don't be overly wordy. Most scientists prefer a hypothesis rather than a statement of purpose, although for engineering projects or computer projects a statement of purpose is preferred.

### 6.1 HYPOTHESIS

A hypothesis is a trial solution to a research problem. The data you acquire through experimentation can be used to support or refute the hypothesis. Sometimes your data shows the hypothesis to be incorrect, but this is not a problem as long as your background research justifies the hypothesis. Sometimes your data will neither support nor refute your hypothesis.

#### Sample Hypotheses

- The ingestion of caffeine increases the heart rate of *Daphnia sp.*
- Ascorbic acid concentration in orange juice varies directly with temperature.
- Hard materials are more effective at reducing sound levels than soft materials.
- Radish seeds will not germinate as well when watered with acidic water compared with neutral water.
- Juvenile horseshoe crabs prefer a mud bottom to a sand bottom.

### 6.2 STATEMENT OF PURPOSE

Some project work is best summarized with a statement of purpose. This is especially true with computer or engineering projects. Rather than testing a supposition, these projects often involve the development of new equipment, materials, procedures, or models.

#### Sample Statements of Purpose

- The purpose of this computer program is to model the flow of various chemicals through the soil and into the ground water.
- The purpose of this project is to develop a Remotely Piloted Vehicle (RPV) that uses the cellular telephone network as a transmission system.