tree *species* growing in the study areas.

Reflection Section

- Think about the trees where you live. In the spring, new growth appears as new stems and leaves. Compared to the trees where you live, would you say that the trees in Cinnamon Bay watershed were growing faster or slower?

- Based on the results of this research, do you think the watershed is becoming more diverse in its tree species? Why or why not?

Implications

This study will help forest managers in many ways. First, it tells them how much time will be needed for the forest to grow back if, in the future, the trees are cut down or a hurricane destroys the forest. Second, it tells scientists what kind of trees grow at different elevations in this tropical watershed. This could be especially helpful if managers want to plant trees in a similar area. Finally, this study helps managers to identify which trees are common and which are rare in the tropical watershed. It also tells managers which trees will grow to maturity, if there is no hurricane or other disturbance. You can see that by studying the current conditions of a natural area, scientists can help forest managers protect the area into the future.

Reflection Section

- Remember that the Cinnamon Bay watershed is part of the Biosphere Reserve. Go back to "Thinking About the Environment" and look at what must be balanced in a Biosphere Reserve. Which one of those four things are reported on in this article?

- Do you think the scientist should go back to Cinnamon Bay watershed in 5 more years and take more measurements? Why or why not?

FACTivity

For this FACTivity, you will answer the question: What is the relationship between tree height and d.b.h.? In other words, when trees get taller, does the d.b.h. get smaller, larger, or stay the same? You might be able to guess at the answer to this question based on your existing knowledge. What do you think the relationship is? Your guess is a hypothesis (hi **paw** thuh sis). A hypothesis is an assumption that is made for the time being, so that it can be tested using planned and recorded observation. For this FACTivity, you will need a cloth (flexible) tape measure.

The method you will use to test your hypothesis is this: Go to an area that has trees of varying heights. You will first place the trees into categories, based on their height. Since you will not be able to measure the height of most of the trees, for this FACTivity you will be placing the trees in general categories. Find at least three trees in each of these categories:

- Short trees (those that are not much taller than a human)
- Medium height trees (those that are much taller than a human, but not taller than a two story-building
- Tall trees (those that are taller than a two story building

If you cannot find enough trees in these categories near your school, you may want to have your classmates take measurements of trees at home or in different places. The more trees you can measure in each of these categories, the more information you will have to answer the question.

To measure each tree's diameter at d.b.h., place the tape measure at ground level. Measure up the tree's trunk to 1.37 meters (4.5 feet). Have your classmate hold a finger at that height on the trunk. At that height, measure the circumference of the tree. The circumference is the distance around the tree trunk. For

each measurement, you will have to calculate the diameter from the circumference. To do this, multiply the circumference by .3183. No matter how large the circumference, the diameter is always .3183 times the size of the circumference. Record all of your measurements. You can use the chart on the right as an example. After you have finished recording all of your measurements, you will need to determine if there is a relationship between tree d.b.h. and tree height.

To determine if there is a relationship between tree height and d.b.h., create a histogram (bar chart) from your recorded information. You can use the sample on the right to create your bar chart. See an example of a bar chart below the sample.

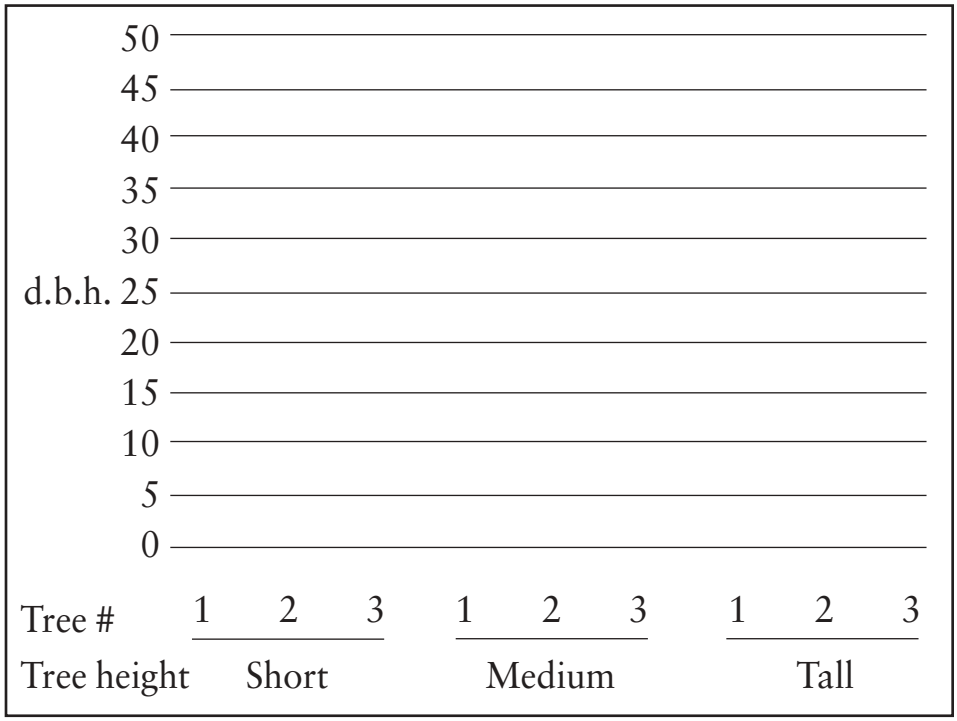
After you have made your bar chart, can you see a pattern in the d.b.h. of the trees? What is the pattern? The pattern is a relationship that you have discovered between tree height and d.b.h. Now that you know this, what is the answer to the question asked at the beginning of this FACTivity? Was your hypothesis correct?

From Weaver, P. L. (1990). Tree diameter growth rates in Cinnamon Bay watershed, St. John, U.S. Virgin Islands. *Caribbean Journal of Science*, 26(1-2): 1-6.

Sample chart for recording measurements

	Short trees	Medium trees	Tall trees
Tree #1 – d.b.h.			
Tree #2 – d.b.h.			
Tree #3 – d.b.h.			

Sample bar chart



Example of a bar chart