

Science All Around

as you read

What You'll Learn

- **Describe** scientific methods.
- **Define** science and Earth science.
- **Distinguish** among independent variables, dependent variables, constants, and controls.

Why It's Important

Scientific methods are used every day when you solve problems.



Review Vocabulary

analyze: to examine methodically

New Vocabulary

- hypothesis
- scientific methods
- science
- Earth science
- variable
- independent variable
- constant
- dependent variable
- control
- technology

Figure 1 Along the Cascadia subduction zone, the Juan de Fuca Plate is sinking under the North American Plate.

Mysteries and Problems

Scientists are often much like detectives trying to solve a mystery. One such mystery occurred in 1996 when Japanese scientists were looking through historical records. They reported finding accounts of a tsunami that had smashed the coast of the island of Honshu on January 27, 1700. That led to the question: What had triggered these huge ocean waves?

The Search for Answers The scientists suspected that an earthquake along the coast of North America was to blame. From the coast of British Columbia to northern California is an area called the Cascadia subduction zone, shown in **Figure 1**. A subduction zone is where one section of Earth's outer, rigid layer, called a plate, is sinking beneath another plate. In areas like this, earthquakes are common. However, one problem remained. Based on the size of the tsunami, the earthquake had to have been an extremely powerful one, sending waves rolling all the way across the Pacific Ocean. That would be a much stronger earthquake than any known to have occurred in the area. Could evidence be found for such a large earthquake?

