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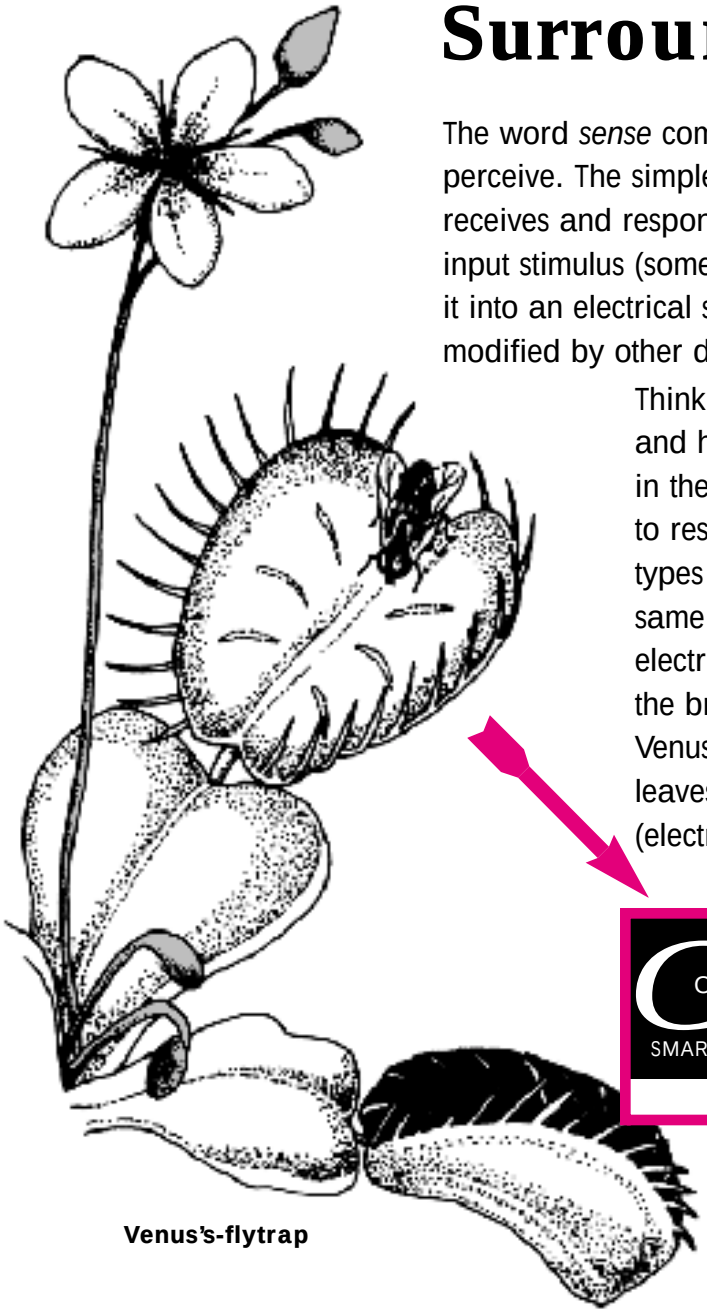
INTRODUCTION

***In Activity 1, you observed how a motion detector operates. Now you will explore the operation of other sensors and sensor systems.***

# Surrounded by Sensors

The word *sense* comes from the Latin word *sensus*, meaning to feel or perceive. The simplest definition of a sensor might be "a device that receives and responds to a signal or stimulus." Sensors respond to an input stimulus (some detectable change in their environment) and convert it into an electrical signal that can be channeled, amplified, and modified by other devices to activate a response.



**Venus's-flytrap**

Think about your five senses—taste, touch, smell, sight, and hearing. Perhaps you have studied the types of cells in the human body that detect stimuli and enable the body to respond. Even though your body has many different types of specialized sensor cells, they all participate in the same process: They respond to changes and create an electrical signal (the nerve impulse) that is transmitted to the brain. Plants, too, have sensor cells. Consider the Venus's-flytrap shown here. The spiky sensory hairs on its leaves respond to the stimulus of an insect's touch. Ions (electrically charged atoms) flow from cell to cell as a

**CONCEPTS *behind* SMART SENSORS**

Piezo sensors can react to a variety of stimuli, and the voltage they generate can be amplified to operate a variety of electrical devices.