2. Movement

Movement

One of the most obvious characteristics of living things is movement. Most **animals** show obvious signs of movement when they are alive.

Although movement in **plants** is not as obvious, it does occur. This movement can be very slow, such as (1) the opening of buds on a tree or (2) the turning of leaves of a plant toward the sun. In contrast, (3) the tiny sundew of northern bogs and (4) the Venus flytrap of Carolinian bogs show much more rapid motion. One of the most interesting examples of motion in plants is shown by (5) the *Mimosa pudica*, commonly called the Sensitive Plant. If this plant is touched, its leaves quickly fold up.

Many animals, plants, and microscopic organisms show few or no outward signs of movement. Yet under the microscope, you can see that the cell contents of these organisms are in continuous motion. This proves that in one way or another, all living things show movement.

Locomotion

Some organisms show a special type of movement called ***locomotion***. *Locomotion is the movement of an organism from one place to another*. Most animals can carry out locomotion but very few plants can. Remember that both movement and locomotion, in a biological sense, must be initiated or caused by the organism itself. Locomotion does not occur when the wind blows a plant from one place to another, nor does movement occur when the wind moves the branches of a tree.

4. Growth and Development

Growth

All living things **grow** at some time during their lives. The total growth may be very small, as in the case of a bacterium or an amoeba. Total growth can be quite extensive, as in the case of a whale or a large tree. Yet, whether great or small, growth is a characteristic of all living things.

However, many **nonliving things** can also grow. For example, crystals of sugar, salt, and bluestone can be made to grow larger. You probably have seen an icicle grow. *How, then, can we say that growth is a characteristic of living thing? What kind of growth are we referring to?*

The crystals and the icicle grow larger by adding more material of the same kind to their surfaces. The **growth of living things** is quite different from this. A dog does not grow by the collection of more dogs on its surface; nor does a mango plant grow by the collection of more mango plants on its surface. Yet, neither of these organisms grows simply by taking in food. They must organize the food, along with water, minerals, and other chemicals, into the complex materials that make up protoplasm and the other parts of living cells.

Living things grow, not by adding more of their own material to their surfaces, but by organizing materials that they take in to form their own special kind of protoplasm.

Development

If you plant a bean seed, it will become a bean plant. It never becomes a potato plant or a tree. It becomes a unique living thing with specialized parts that make it different from other living things. *The series of changes that take place as an organism grows toward its final form is called* ***development***. All living things undergo development.