

Introduction to Botany

Botany is a subdivision of biology and the scientific study of plants : their morphology and physiology, how they are related to each other, where they grow, how people make use of plants, and how they evolved. Plants are essential to the other species survival. They are the sources of our food, wood, paper, fibers, and medicines.

The definition of botany as “the study of plants” seems rather easy, but it may surprise you to learn that it is difficult to define precisely what a plant is. Plants have so many types of variations that a simple definition has many exceptions, and a definition that includes all plants and excludes all non-plants may be too complicated. In fact, biologists do not agree about whether certain organisms- such as algae- are indeed plants.

Some botanists include the green algae with plants as it is similar to the latter in biochemistry and cell structure, but others exclude them. Fungi were first considered plants ; however, after studying them, biologists deduced that they aren't since they lack chloroplasts, and aren't autotrophs. Most plants have green leaves, stems, roots and flowers, but you can think of exceptions immediately. Conifers such as pine, spruce, and fir have cones rather than flowers, and many cacti and succulents do not appear to have leaves. Both conifers and succulents, however, are obviously plants because they closely resemble organisms that unquestionably are plants.

Activity 1: answer the following questions.

1. What is the definition of botany ?

Botany is a branch of biology, it is the study of plants.

2. What does botany study ?

Botany study the morphology and physiology of plants, how they are related to each other, where they grow, how people make use of plants, and how they evolved.

3. According to the text, what are the characteristics that define plants ?

The characteristics that define plants are multiple : the autotrophic nature, the presence of chloroplasts, the presence of green leaves, stems, roots and flowers.

4. What is the importance of plants ?

Plants are the sources of food, wood, paper, fibers, and medicines.

Activity 2: State whether the following statements are “true” or “false”. (Correct the false ones).

- a. It is easy to define plants.

False. Because plants have so many variation and characteristics.

- b. All plants green leaves, stems, roots and flowers.

False. Conifers such as pine, spruce, and fir have cones rather than flowers, and many cacti and succulents do not appear to have leaves.

- c. Botanists argue about whether to include algae with plants.

True.

Activity 3: Give an equivalent to the following expressions:

- a. Organisms that are not photosynthetic = **fungi**
- b. Organisms that make their own food (through photosynthesis) = **autotrophs (plants)**
- c. Organisms that are drought-tolerant = **cacti**

Activity 4: Fill in the gaps with the following words to form a coherent paragraph

Physiology, morphology, plants, animals

Historically, all living things were classified as either animals or **plants**; botany covered the study of all organisms not considered **animals**. Botanists examine both the internal functions and processes within plant organelles, cells, tissues, whole plants, plant populations and plant communities. At each of these levels, a botanist may be concerned with the classification, structure (anatomy and **morphology**), or function (**physiology**) of plant life and other branches.

Activity 5 : Match each term with its definition.

A	B
1. Chloroplast	a. Causes the leaf to look green
2. Photosynthesis	b. The process in which light energy is converted to chemical energy in the form of sugars
3. Heterotroph	c. An organism that can produce its own food using light, water, carbon dioxide, or other chemicals
4. Autotroph	d. A plastid that contains chlorophyll and is the site of photosynthesis
5. Chlorophyll	e. An organism that cannot produce its own food

1=**d**, 2=**b**, 3=**e**, 4=**c**, 5=**a**