

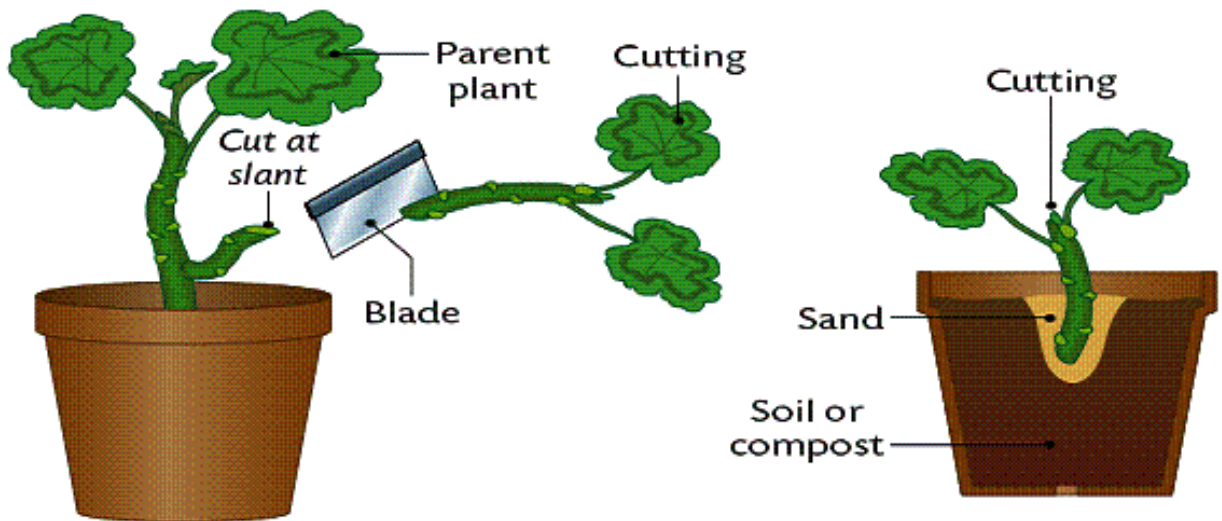
Asexual Reproduction in Plants

Plants are made up of cells that carry within them the ability to regenerate the entire plant structure. This means that any part of a plant (leaves, stems, buds, or roots) is capable of reproducing a new individual plant under the right conditions. This type of reproduction is known as asexual reproduction in plants. It is also referred to as **vegetative propagation**.

The sections below describe several examples of plants reproducing asexually.

Cutting

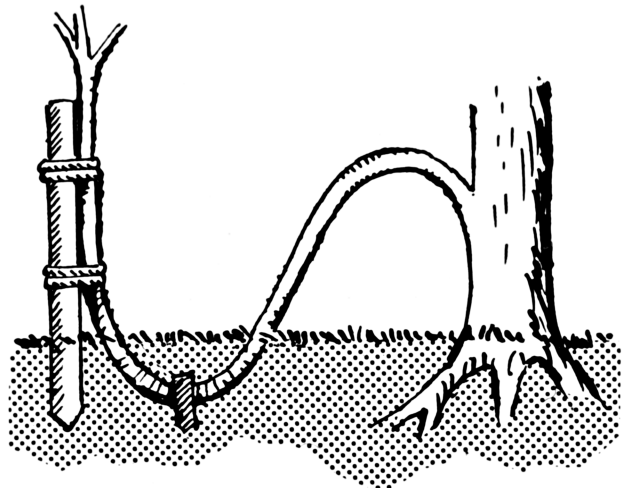
Plant cutting is a method of asexual reproduction in which a piece of the source plant, called a cutting, containing at least one stem cell is placed in soil. The cutting grows new roots, stems, or both, and thus becomes a new plant that is genetically identical to the original plant.



Layering

Layering is a type of reproduction in which a part of the stem of a plant is bent until it touches the ground (and is usually pinned in place). Where the stem contacts the soil, roots will grow and a new plant will be formed. Eventually, once the new plant is established, it will detach itself from the original plant.

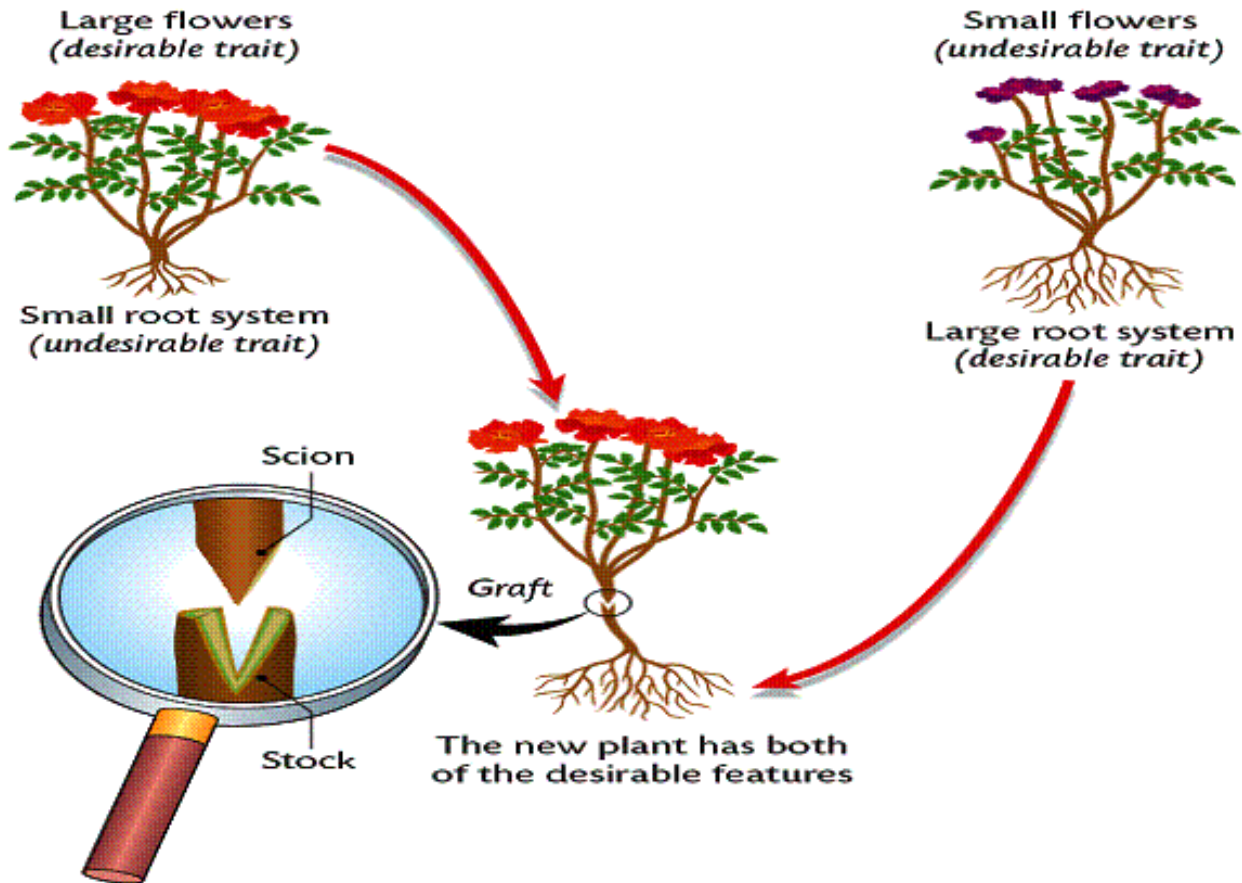
As with cutting, the new plant is genetically identical to the original plant.



Grafting

Grafting is a technique in which tissues from one plant are inserted into those of another so they may join together. There are a number of different types of grafting. One of the most common involves cutting a bud off of one plant and inserting it into a cut on the stem of another plant.

The main reason for using grafting is to combine two plants that have different advantages. Typically, one plant is chosen because it has a strong root system, while the other is chosen because it has desirable stems, leaves, flowers, or fruits.



Tissue Culture

Plant tissue culture consists of taking a piece of a plant (such as a stem tip) and placing it in a sterile nutrient solution. Once placed in the solution, the piece of the plant will begin to grow. Once it is large enough, it can be transplanted into soil to continue growing into a mature plant.

Tissue cultures are useful because they allow us to produce a large number of identical copies of a plant in a short amount of time.

Worksheet

Read section 1.5 (p. 36 to 40) in your textbook and answer the following questions.

1. (a) What is a meristem? (b) What type of cells is the meristem made up of? _____

2. (a) What is cloning? (b) How is cloning carried out with plants? _____

3. Briefly describe each of the following methods of growing new plants.

a) Layering _____

b) Grafting _____

4. How could grafting be used to grow an apple tree that would yield four different kinds of apples? _____

5. (a) What is a tissue culture? (b) Describe how a tissue culture is used to grow a new plant. _____
