

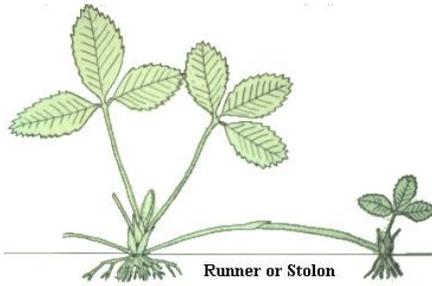
Plant Reproduction: Option 1

Although some plants can reproduce asexually, most plants reproduce sexually. This means two different gametes unite to form one offspring. Study the images below.

Below are some examples of asexual reproduction, producing clones of the parents:

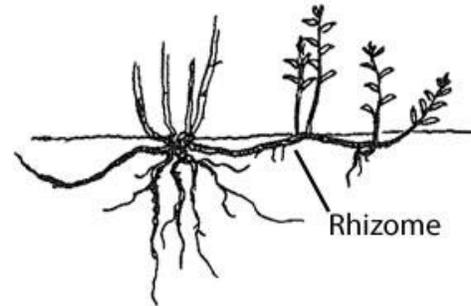
Runners (stolons):

stems which grow at the soil surface and forms adventitious roots and new plants from the buds



Rhizomes:

root-like stems that grow horizontally just under the soil surface

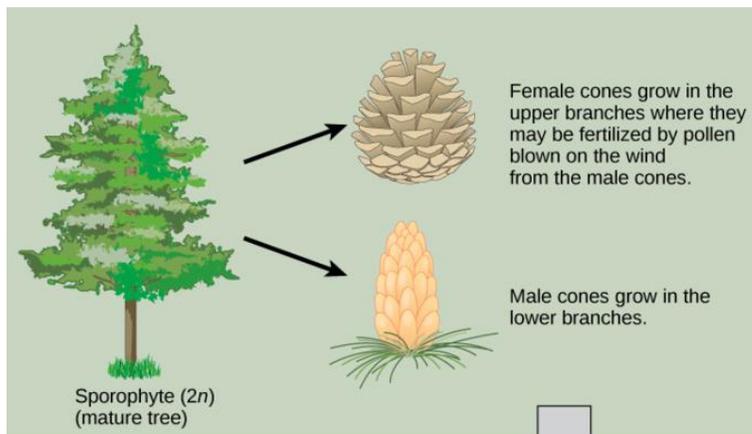


Regardless of being formed from stolons or rhizomes, the resulting offspring are genetically identical to the parent plant.

Below are two examples of sexual reproduction in plants, which leads to increased genetic diversity:

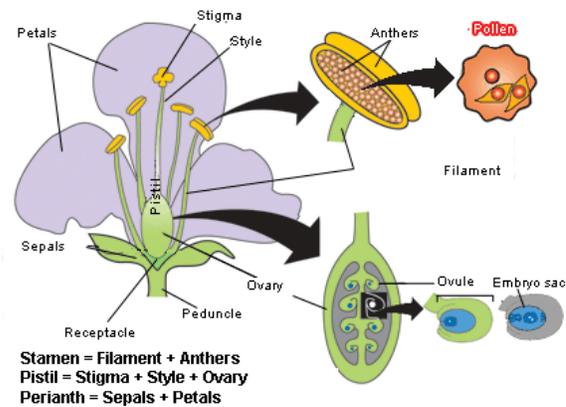
Gymnosperms (cone bearing trees) reproduce sexually:

Conifers (pine trees) produce both male and female cones. They are known as "naked seed plants" because they do not form nuts or fruit around the seeds.



Angiosperms (flower bearing plants) reproduce sexually:

Flowers have both male and female reproductive structures. Fertilized ovaries will go on to produce fruits and nuts.



Sexual Reproduction in Flowering Plants

Flower structures can be divided into two groups: the essential organs and the accessory organs. The essential organs are the reproductive structures, which include the stamens (male) and the pistils (female). The accessory organs are the **sepals** and **petals**, which surround and protect the essential organs. The stamen is the male reproductive organ and consists of two parts: the anther and the filament. The **anther** is the enlarged structure at the top of the stamen. Inside the anther are pollen sacs. Special cells within the pollen sacs undergo meiosis to form pollen grains. When the pollen grains mature, the pollen sacs split open to release the dust-like pollen. The **filament** is a thin stalk that supports the anther. The pistil is the female reproductive organ and consists of three parts: the stigma, style, and ovary. The **stigma** is an enlarged portion at the top of the pistil that becomes moist and sticky when mature. The **style** is the middle portion of the pistil. It can be long and slender, short, or even absent, depending upon the species. The **ovary** is the enlarged structure at the bottom of the pistil. The ovary contains one or more **ovules**. Special cells within the ovule undergo meiosis to form ova (eggs).

Use the bolded terms above to label the flower structures below

1. Which structures make up the stamen and what gamete does it make?
2. Which structures make up the stigma and what gamete does it make?
3. Describe a plant gamete's chromosome number.
4. What is the primary function of a flower?
5. What are some adaptations of flower petals to help attract pollinators?
6. In which structure(s) does meiosis occur?
7. Describe where pollination and fertilization occur.
8. Explain the differences between pollination and fertilization.
9. In which part of the male reproductive organ are the pollen grain made?
10. In which part of the female reproductive organ are the egg cells made?
11. By which nuclear process are these gametes formed?
12. Which part of the flower becomes the seed?
13. Which part becomes the fruit?

