

Flower Dissection Lab

Name(s): _____ & _____ Date _____

Purpose: This lab will help familiarize you with the reproductive parts of flowers.

Read the Sexual Reproduction in Flowering Plants handout on the BACK of this paper. Familiarize yourself with all the bold terms and which structures on the diagram they refer to before you begin this lab.

Locate the following structures on the flower provided. Write down how many there are of each structure on your flower.

- | | |
|---------------------------|---------------------|
| 1. Sepals? _____ | 5. Ovary? _____ |
| 2. Petals? _____ | 6. Stigma? _____ |
| 3. Stamen? _____ | 7. Filaments? _____ |
| 4. Pistils/Carpels? _____ | 8. Anthers? _____ |

9. Most flowers have an odor. Some are sweet, others are not. Describe the smell of your flower:

Carefully draw or remove the following parts (one of each) from your flower and tape them below:

10. Sepal:	11. Petal:	12. Stamen: Label the filament and anther.	13. Pistil: Label the stigma, style and ovary.
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Explain the role/function of each structure above (#10 - #13) in reproduction.

Sepal:

Petal:

Stamen:

Pistil:

Clean up your lab table.

Sexual Reproduction in Flowering Plants

Introduction

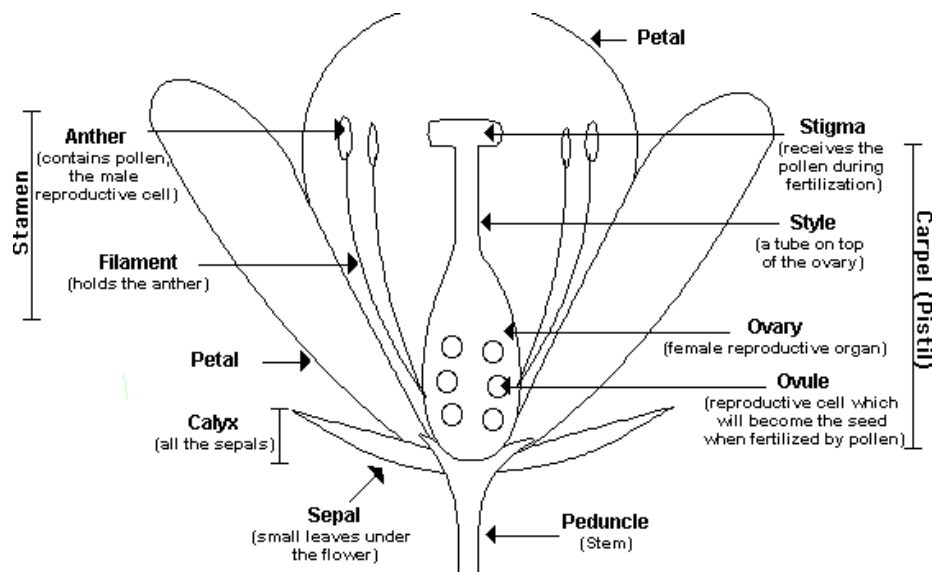
The **angiosperms** are seed-bearing plants that produce flowers. The seeds, which contain the plant embryo, are produced in the flower. All the parts of a flower are actually modified leaves that are specialized for their roles in the reproductive process.

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).



Pollination occurs when pollen grains land on the sticky surface of the stigma and are trapped there.

The pollen tube grows down through the style to the ovary and enters the ovule, making a continuous passageway for the sperm to enter the ovum.

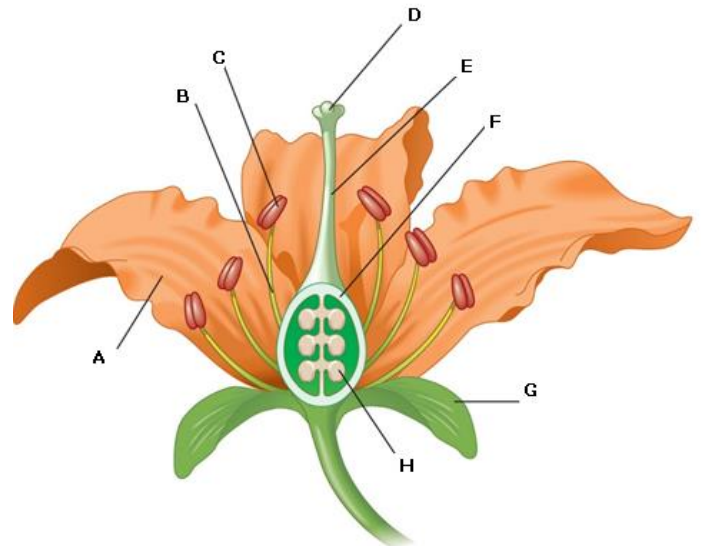
Fertilization occurs when the sperm nuclei join the egg nuclei.

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 pistil 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?

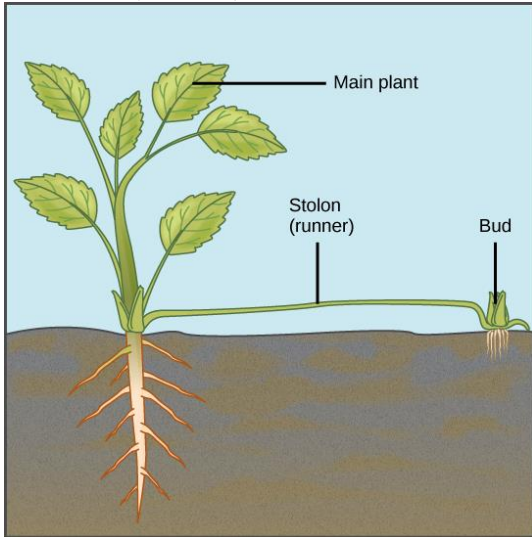


Plant Reproduction

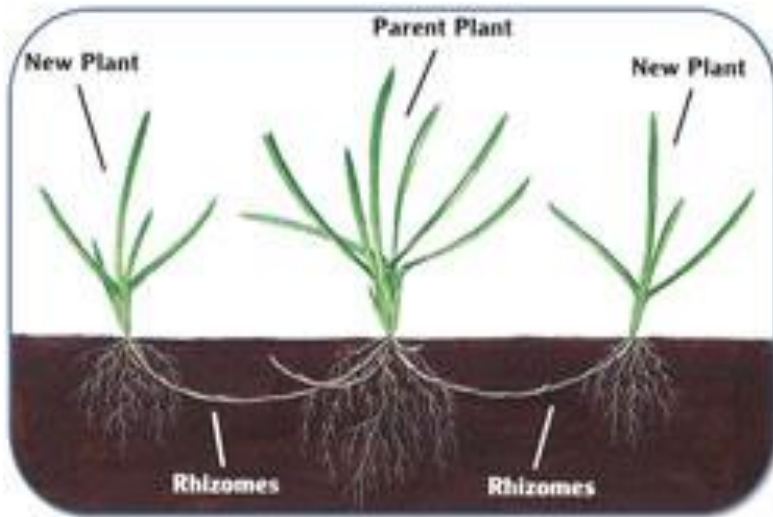
Although some plants reproduce asexually, most plants reproduce sexually. This means two different gametes unite to form one offspring. Study the images below.

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

Runners (stolons):

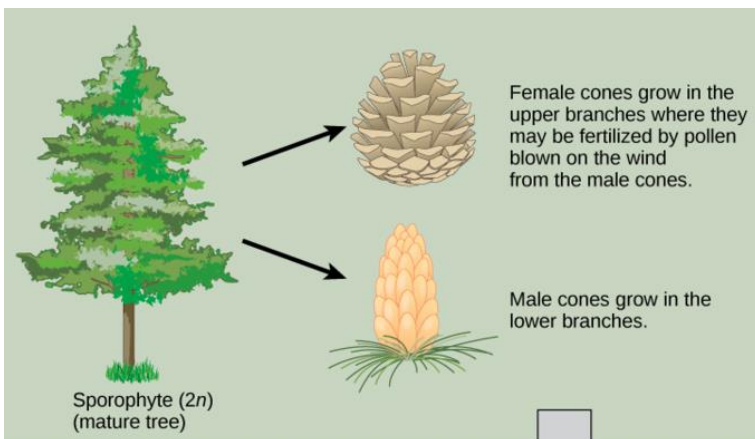


Rhizomes:

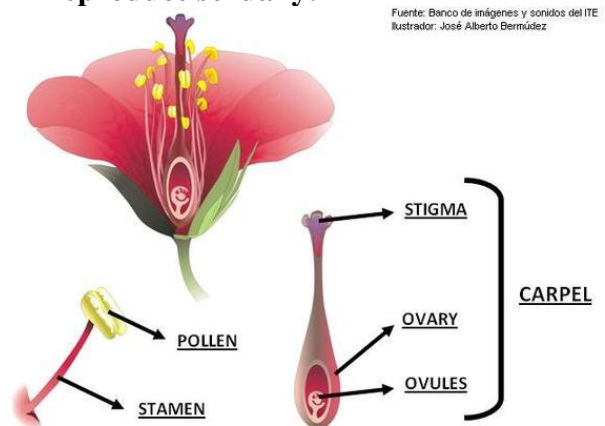


Here are some examples of sexual reproduction, leads to genetic diversity:

Gymnosperms (cone bearing trees) reproduce sexually:



Angiosperms (flower bearing plants) reproduce sexually:



1. What is the difference between asexual reproduction in runners and rhizomes. Explain how both work.
2. How do the offspring compare to the parent plant in asexual reproduction?
3. How is the difference in location of male and female cones beneficial to the survival of the species?