

Sexual Reproduction : Notes/W.S.-70

Advantages of sexual reproduction

In asexual reproduction, the offspring are very much like the parent. In sexual reproduction, the offspring are slightly different. These differences may help the offspring survive if the environment changes.

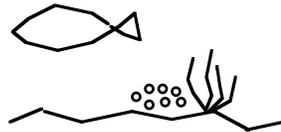
Sexual Reproduction in Simple Animals

Some animals such as the hydra can reproduce asexually by budding or sexually. Each hydra has both male and female sex organs. Sperm must be exchanged with another hydra to reproduce. Earthworms also have both male and female sex organs. Animals like these are called **hermaphrodites**.

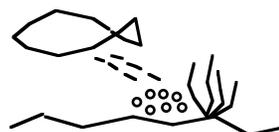
Internal and External Fertilization

Generally the **vertebrates** (animals with a backbone) reproduce sexually. The sexes are separate. The female produces the eggs and the male produces the sperm. Female fish and frogs lay eggs in water. The male passes over the eggs depositing sperm on the eggs which fertilizes them. This is called **external fertilization**.

female lays eggs



male deposits sperm



Most land animals reproduce by **internal fertilization**. The female carries the eggs inside the body where they are fertilized by sperm which comes from the male. In most mammals, the embryo develops fully in the body of the female. In most insects, birds and reptiles, the embryo develops within the fertilized egg outside of the body.

Sexual Reproduction in Plants

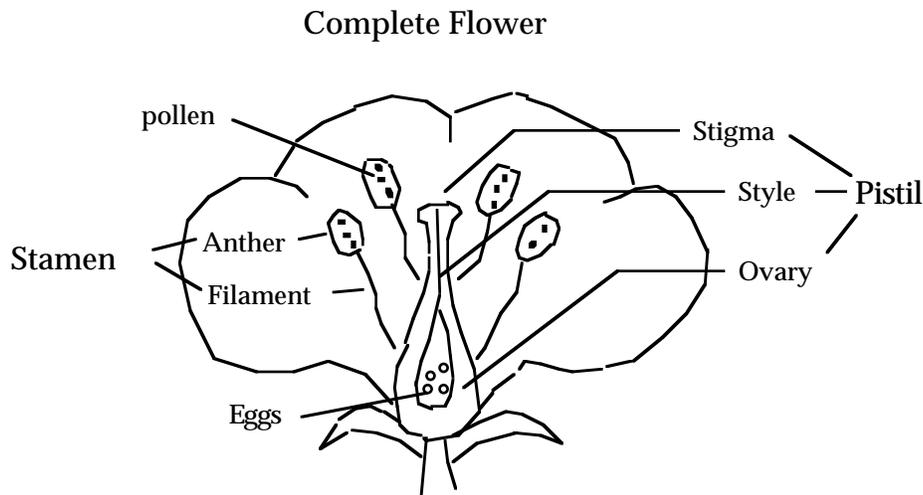
Flowers

Most common flowers have both male and female parts.

The male part is the **stamen**, which consists of the **filament** and the **anther**. The anther produces the **pollen** which contains the sperm.

The female part is the **pistil** which is made up of the **stigma**, the **style** and the **ovary**. The ovary contains the eggs which will be fertilized by sperm. This occurs when the pollen is transferred from the stamen to the stigma.

This is called **pollination**. Pollination can take place by wind or by insects.



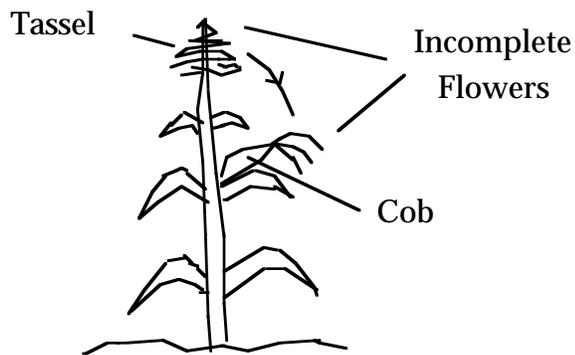
The eggs may be fertilized by **self-pollination** (pollen comes from the same plant) or by **cross-pollination**, where the pollen comes from another flower.

The fertilized eggs become **seeds**, and the ovary becomes the **fruit** of the plant.

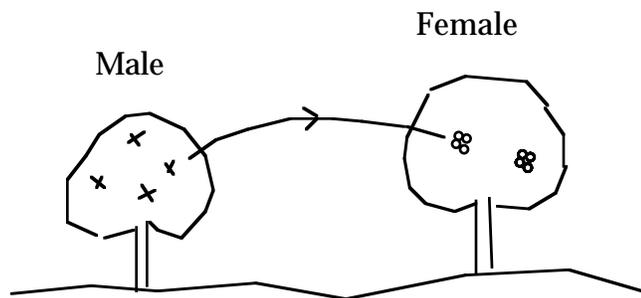
Monoecious and Dioecious Plants

Some plants have the male and female parts on separate parts of the plant. These plants are called **monoecious**. An example is the corn plant.

The tassel at the top of the plant produces the pollen. The eggs are in the cob. The pollen is transferred to the cob by the wind.



Other plants, such as the holly tree, have the male and female parts on separate plants. These plants are called **dioecious**. The male tree has small flowers that produce the pollen. The female tree produces small red berries.



Problems:

- 1) Give an advantage of sexual reproduction.
- 2) What is a hermaphrodite? Name an animal that is a hermaphrodite.
- 3) State whether the animal reproduces by internal or external fertilization.
 - a) humans
 - b) grasshopper
 - c) fish
 - d) lizard
 - e) frog
- 4) Fill in the blanks.

The male part of the plant, called the stamen, consists of the _____ and the _____. The anther produces _____ which contains the _____. The female parts are the _____, _____, and the _____. The _____ are found in the ovary. They are fertilized by the sperm. Fertilized eggs become the _____. The ovary becomes the _____ of the plant.

5)a) What is pollination?

b) Name the two ways in which pollination can occur.

6) What is a monoecious plant? Give an example.

7) What is a dioecious plant? Give an example.

Answers: 1) In sexual reproduction, the offspring are slightly different from the parent. This may give the offspring a survival advantage., 2) A hermaphrodite is an animal with both male and female sex organs., 3)a) i, b) i, c) e, d) i, e) e., 4) filament, anther, pollen, sperm, stigma, style, ovary, eggs, seeds, fruit., 5)a) Pollination is the fertilization of an egg., b) wind and insects, 6) These plants have male and female parts on separate parts of the plant. An example is the corn plant., 7) These plants have the male and female parts on separate plants. An example is the holly plant.