## 1. Answer the following short questions.

**i. List four ways in which plants disperse or scatter their seeds.**

Ans: Seeds can be dispersed by:

- Wind
- Water
- Animals
- Explosions

**ii. Name the types of pollination.**

Ans: There are two types of pollination.

- Self-pollination
- Cross-pollination

**iii. What is pollination?**

Ans: The transfer of pollen grains from anther to stigma is called pollination.

**iv. What is asexual reproduction?**

Ans: Asexual reproduction is a mode of reproduction in which a new offspring is produced by a single parent.

**v. What are the stages of sexual reproduction in plants?**

Ans: The stages of sexual reproduction in plants are:

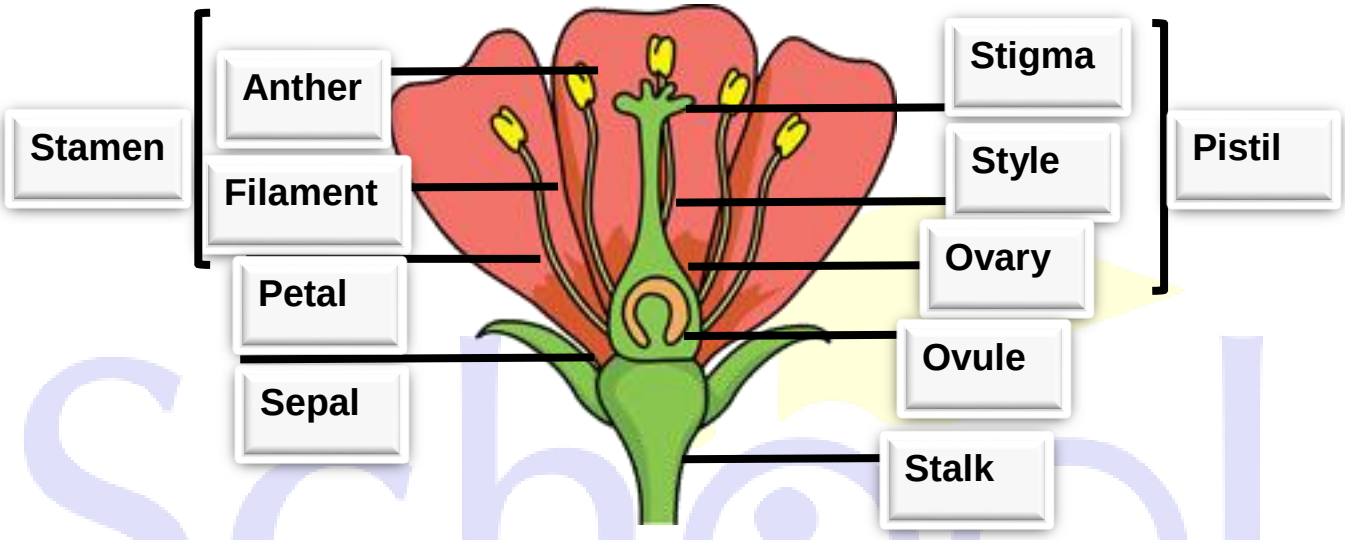
- Pollination
- Fertilization
- Seed formation
- Seed dispersal
- Germination

**vi. What is a specie?**

**Ans:** A species is a group of similar living things that can reproduce together and have offspring that can also reproduce**.**

## 2. Long answer questions:

i. **Working from the outside in, list the parts of a flower. Make a sketch of each of the parts and write down its job or function.**




| Part of the flower | Function |
|---|---|
| Petals | Attract pollinators. |
| Sepals | Protect the flower. |
| Anther | Produces pollen. |
| Filament | Supports the anther. |
| Stigma | Receives pollen. |
| Style | Connects the stigma to ovary. |
| Ovary | Produces and contains seeds. |
| Ovule | Develops into a seed after fertilization. |
| Stalk | Supports leaves, flowers and fruits. |

**ii. What is difference between pollination and fertilization in plants?**

| Pollination | Fertilization |
|---|---|
| It is the transfer of pollen grains. | It is the fusion of male and female gametes. |
| It is an external process. | It can either be internal or external. |
| External factors are required. | External factors are not required. |
| It is a physical process | It is a chemical process. |
| This process leads to fertilization. | This process leads to seed formation. |

**iii. How does the nucleus in a pollen grain get enter from the stigma to the ovary of a flower?**

**Ans:** The nucleus in a pollen grain enters the ovary of a flower through a tiny tube called the pollen tube. When a pollen grain lands on the stigma of a flower, it begins to grow this tube. The tube extends down through the style of the flower and into the ovary. Inside the pollen tube, there are two nuclei: the generative nucleus and the tube nucleus.

**iv. What are the advantages of vegetative reproduction over sexual reproduction in plants?**

The advantages of vegetative reproduction are following:

- Vegetative reproduction is simpler and quicker than sexual reproduction.
- It doesn't require the production of seeds, pollination, or the merging of genetic material from two parents.
- It allows plants to create genetically identical offspring, maintaining favorable traits.
- This method also ensures consistent quality.

**v. What are the disadvantages of vegetative reproduction over sexual reproduction?**

The main disadvantages of vegetative reproduction are:

- It produces offspring with identical genetic makeup.
- These plants are vulnerable to the same diseases and environmental challenges.
- This lack of genetic variation can limit adaptability.
- Clones from vegetative reproduction may compete for resources.

**vi. Insect-pollinated flowers produce fewer and larger pollen grains than wind-pollinated flowers. Explain why this is so?**

**Ans:** Insect-pollinated flowers rely on specific pollinators like bees, which can efficiently transfer pollen between flowers. Larger pollen grains are more likely to stick to the bodies of insects and be carried from one flower to another, increasing the chances of successful pollination. In contrast, wind-pollinated flowers release many small, lightweight pollen grains into the air, relying on chance encounters for pollination since wind is less precise in delivering pollen to target flowers.

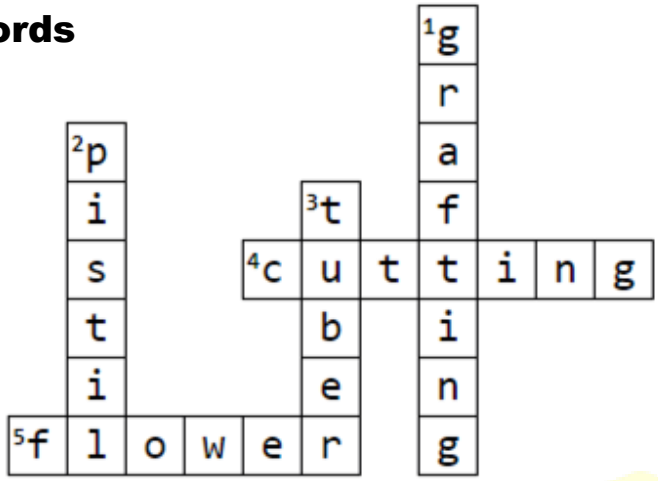
**vii. Why would a gardener want to produce new plants from cutting instead of growing them from seed?**

Gardeners often prefer to produce new plants from cuttings instead of growing them from seeds because cuttings allow them to replicate desired traits from a parent plant exactly. This method ensures that the new plant will inherit the same characteristics, such as flower color, fruit quality, or disease resistance, as the parent plant, whereas growing from seeds may result in genetic variability, potentially leading to unpredictable traits.

## 3. Tick the right option.

| | | | |
|---|---|---|---|
| **1. The most important part of a plant for the species to continue is the:** | | | |
| I. Root | II. Stem | III. Leaf | **IV. Flower** |
| **2. In flowering plants, sexual reproduction involves the formation of:** | | | |
| I. Pollen | **II. Seeds** | III. Spores | IV. Conifers |
| **3. The order of the parts of a flower, from the outside inwards is:** | | | |
| I. Sepals, carpels, stamens, petals | | | |
| **II. Sepals, petals, stamens, carpels** | | | |
| III. Carpels, sepals, stamens, petals | | | |
| IV. Petals, carpels, stamens, sepals | | | |
| **4. Where is the male reproductive cell in a plant?** | | | |
| **I. Pollen grain** | II. Ovule or egg -cell | III. Stigma | IV. Filament |
| **5. Which of these is the female reproductive cell?** | | | |
| I. Ovary | II. Pollen grain | III. Anther | **IV. Ovule or egg-cell** |

## 4. Crosswords




| Across | Down |
|---|---|
| 4. An example of artificial vegetative propagation | 1. Two different plants are joined together so that they grow as one |
| 5. The reproductive organ of a plant | 2. The female reproductive part of a flower |
| | 3. A swallow underground stems that store nutrients |

## 6. Words Search

Find the following word in the words search.

| Cotyledon | Embryo | Dispersal | Germination | Enzyme |
|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| S | F | A | T | S | A | F | F | A | R | G |
| K | M | A | R | B | R | A | I | N | F | E |
| C | O | T | Y | L | E | D | O | N | Y | R |
| G | M | U | E | N | Z | Y | M | E | U | M |
| P | V | N | M | H | E | A | E | A | I | I |
| O | I | I | B | E | E | R | A | N | O | N |
| K | N | C | R | S | G | E | R | T | M | A |
| E | G | S | Y | C | H | E | S | T | N | T |
| T | E | Y | O | V | B | N | D | F | B | I |
| S | D | I | S | P | E | R | S | A | L | O |
| Q | W | E | R | T | Y | U | I | O | A | N |

## 7. Jumbled Words

| | | | | | |
|---|---|---|---|---|---|
| i. | REIZILOINTAFT | FERTILIZATION | ii. | LXEAUS | SEXUAL |
| iii. | ETIEVAVGTE | VEGETATIVE | iv. | EUTCRLU | CULTURE |
| v. | TUINTGC | CUTTING | vi. | RTNAEH | ANTHER |
| vii. | AANTGPROPOI | PROPAGATION | viii. | TAIFMNLE | FILAMENT |
| ix. | DCNORPEUOIRT | REPRODUCTION | x. | ROAOTMIFN | FORMATION |

## 8. Columns

| Column A | Column B |
|---|---|
| Bisexual flower | Bryophyllum |
| Unisexual flower | Urena |
| Plants that reproduce by leaves | Maple |
| Winged seeds dispersed by wind | Papaya |
| Seeds and fruits that get dispersed by animals. | Mustard |

## 9. Fill in the blanks using the given words.

| Embryo | Fruit | Stamen | Reproductive | Pollen grains |
|---|---|---|---|---|

i. The organs of a plant that take part in making a new plant are called **reproductive** organs.

ii. **Stamen** is the male reproductive part of a flower.

iii. **Pollen grains** help in making new seeds and grow into new plants.

iv. The fertilized ovary change into **fruit**.

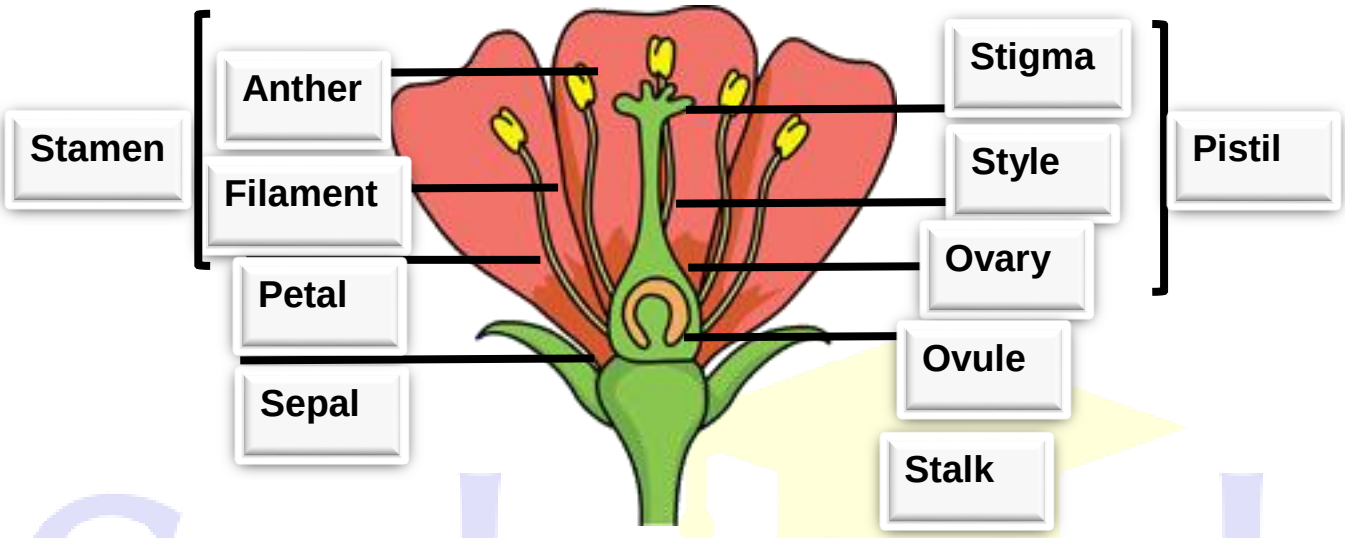
v. **Embryo** grows into a new plant.

## 10. Write "T" for the true and "F" for the false statement.

| | | |
|---|---|---|
| i. | Style is a part of pistil. | T |
| ii. | In asexual reproduction two parents are involved. | F |
| iii. | Tubers are shoots that emerge from the roots of plant. | F |
| iv. | Asexual reproduction is also known as vegetative propagation. | T |
| v. | Artificial vegetative propagation is carried out by wind. | F |

## 11. Label the diagram.

### Structure of Flower




## 12. Drag and Drop

Look at the pictures and write their names in the relevant column.

| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
| Anther | Stigma | Style | Filament | Ovary |

| Male reproductive parts | Female reproductive parts |
|---|---|
| Anther | Stigma |
| Filament | Style |
| | Ovary |

## 13. Comprehension

**Read the paragraph and give the answer of the following questions**

The production of new individuals from their parents is known as reproduction. Most plants have roots, stems and leaves. These are called the vegetative parts of a plant. After a certain period of growth, most plants bear flowers. You may have seen the mango trees flowering in spring. It is these flowers that give rise to juicy mango fruit we enjoy in summer. We eat the fruits and usually discard the seeds. Seeds germinate and form new plants. Flowers perform the function of reproduction in plants. Flowers are there productive parts.

There are several ways by which plants produce their offspring. These are categorized into two types: (i) asexual, and (ii) sexual reproduction. In asexual reproduction plants can give rise to new plants without seeds, whereas in sexual reproduction, new plants are obtained from seeds.

**I. Define reproduction.**

Ans: The production of new individuals from their parents is known as reproduction.

**II. What are vegetative parts of plants?**

Ans: Most plants have roots, stems and leaves. These are called the vegetative parts of a plant.

**III. How new plants develop from sexual and asexual reproduction?**

Ans: In asexual reproduction plants can give rise to new plants without seeds, whereas in sexual reproduction, new plants are obtained from seeds.