

1. Answer the following questions.**i. What is germination?**

When a seed falls onto the ground or is planted and conditions (water, temperature, nutrients) are right, the seed will begin to put out shoots and grow. This is called germination.

ii. What is fertilization?

Fertilization is the name for the process that happens after pollination. It can be defined as the fusion of the male gametes (pollen) with the female gametes (ovule) to form a diploid zygote.

iii. Brightly coloured petals attract insect pollinators. How are the flowers that do not have brightly coloured petals, like grasses, pollinated?

Such flowers are pollinated by the wind. When wind shakes the flower, seeds scatter from it and grow into new plants.

iv. What is a flower and what is its function?

A flower is a modified shoot. It has four parts:

- Petals.
- Pistils.
- Sepals.
- Stamens.

Its basic function is sexual reproduction in plants.

2. Answer the following questions in detail.

i. Define the following terms:

a. Cross pollination:

If the pollen grains of a flower fall onto the stigma of another flower, it is called cross pollination.

b. Self-pollination:

If the pollen grains of a flower fall onto the stigma of the same flower, it is called self-pollination.

ii. How is a flower fertilized? Explain in steps starting from the landing of pollen onto the stigma, to the formation of seeds and fruits?

The steps of fertilization are following:

1. The pollen grain lands on the stigma.
2. The pollen tube starts to grow.
3. It continues to grow downwards.
4. It reaches the ovary.
5. The pollen grain (male cell) joins the ovule (female cell).
6. Then ovule is fertilized and turns into a seed.
7. The ovary begins to change into fruit.

3. Tick the right option.

i. Which part of the flower is sticky and traps pollen grains?

- a. petals
- b. style
- c. stigma
- d. ovary

ii. Plants need following conditions to grow:

- a. fresh air
- b. water
- c. sunlight
- d. all of these

iii. Which of the following parts of a plant attract insects and birds to the flower?

- a. sepal
- b. stigma
- c. petals
- d. stalk

iv. If the pollen of a flower falls onto the stigma of the same flower, it is called:

- a. self-pollination
- b. cross-pollination
- c. pollination by wind
- d. pollinator pollination

v. The stamens consists of:

- a. anther and filament
- b. pollen and pistil
- c. calyx and anther
- d. stigma and style

4. Write “T” for the true and “F” for the false statement.

- i. All the sepals of a flower are together called calyx.
- ii. The swollen part of the carpel is called stigma.
- iii. Gram and chickpeas are dicot seeds.
- iv. Seed leaves or cotyledons contain stored food for the new plant.
- v. Underground stem that contains a lot of stored food is called tuber.

T
F
T
T
T

5. Crosswords

			¹ S	T	Y	L	E						
			E							² P			
			P							O			
			A							L			³ S
	⁴ C	⁵ A	L	Y	X					L			T
		N						⁶ S	T	I	G	M	A
⁷ P	E	T	A	L	S					N			M
		H				⁸ F				A			E
	⁹ F	E	R	T	I	L	I	Z	A	T	I	O	N
		R				O				I			
						W				O			
						E				N			
	¹⁰ N	E	C	T	A	R							

Across:

1. A long hollow tube that connects the stigma to the ovary.
4. A group of sepals.
6. The top of the pistil which catches the pollen grains.
7. The bright scented parts of a flower that attract insects and birds.
9. The process in which pollen grains combine with the ovules in the ovary of a plant.
10. The sweet juice produced by some flowers.

Down:

1. A green leaf like structure that protects the bud in it.
2. The process by which pollen grains are transferred from anther to stigma.
3. The part of a flower which consists of the anther and filament.
5. It is a structure at the top of the filament and contains pollen grains.
8. The part of the plant that helps the plant to make copies of itself.

6. Words Search

Find the following word in the words search.

ANTHER	LEAF	POLLINATION	GERMINATION
STEM	OVARY	PETAL	POLLEN
SEED	WATER	MOSS	FERN
STYLE	SUNLIGHT	BEE	CHICKPEA
STAMEN	STIGMA		

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

7. Jumbled Words

- | | | | |
|----------------|--------------------|--------------------|----------------------|
| i. Lowref | <u>Flower</u> | i. Mentas | <u>Stamen</u> |
| ii. Lastep | <u>Petals</u> | ii. Liptis | <u>Pistil</u> |
| iii. Mentilaf | <u>Filament</u> | iii. retflizationi | <u>Fertilization</u> |
| iv. Tenhear | <u>Anther</u> | iv. Matgis | <u>Stigma</u> |
| v. Nationillop | <u>Pollination</u> | v. Oryav | <u>Ovary</u> |

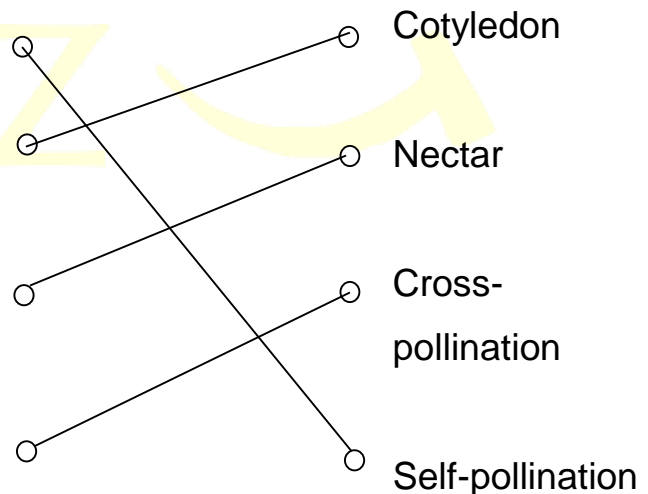
8. Columns

Match the column A with column B.

Column A

- The falling of the pollen grains onto the stigma of the same flower.
- A leaf-like structure found inside a seed
- A sweet juice produced by some flowers to attract pollinators
- The falling of pollen grains on to the stigma of another flower.

Column B

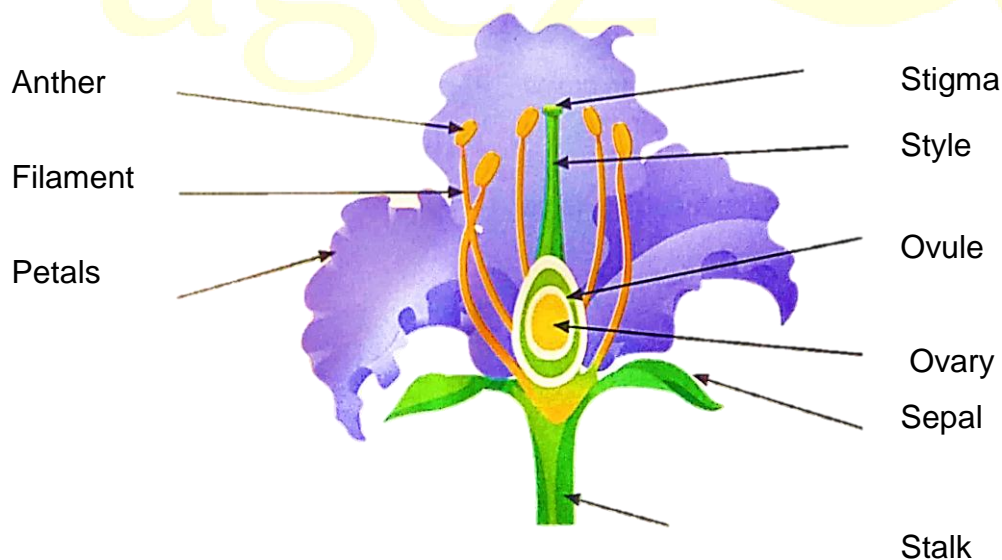
- Cotyledon
 - Nectar
 - Cross-pollination
 - Self-pollination
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9. Fill in the blanks using the given words.

anther	style	nectar	stigma	insects	pollination	sepals
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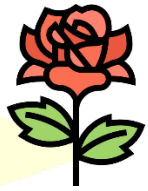
- i. The transfer of pollen grain from anther to stigma is known as pollination.
- ii. The leaf-like structure at the base of the flower, which protect the flower when it is in a bud are called sepals.
- iii. The top part of the pistil, which is sticky and traps pollen, is called the stigma.
- iv. The long hollow tube in a flower's structure that connects the stigma to the ovary is called the style.
- v. Plants that have bright, scented flowers are pollinated by insects.
- vi. The structure at the top of the filament, which contains pollen grains, is called anther.
- vii. The sweet juice produced by some flowers to attract insects is called nectar.

10. Label the diagram.



11. Drag and Drop

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

				
Gram seeds	Bean	Wheat	Rice	Peas
				
Maize	Grass	Barley	Mango	Rose

Monocot

Bean

Maize

Rice

Grass

Barley

Dicot

Wheat

Gram

Peas

Mango

Rose

12. Comprehension

Pollination is a crucial process in the reproduction of flowering plants, where pollen grains are transferred from the male reproductive organs (anther) to the female reproductive organs (pistil) stigma of flowers. There are primarily two types of pollination: self-pollination and cross-pollination.

i. What is pollination?

Ans: Pollination is the transfer of pollen grains from anther to stigma.

ii. Write the names of male and female reproductive organs.

Ans: Stamen and pistil.

iii. What are the two types of pollination?

Ans: The two types of pollination are:

- Self-pollination
- Cross pollination