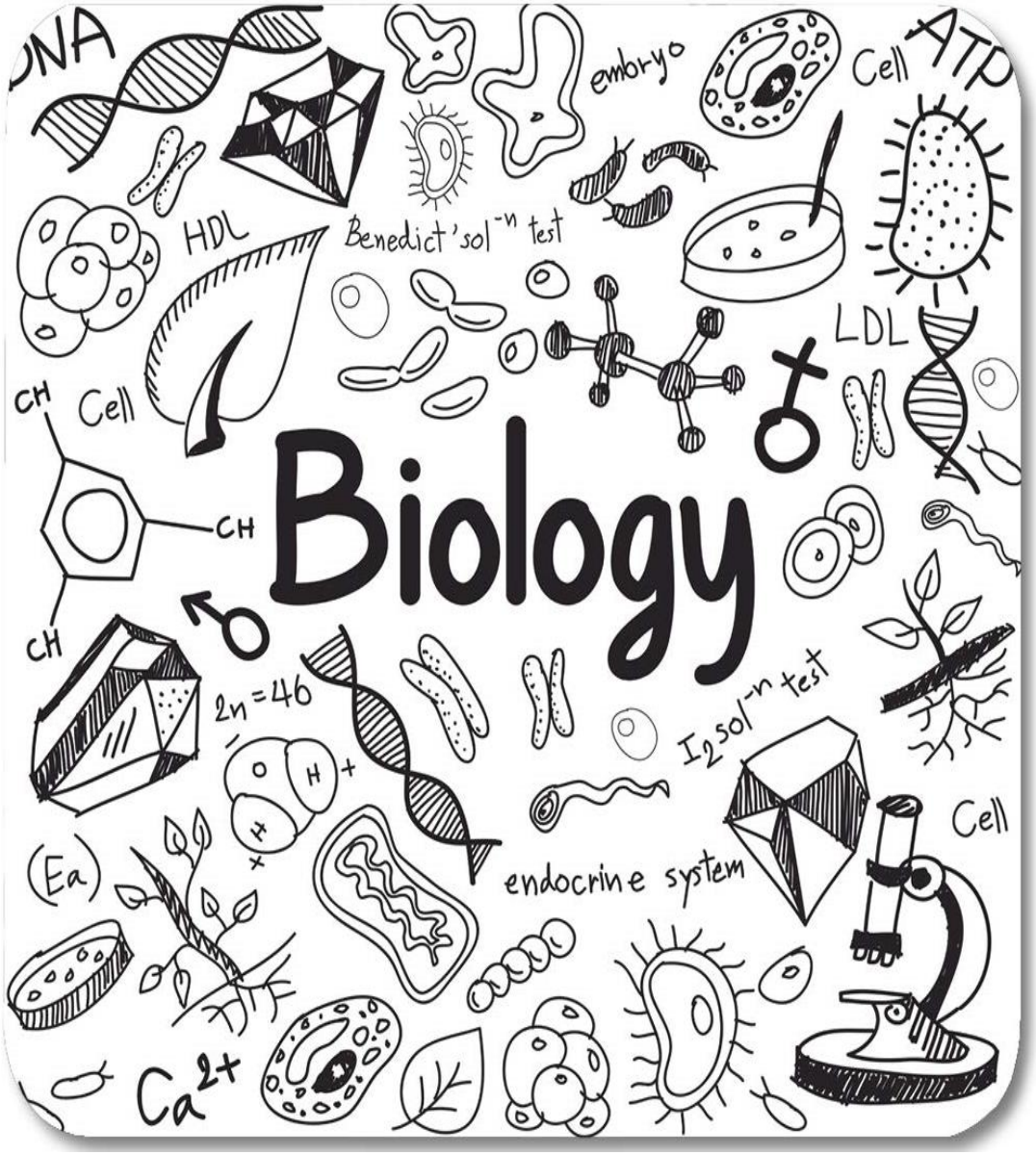
The National Orthodox School Shmaisani

Lesson : Fertilization

Scholastic Year: 2022-2023

Grade: 8 CS



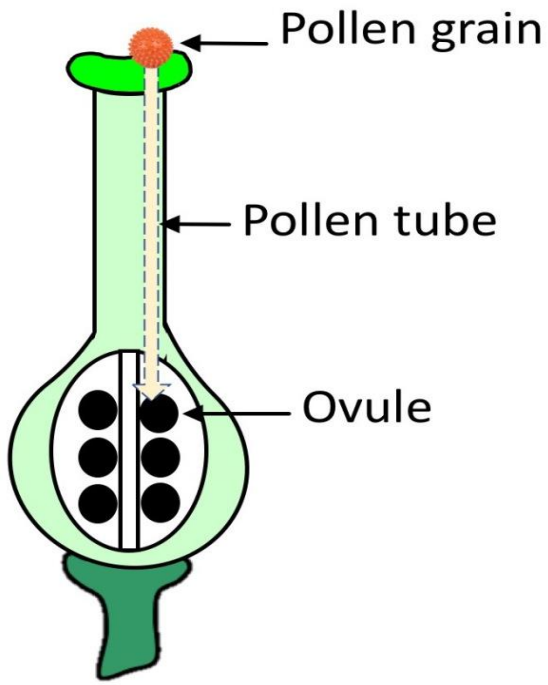
Accredited by

Objective : Understand how fertilization takes place

Resources : book page 166 – 167 /workbook Page 72

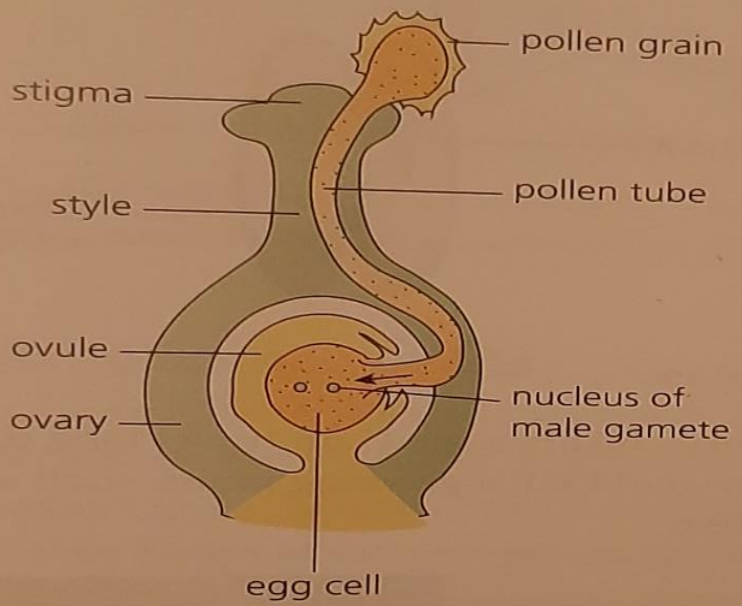
Plant Fertilization:

The process of fusion of the female gamete, the ovum or egg and the male gamete produced in the pollen tube by the pollen grain.

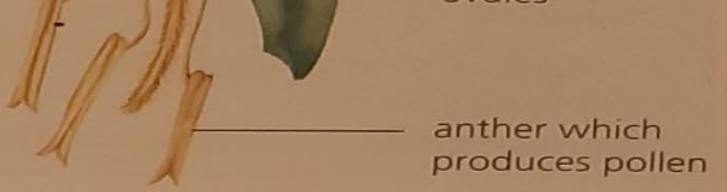


Fertilisation

A pollen grain begins to grow when it lands on a stigma. (1)
(2) It sends a pollen tube down through the style to an ovule.
(3) The male gamete's nucleus moves down through this tube, enters an egg cell, and fuses with the egg cell nucleus. (4)
This is **fertilisation**.



A pollen tube grows down through the style to carry the nucleus of the male gamete to the egg cell.



Grass flowers rely on the wind to carry pollen from flower to flower.

gametes : specialised cells which serve the function of reproduction.
male female.

Zygote : Single cell structure formed from the fusion of male and female gametes.

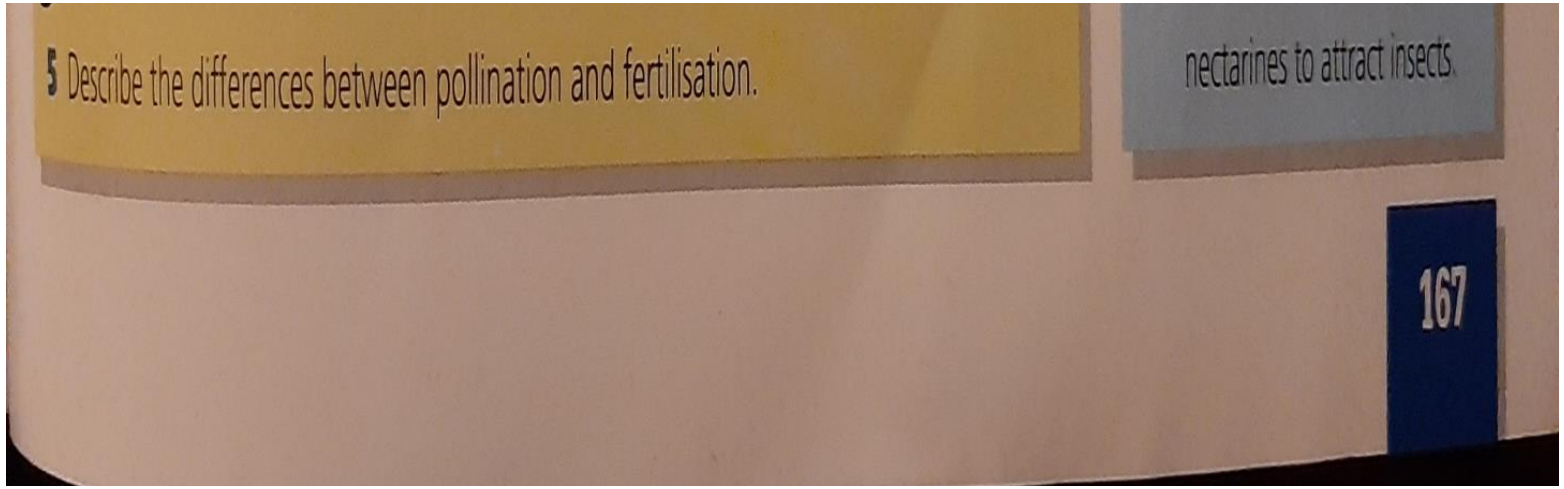
Zygote $\xrightarrow{\text{develop}}$ embryo → organ

The fertilised egg grows into an embryo, and the ovule produces a **seed** to protect it. As the seed develops, the ovary forms a **fruit** around it. If the ovary wall becomes very hard, the fruit is called a nut.

After fertilisation, seeds form and a fruit develops.

- The male parts of flowers are stamens.
- Each stamen has pollen-producing anther on a stalk called a filament.
- The female part of a flower

Text book page 167
Question 5:

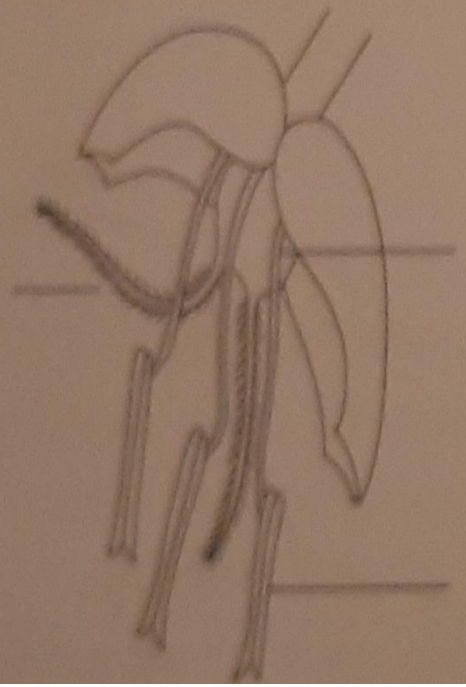


Q5. **Pollination** occurs when pollens move from the anther to the stigma and land on the stigma. **Fertilization** occurs (after a pollen tube grows down to the ovule) when the nucleus of the male gamete fuses with the egg cell nucleus.

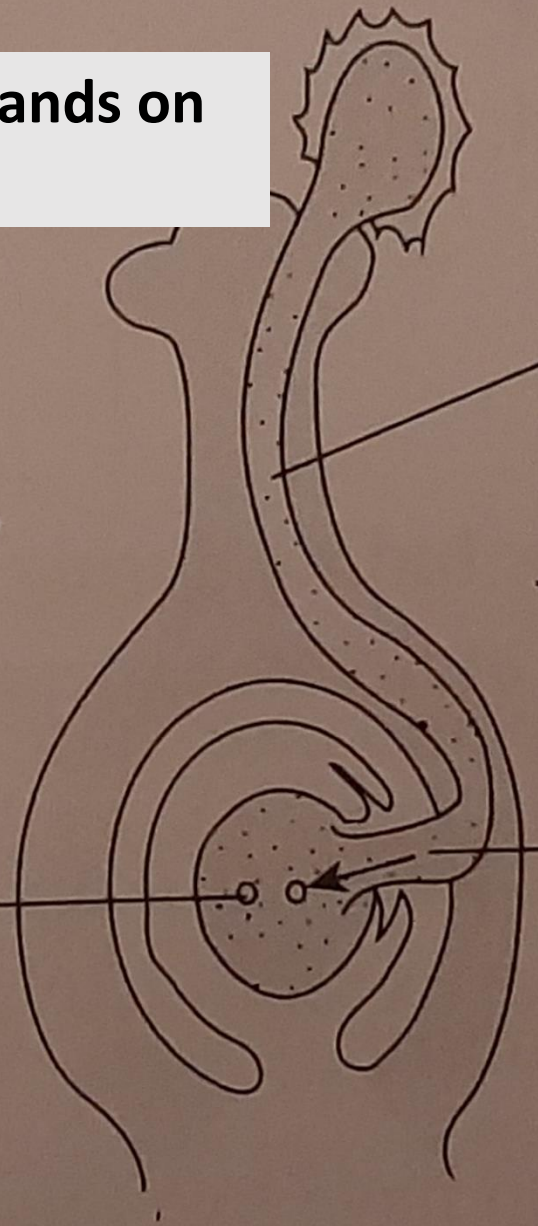
Workbook page 72

3 Label the diagram on the right to show the events that take place between pollination and fertilisation.

4 Label the diagram below to show the main parts of a wind-pollinated flower.



1. Pollen lands on stigma



2. A pollen tube grows down through the style to an ovule.

3. The male gamete's nucleus moves down through this tube.

4. The male nucleus enters an egg cell, and fuses with the female nucleus. This is **fertilisation**.

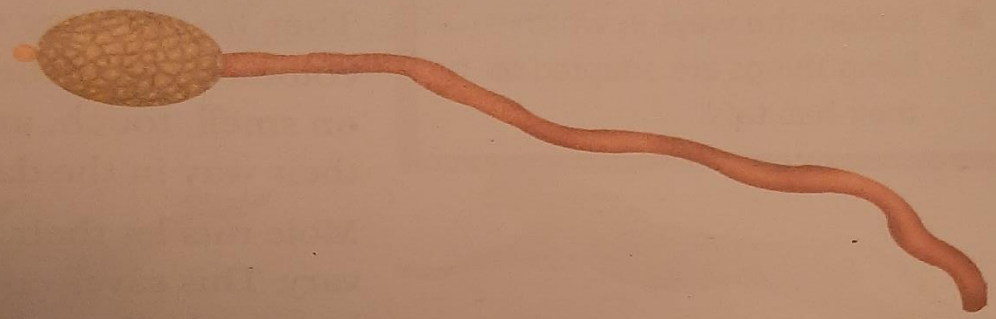
Question 7 / page 170

a. The concentration of the sugar solution the pollen was placed in.

b. (8/10) X 100% = 80%

c. Repeat the test.

7 Joshua is trying to find the concentration of sugar needed to make pollen grains grow. He makes different sugar solutions. He leaves 10 pollen grains in each solution for 4 hours. Then he observes them under the microscope and records how many of them grow pollen tubes.



Sugar solution concentration (g/dm³)	Number of pollen tubes that grew
0	0
50	2
100	8
150	1

a Which variable did Joshua change? [1]

b What percentage of the pollen grains grew a pollen tube in the 100 g/dm³ sugar solution? [1]

c Joshua thought the result for the 150 g/dm³ sugar solution might be anomalous. What should he do to make his results more reliable? [1]

[1]

[1]