

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

বিস্মিল্লাহির রাহমানির রাহীম



উদ্দান

একাডেমিক এন্ড এডমিশন কেয়ার

Class Eight Science Care

Science Ch:4

REPRODUCTION IN PLANTS

LET'S LEARN ABOUT REPRODUCTION FIRST

Every organism of the world tends to keep its descendants before it dies. So like the Plants.

The process by which plants produce their offspring's is known as Plant reproduction.

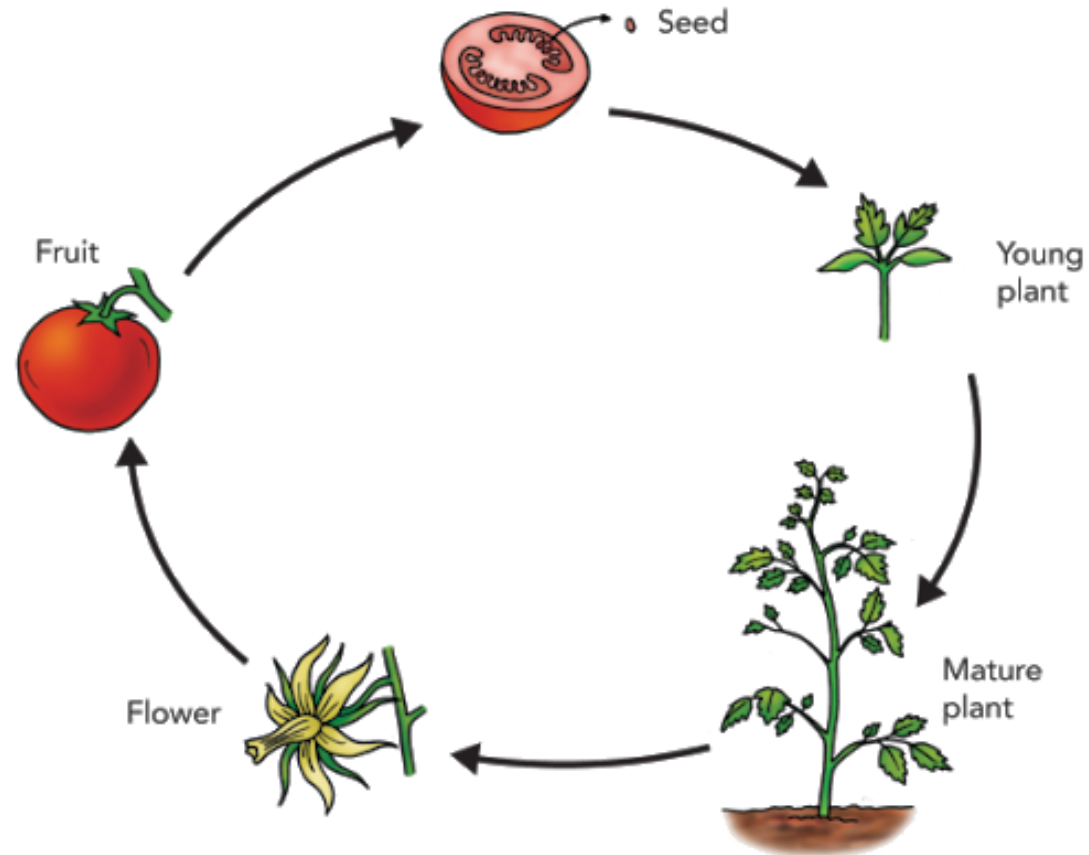
There are 2 types here-

1. Asexual and
2. Sexual

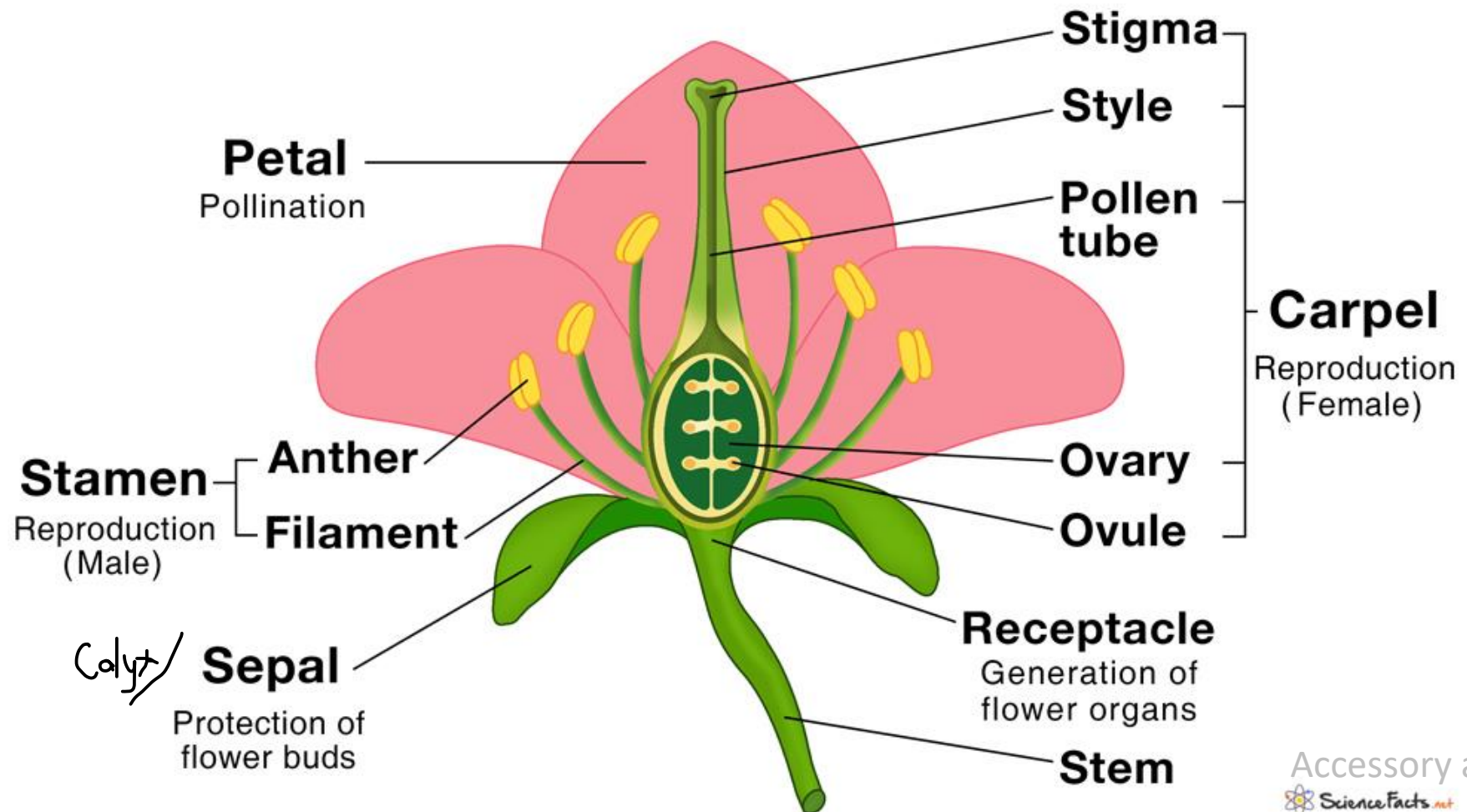
Next: why flower?

WHY FLOWERS?

Flowers>Fruits>Seeds>New Plants>New Flowers



Parts of a Flower





So in Summary

There are 5 parts in a flower viz,

1. Receptacle ,
2. calyx,
3. petal,
4. stamen (Collectively as Androecium)
5. carpel (Collectively as Gynoecium)

Calyx//Sepal

1. Calyx : The most external part and usually they are Green
2. May be segmented or Joined,
3. The segmented each parts are called Sepal



Petal

1. They are different in color
2. Attract the insects and help in pollination(will be described)
3. Protect the internal parts of the flower

Stamen

The 3rd whorl / part

- A stalk
- An anther ,

***pollen grains are formed into anther .

***Male gametes are contained by pollens.

Carpel

The 4th whorl of a flower

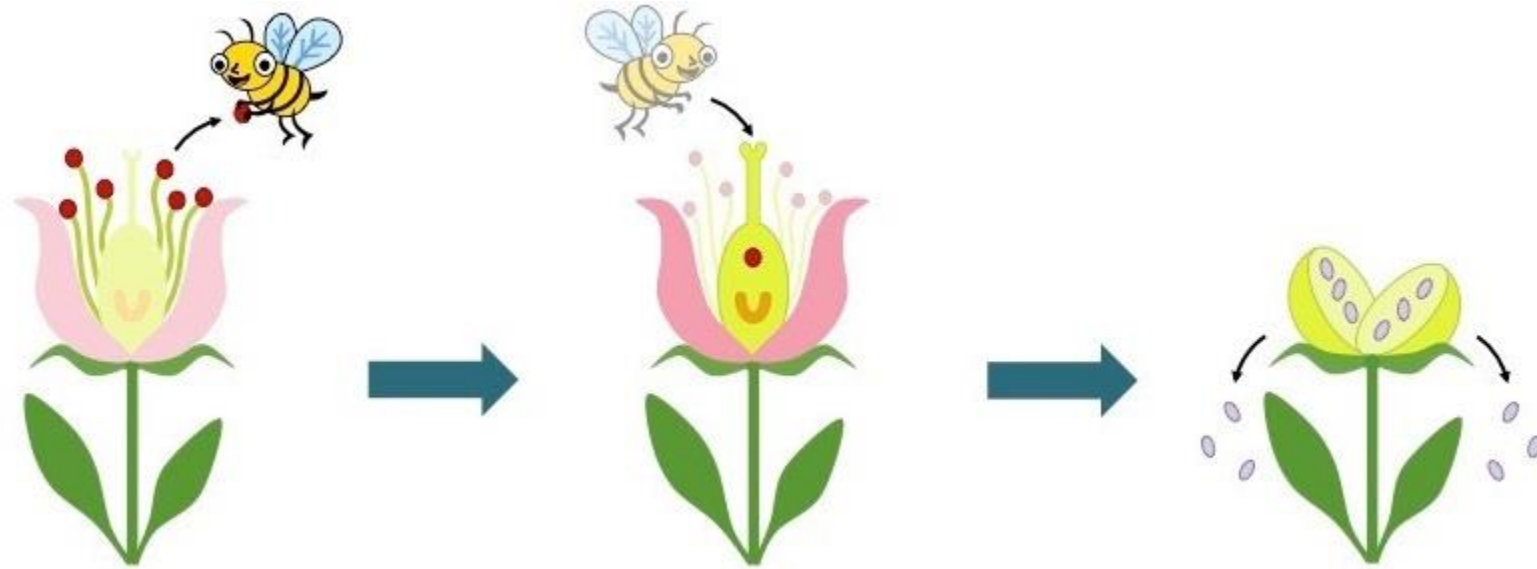
- Consist of 3 parts – Ovary , Style and a stigma
- Within ovary varying number of ovules
- Ovule contains female sex cells or Gametes

Inflorescence

The mode of arrangement of flowers in a floral axis , May be the growth is Limited
Sometimes Unlimited.



NEXT PHASE: Pollination



Why it's important?

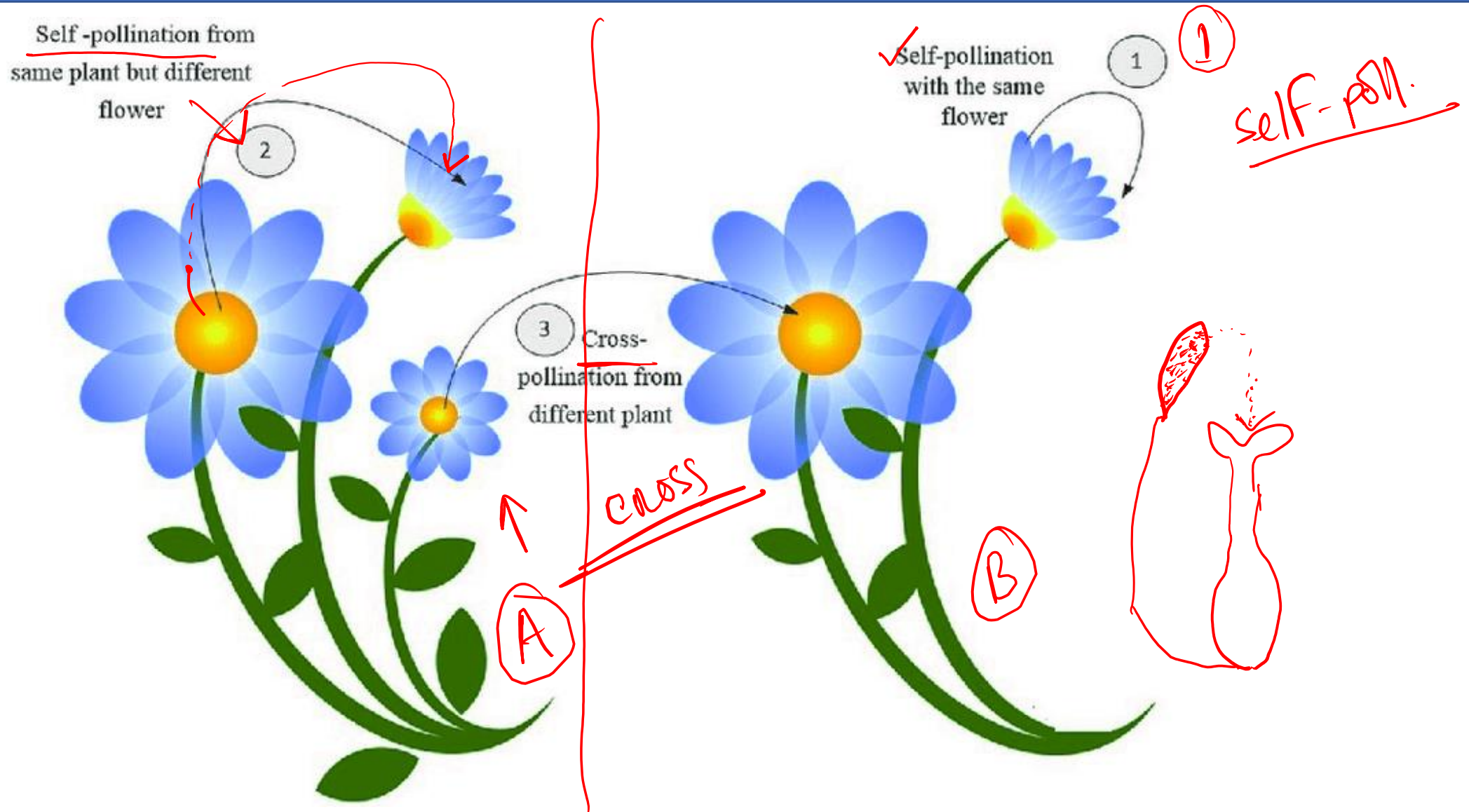
It is called pollen transfer,

It is the precondition of fruit and seeds production.

Rub your fingers on the stamen of a flower and see, a kind of yellow or orange colored something will stick to your fingers from it. These powders are called pollen or pollen grains

Pollination is the transfer of pollens from anthers to stigmas.

Pollination is the transfer of pollens from anthers to stigmas and there are 2 types of Pollination

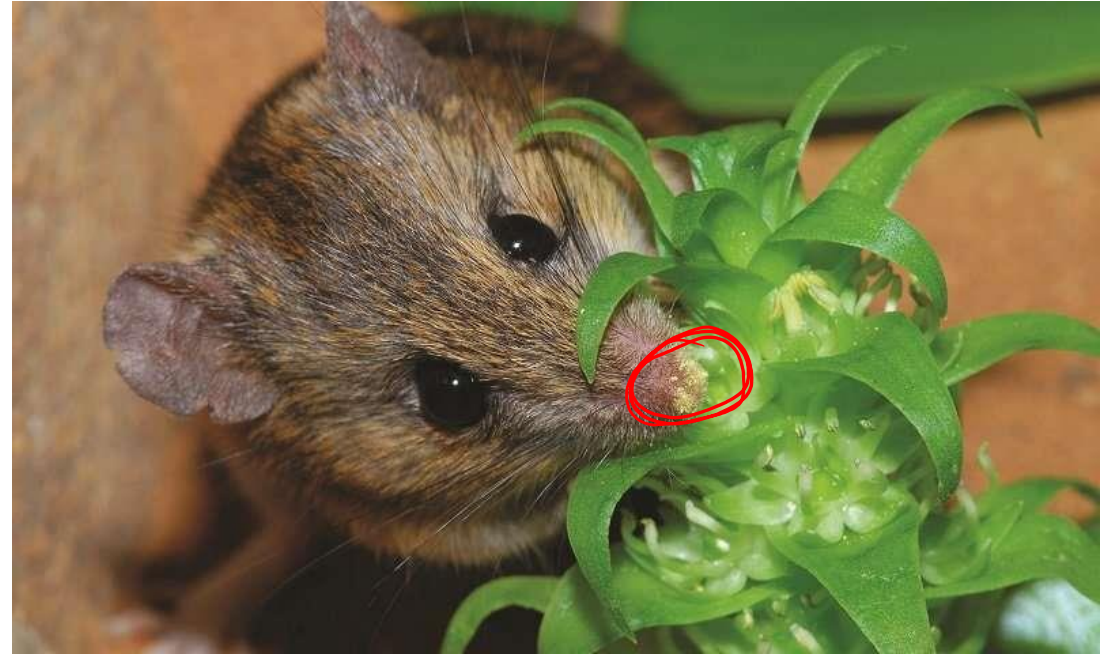


So, there are 2 types of Pollination

✓ Self Pollination: Mustard, Pumpkin

✓ Cross Pollination: Shimul, Papaya

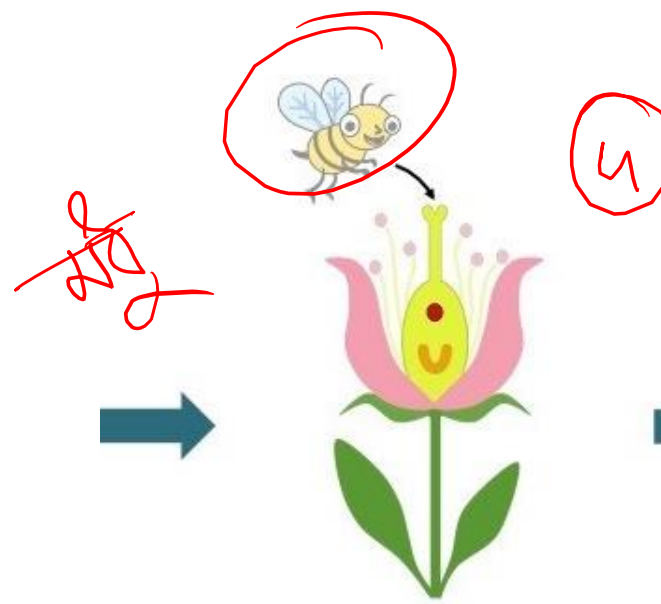
mcv



are there more agents for pollination?

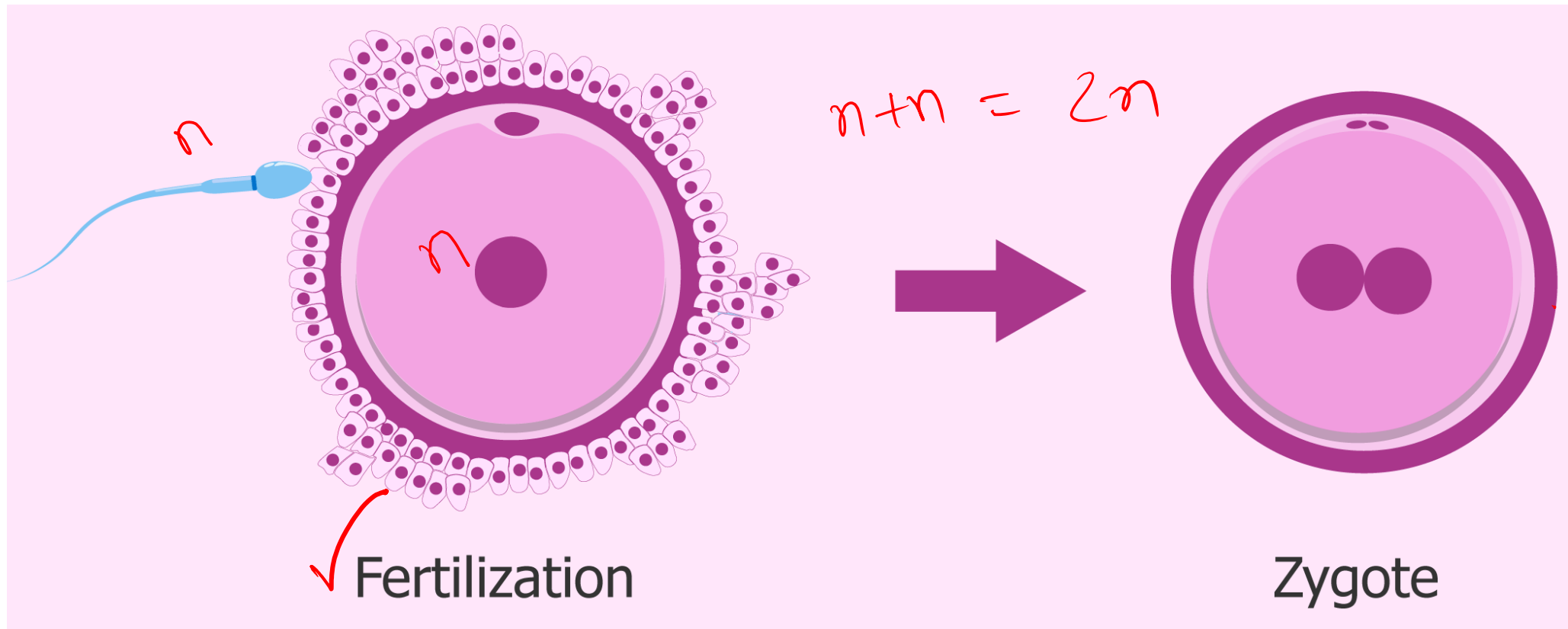
Are there many Agents
for Pollination?





let's take a flashback to ch:2

We learned about formation of Zygote and what happens after...





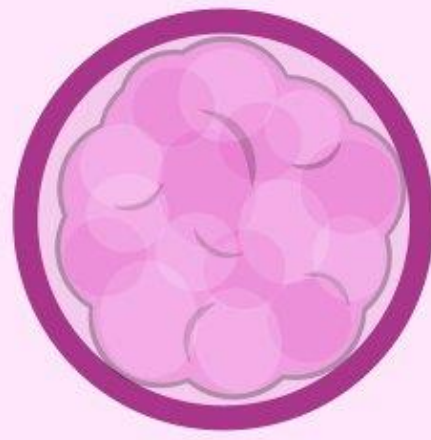
Zygote



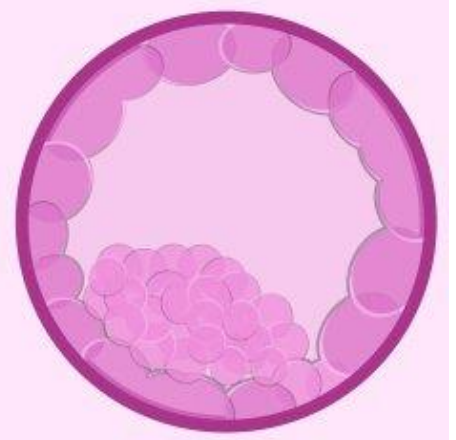
Day-2
embryo



Day-3
embryo

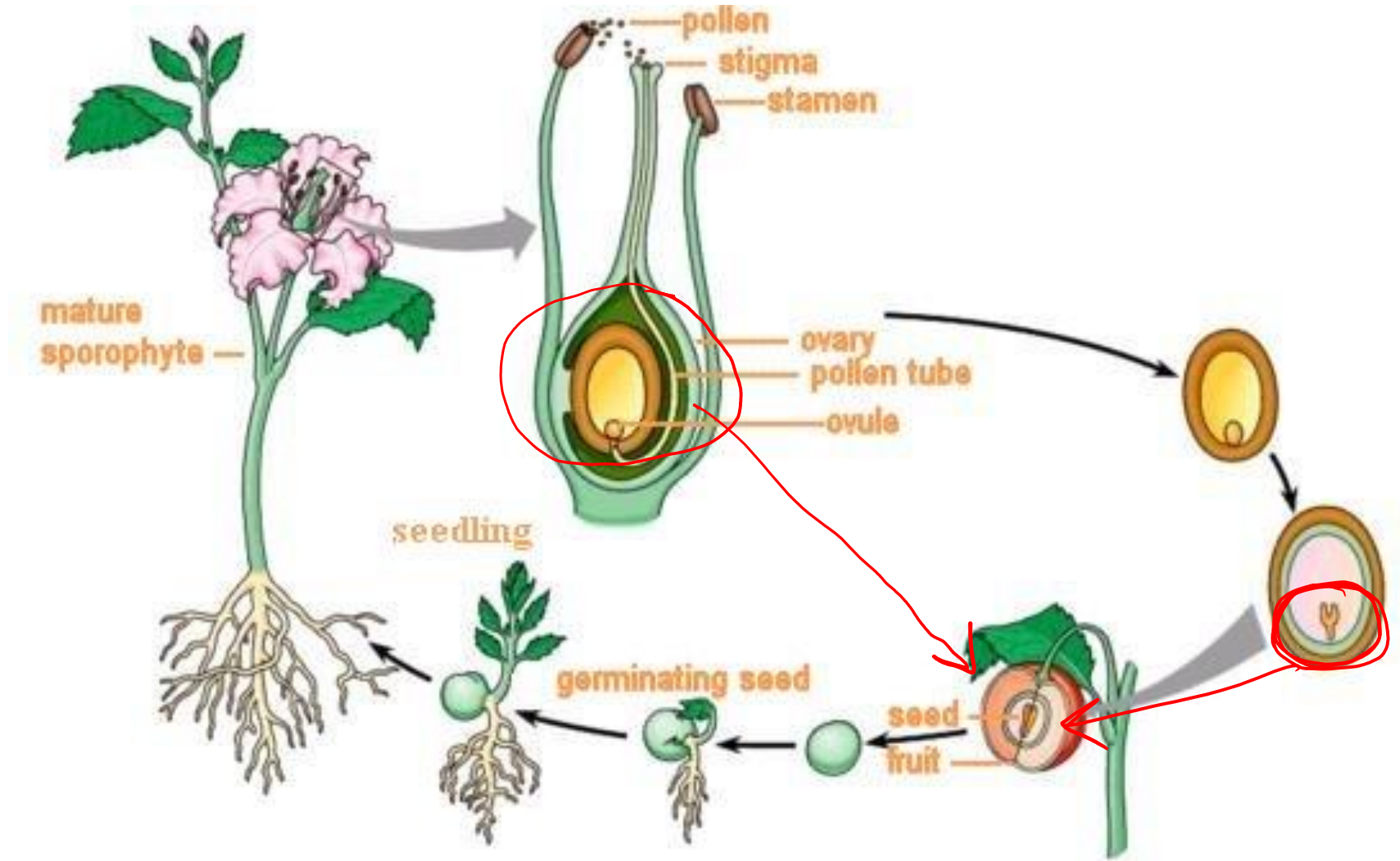
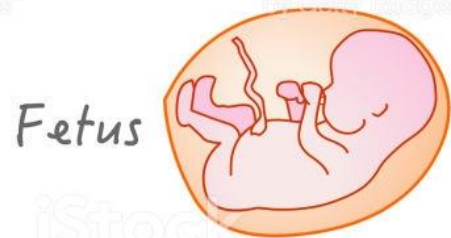


Morula



Blastocyst

DEVELOPMENT (EMBRYOGENESIS)

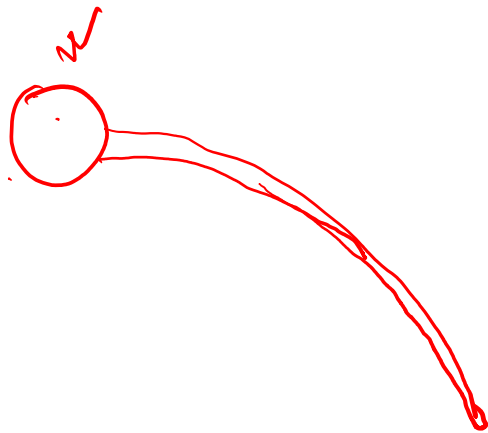


Upcoming: Fertilization

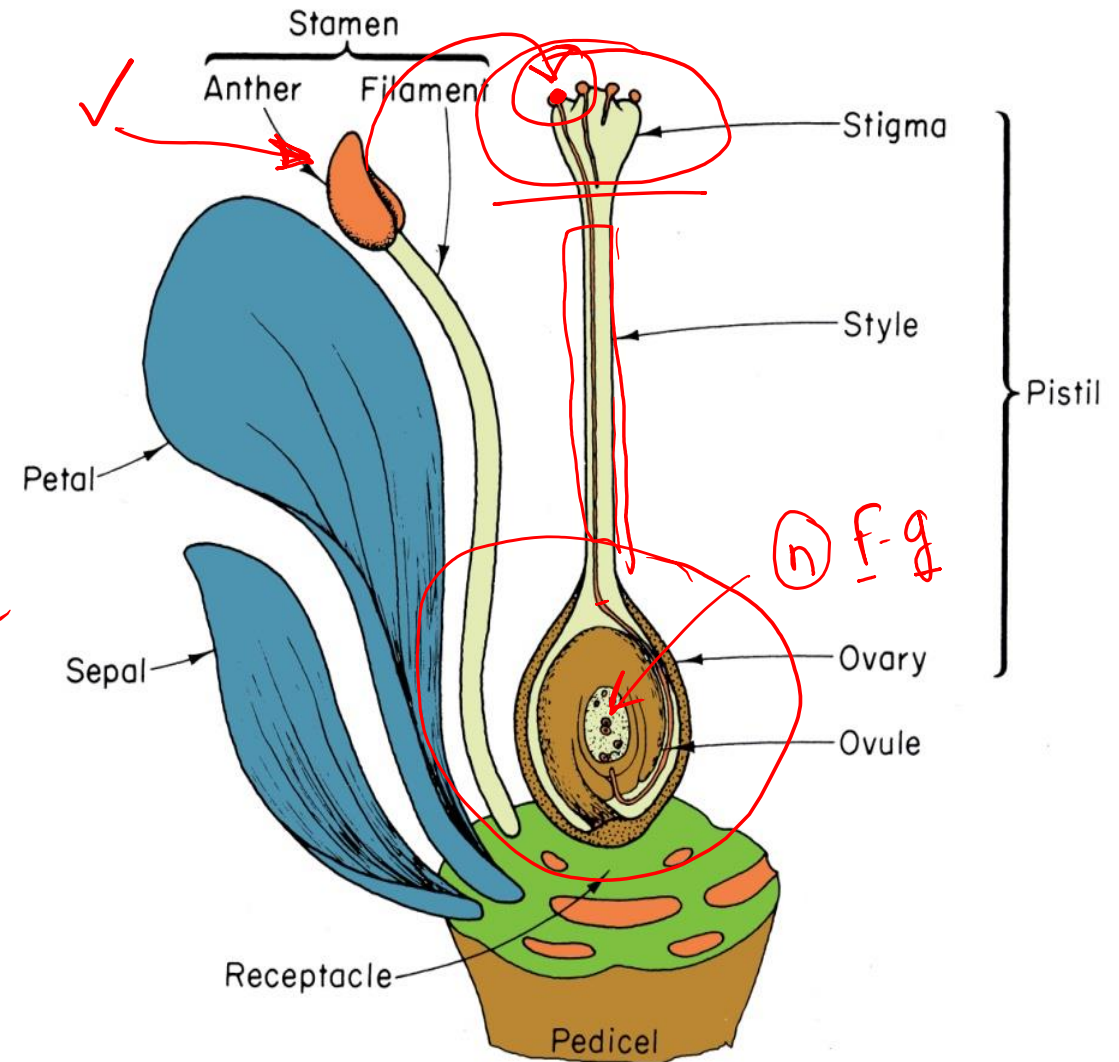
Fertilization and Fruit Formation

The sexual union of male gamete with the female gamete is known as fertilization.

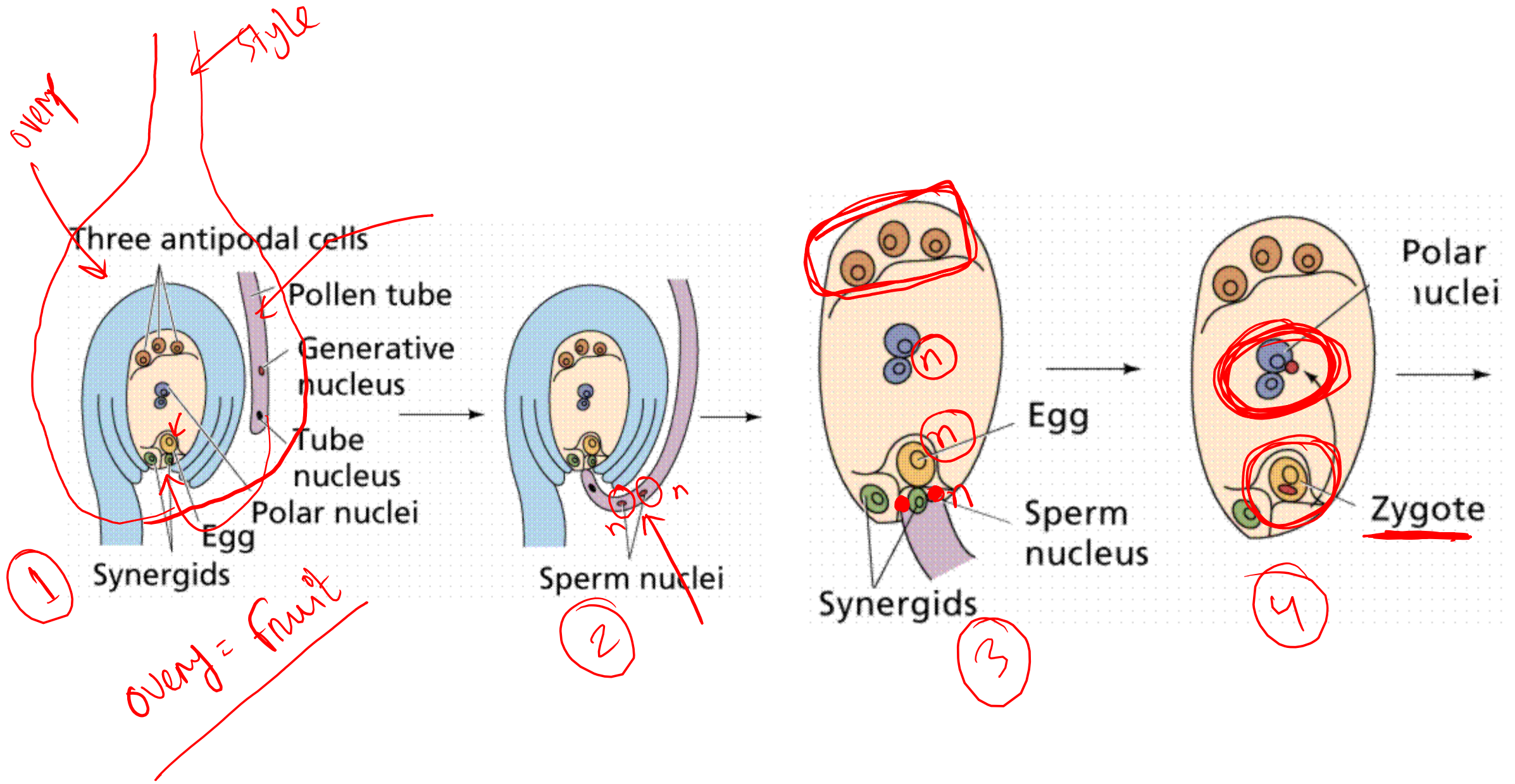
So, **Formation of the gametes is the precondition of fertilization.**

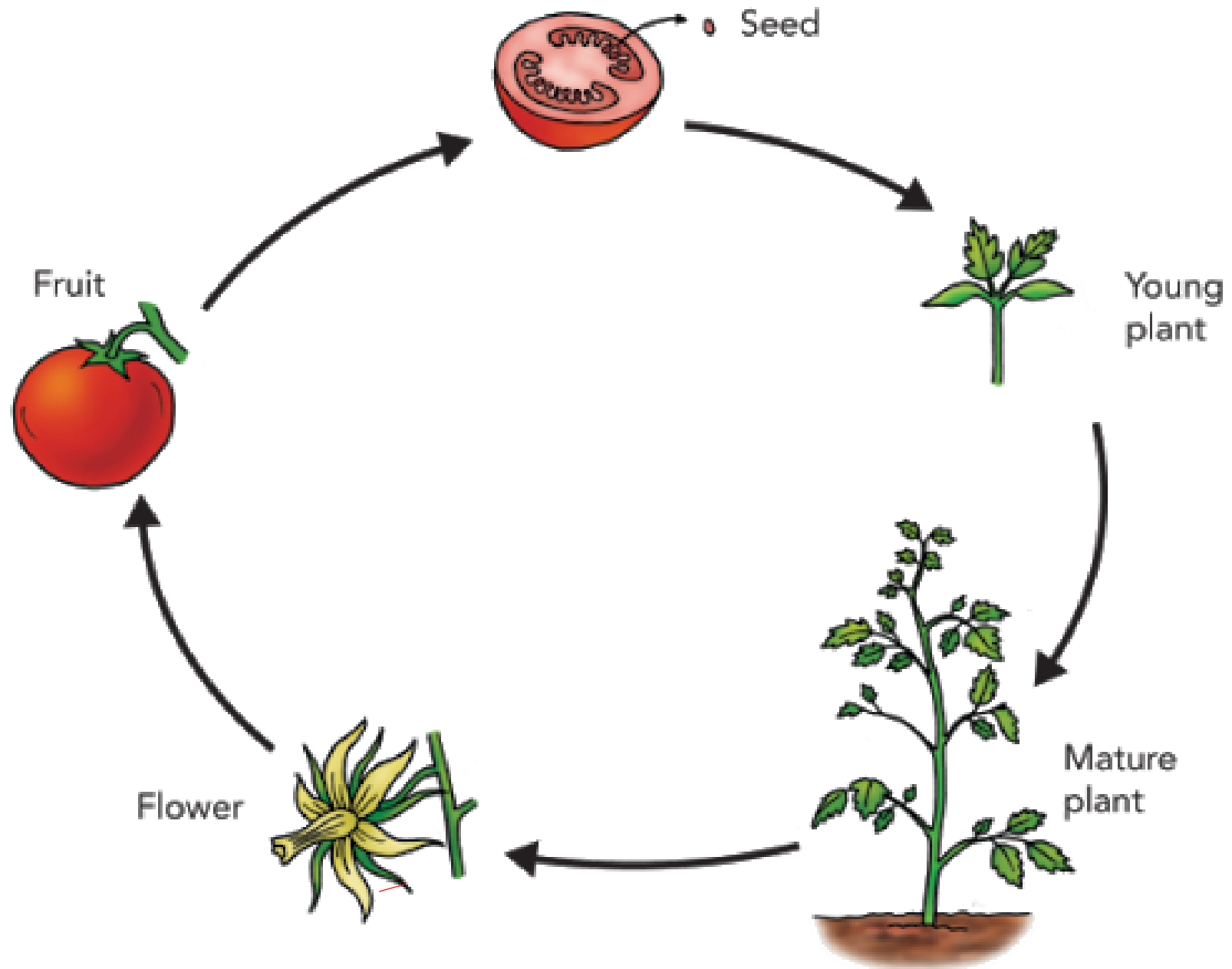



• • male gamete



Upcoming: Detailed Fertilization







পটল কিন্তু একটা
ফল



তেড়শ ও ফল

Upcoming: Types of Fruits

Let's Discuss about the type of Fruits

At first, we need to know either the fruit is True fruit or False fruit.

When only the ovary turns into fruit, it is known as true fruit, eg, Mango, Jackfruit etc. When the fruits are developed from different floral parts other than the ovary, they are called false fruit, eg, Apple, Dellenia (chalta) etc. All (both true and false) fruits are divided into three main classes on the basis of their origin and nature. These are - simple fruit, aggregate fruit and multiple fruit.

- (1) **Simple fruit:** When the ovary of a single carpel or more than one united carpels of a flower develop into a fruit, it is known as simple fruit, eg, Mango. Depending on the nature of pericarp, simple fruits are again divided into two groups- dry fruits and fleshy fruits.

Dry fruits: Fruits having thin and dehiscent pericarps when they are ripe, are known as dry fruits. Example- Bean, Lady's finger, Mustard etc.

Fleshy fruits: Fruits with thick and succulent pericarps are known as fleshy fruits. The pericarp of fleshy fruit does not split open when it ripens. Example- Mango, Black berry, Banana etc.

Forma-6- Science, Class-8 (xv)

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Reproduction in Plants



Fig. 4.4: Simple fruit



Fig. 4.5: Aggregate fruit



Fig. 4.6: Multiple fruit

Aggregate fruit: When the fruit develops from the merger of several ovaries with many free carpels of a flower, it is known as aggregate fruit. The number of fruitlets formed corresponds with the number of carpels present in the gynoecium of the flower. A cluster of fruitlets is produced at a time and placed on a single stalk. For example -Custard apple, Champa,

True fruit: Only ovary turns into fruit



False Fruit

When the fruit is
developed from different
floral part of a flower



Upcoming: aggregate

Aggregate Fruit

When a fruit is developed from several ovaries of many free carpels of a flower, and a cluster of fruitlets if formed at a time and placed on a single stalk.



Compound Fruit

When all the flowers of an inflorescence together form a fruit.



Seeds are so Cute , aren't they ?

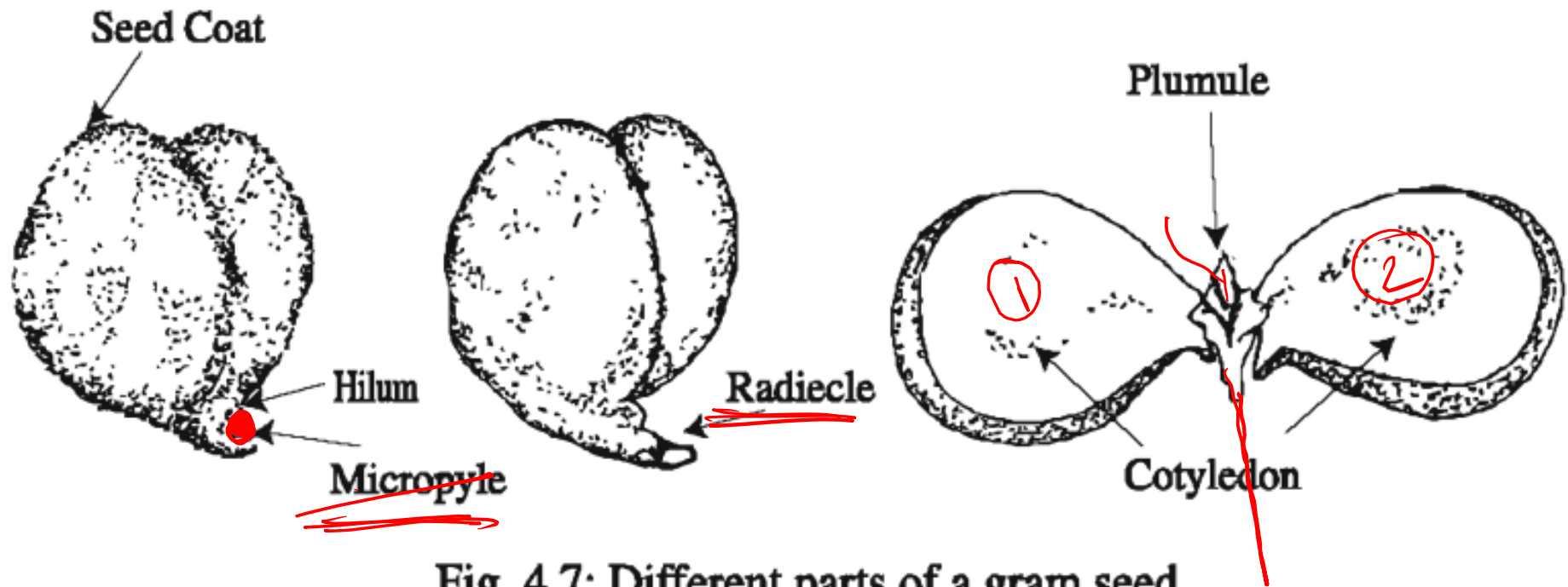


Fig. 4.7: Different parts of a gram seed.



Upcoming: Hypogeal germination



Hypogeal germination

Gram seeds, paddy



Epigeal Germination

Tamarind, pumpkin

All of these were
sexual
reproduction



Is there anything called
Asexual reproduction ?

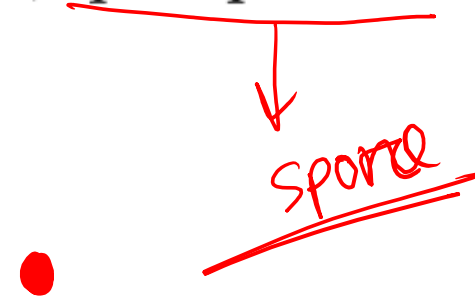
So , What is asexual reproduction ?



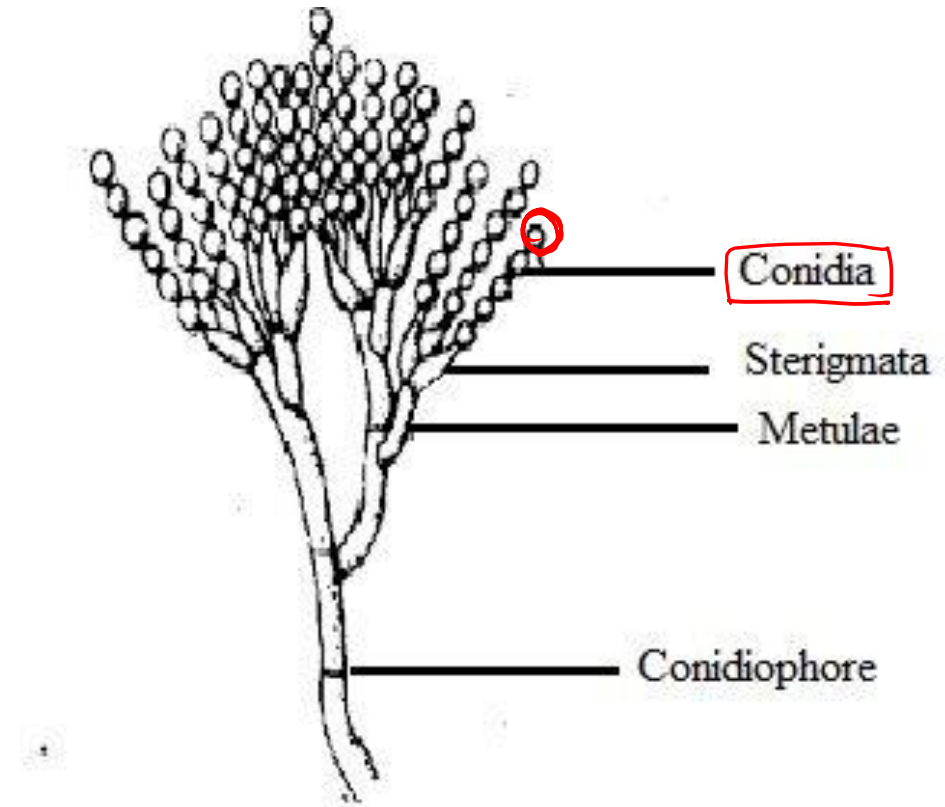
No fertilization is needed in Asexual reproduction

Asexual reproduction

Asexual reproduction is a mode of reproduction by which offspring arise from a single parent, and inherit the genes of that parent only; it is reproduction which does not involve meiosis, fertilization. The offspring will be exact genetic copies of the parent. Asexual reproduction is mostly found in lower graded living beings. Asexual reproduction is of two types; for example, spore production and vegetative reproduction.



Penicilium reproduce by formation of **Conidium**



Spore Production = lower grade

Upcoming: Vegetative reproduction

There are 2 types of Vegetative Reproduction

Without formation of spore or gamete

1. Natural Vegetative
Reproduction:
Segmentation,
Through root or stem

2. Artificial Vegetative
Reproduction:
Grafting, Cutting

Spirogyra aglea is an example of vegetative reproduction : **Fragmentation**

Algae



lower grade


Upcoming: from roots

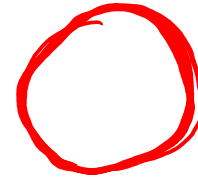
Did you remember? They are reproduced from their
Root



পটল গাছের ভারী ছাটাই
ও পরবর্তী পরিচর্যা

Sometimes their Stems are transformed naturally and become a new plant: Modified stem

- Tuber " 
- Rhizome
- Bulb
- Stolon
- Bulbul
- Offset



এমন নানান নাম দেই আমরা তাদের। এগুলো কিন্তু Asexual Vegetative Reproduction। জাস্ট গাছের Stem Modified হয়ে যাচ্ছে।

Modified Stem: Tuber- Potato plant

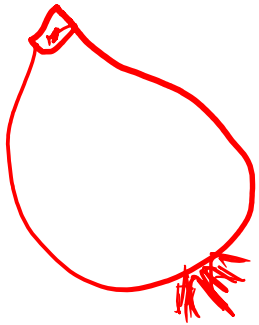


Upcoming: Rhizom- Ginger

Modified Stem: Rhizome- Ginger



Modified Stem: Bulb-Onion



Modified Stem: Offset-Water hyacinth



Artificial Vegetative reproduction of plants: **Grafting**



Done

Final: Cutting

And the easiest way : Cutting

খুব সহজ গোলাপ ফুলের কলম করার পদ্ধতি



লেগে থাকো সৎভাবে,
স্বপ্ন জয় তোমারই হবে

উদ্ভাস-উন্মেষ শিক্ষা পরিবার