Flowering Plant REPRODUCTION

- Each Anther produces many male pollens.
- Agents can be attracted by petals and nectar. (Or adaptations occur for wind or water to be the agents.)
- Pollen attaches to the agent, which takes it to another flower.
- Pollen sticks on the sticky stigma of the new flower.
- Pollen tube grows down the style of flower to ovary.
- One pollen fertilizes one ovule.
- This zygote becomes the embryo, then the seed.

DETAILS OF SEXUAL REPRODUCTION: ***pages 26 – 27***

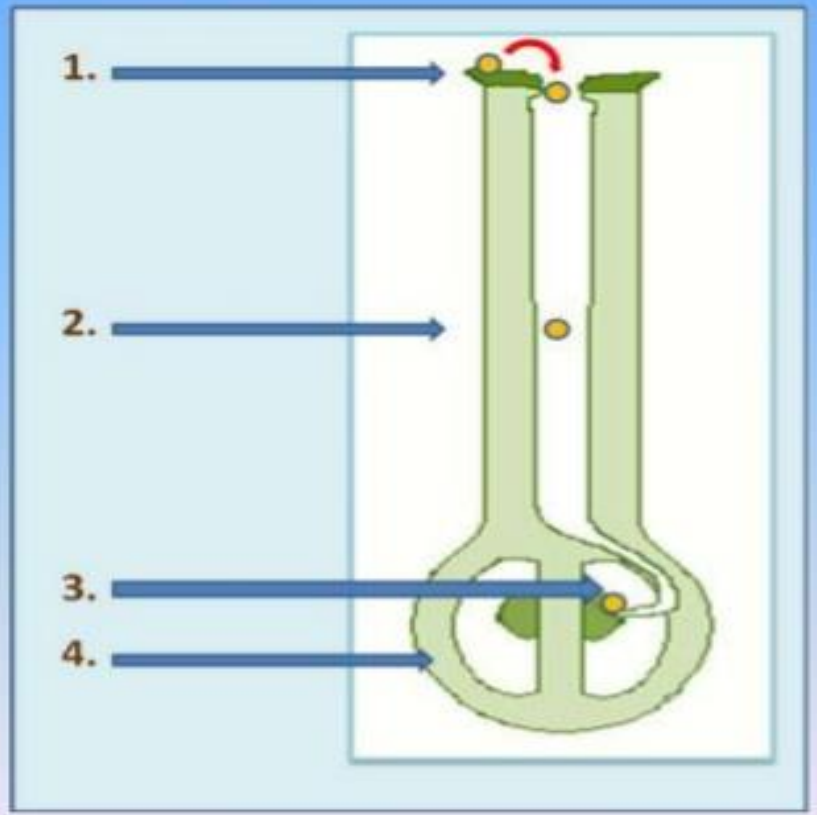
The Fertilization Process

1. Pollen grains land on the sticky stigma.

2. A pollen tube grows down the style, followed by male sperm nuclei.

3. The sperm nuclei fuse with the female ovules.

4. The ovules develop into seeds and the ovary develops into fruit.



www.buzzaboutbees.net/plant-pollination-process.html

Sexual Reproduction (pages 26-27)

Meiosis = cell division to produce the male *or* female gamete.

Male pollen + Female ovule (*fertilize*) → Zygote.

Mitosis = cell division for growth and development:

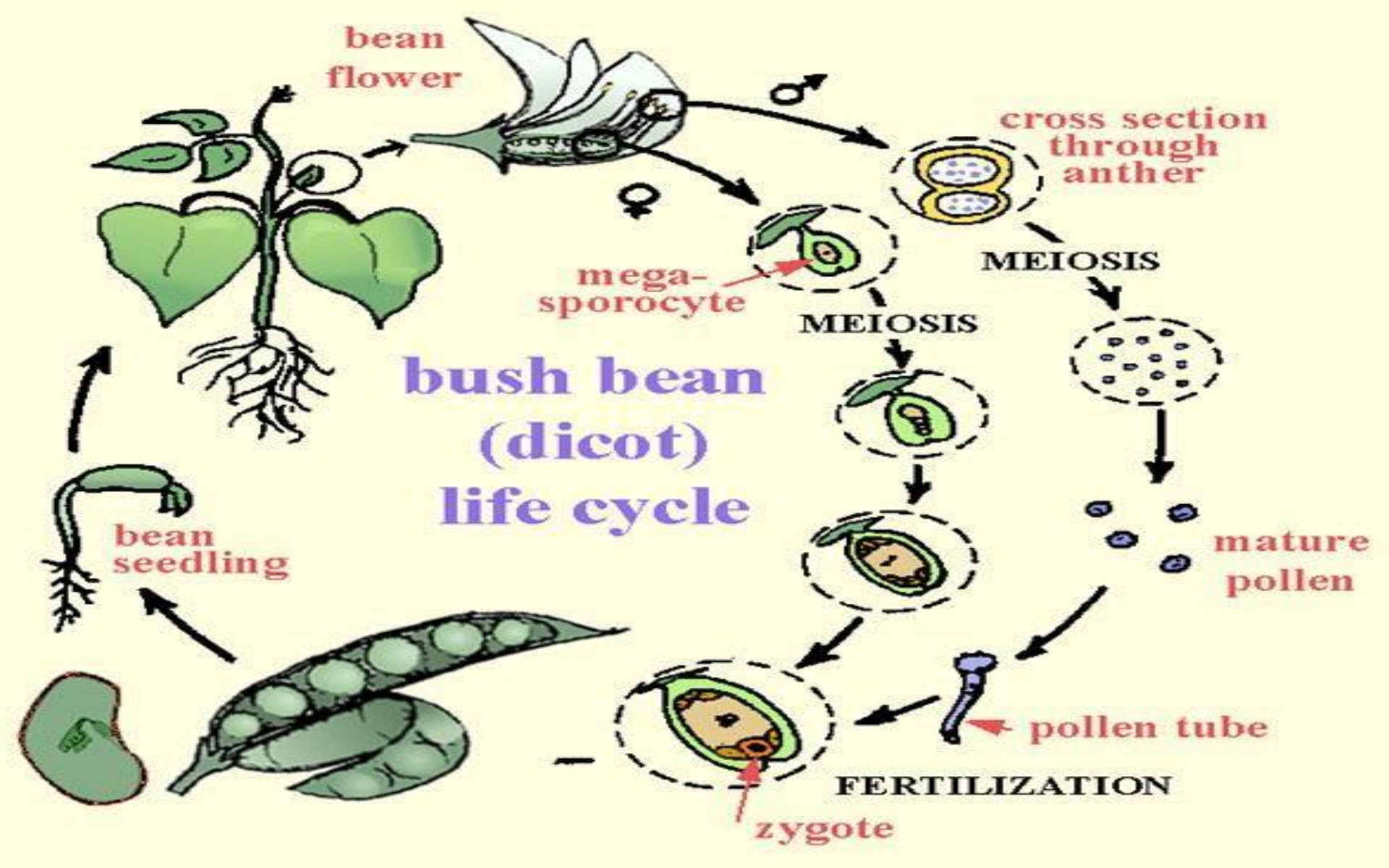
Zygote → Embryo → Seed

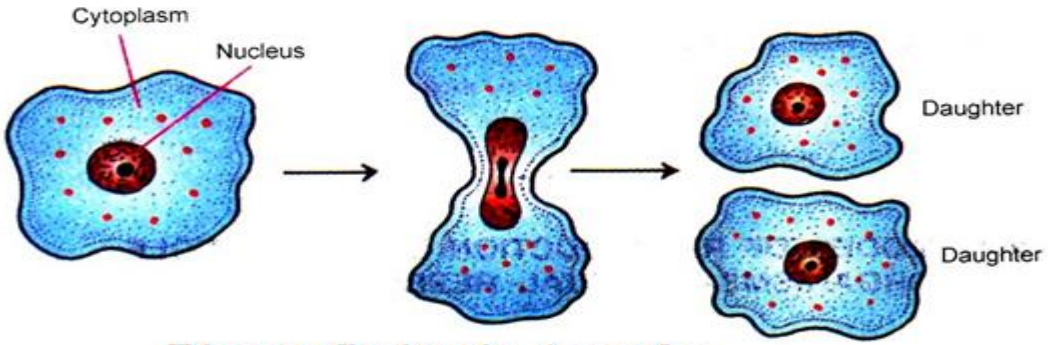
Example: ***Life-Cycle of beans*** (*on next slide*).

Sex **Advantage**: Variety in all children (meiosis).

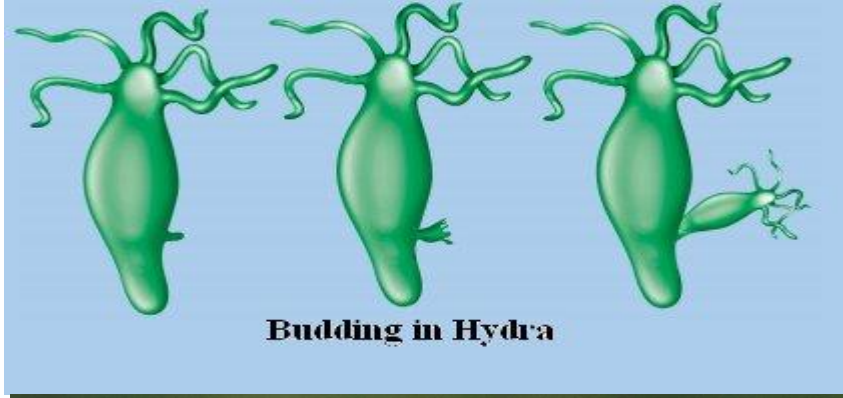
Disadvantages: Slow. Needs agents. Both genders.

Pollinating agents: Insects. Birds. Wind. ***Page 27***

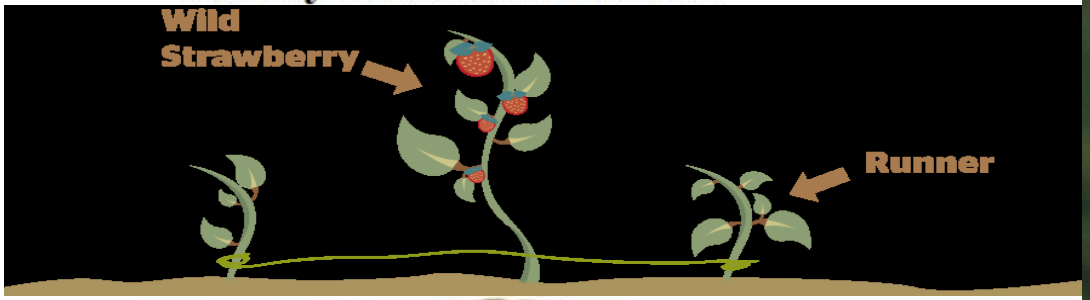

bean flower
♂
cross section through anther
♀
mega-sporocyte
MEIOSIS
MEIOSIS
bush bean (dicot) life cycle
bean seedling
mature pollen
pollen tube
FERTILIZATION
zygote

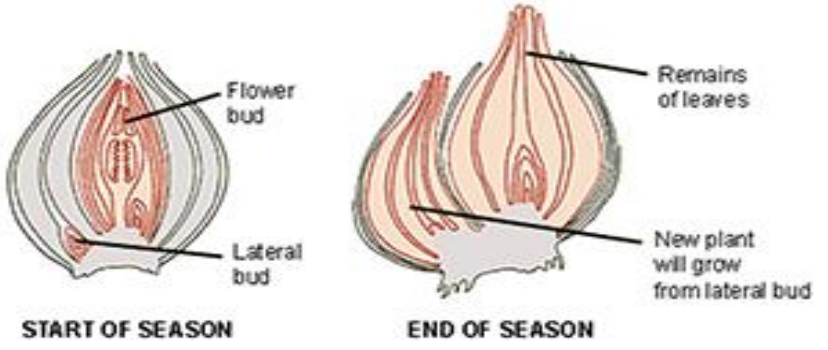


Binary fission in Amoeba



Budding in Hydra





Asexual Reproduction Pages 24 - 25

In *vegetative reproduction*, there is no sex – only one parent. A part of it grows into a new plant. **Tubers** - potatoes. **Bulbs** - onions. **Corms** - garlic.

- *Transition plants* – Mosses and Ferns have sex, but this does not directly produce new plants: it produces sporophytes. **THESE** produce the spores which result in the children. And so this is **ASEXUAL**.

Asexual:

Advantages: Quick. One parent. Selection is possible.

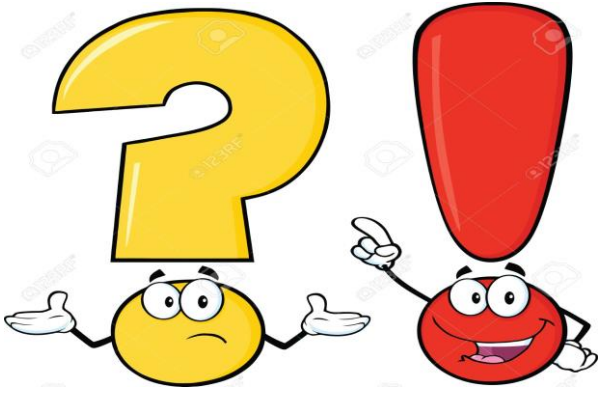
Disadvantage: Identical plans = a fragile system.

QUESTIONS Page 24

Question 1

5 X [1] = [5]

1. Asexual
2. Anther
3. Cross pollination
4. Ovule
5. Pests . . .



Question 2

3 X [2] = [6]

1. D
2. C
3. C

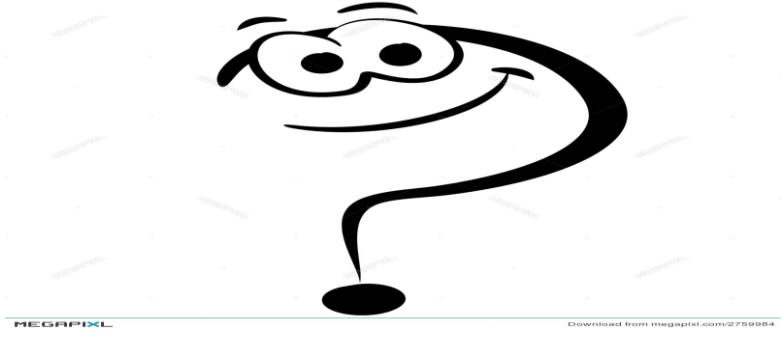
Question 3

Self-pollination = each flower fertilizes its own ovule with its own pollen. [2]

Cross-pollination = pollen is taken from one flower to another flower of the same species. [2]

Question 4

No colour. No smell. No nectar. Lots of pollen. Pollen not heavy. Large stigmas. Large anthers. Anthers hang out of flower. [3]



Question 5

1. Asexual – vegetative (body) parts grow into new plants. [2]
2. Only one plant needed. Good parent = good child. We can select the best parent. Quick. No pollinating agent needed. [3]