Your notes

GCSE Biology: revision notes

Reproduction in flowering plants

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Start here: how flowering plants reproduce

- Flowering plants can reproduce sexually, with flowers, pollen and seeds, or asexually, making clones from **runners** or cuttings.
- Sexual reproduction mixes genes from two parents, so the offspring vary. Asexual reproduction gives offspring identical to the parent.

Parts of a flower

- The stamen is the male part: the **anther** makes pollen grains and is held up by the filament.
- The carpel is the female part: the **stigma** catches pollen, the style joins it to the ovary, and the ovary contains **ovules**.
- Petals attract insects in insect-pollinated flowers. Sepals protect the flower while it is a bud.

Pollination

- **Pollination** is the transfer of pollen from an **anther** to a **stigma**.
- Insect-pollinated flowers have large, brightly coloured, scented petals and nectar. Their **anthers** and **stigma** are inside the flower and their pollen is sticky.
- Wind-pollinated flowers have small, dull petals. Their **anthers** and feathery **stigmas** hang outside the flower, and they make lots of light, smooth pollen.

Fertilisation and seeds

- A **pollen tube** grows from the pollen grain down through the style to an **ovule**. The male nucleus travels down the tube and fuses with the female nucleus in the **ovule**: this is fertilisation.

- After fertilisation, the **ovule** becomes a seed and the ovary becomes a fruit.
- **Germination** needs water, oxygen and a suitable temperature. The seed uses its food store until its leaves can photosynthesise.

Asexual reproduction in plants

- Some plants, such as strawberries, grow **runners**: side stems that put down roots and grow into new plants.
- Gardeners take cuttings: a piece of stem with a few leaves is planted, often dipped in rooting powder, and grows into a clone.

Exam tip

- **Pollination** and fertilisation are different: **pollination** moves pollen to the **stigma**; fertilisation is when the nuclei fuse in the ovule.

Common mistakes

- Saying the pollen grain goes into the **ovule**. A **pollen tube** grows, and the male nucleus travels down it.
- Mixing up the ovary (it becomes the fruit) and the **ovule** (it becomes the seed).

Key terms

Anther	The part of the stamen that makes pollen.
Stigma	The sticky top of the carpel that catches pollen.
Ovule	The structure inside the ovary that contains the female gamete; it becomes a seed.
Pollination	The transfer of pollen from an anther to a stigma.
Pollen tube	A tube that grows from a pollen grain to an ovule, carrying the male nucleus.
Germination	When a seed starts to grow; it needs water, oxygen and warmth.
Runner	A side stem that grows along the ground and produces new, identical plants.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What is pollination?
2. Which part of a flower makes pollen?
3. What does an ovule become after fertilisation?

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4. What does the ovary become after fertilisation?
5. Which feature is typical of a wind-pollinated flower?
6. What grows from a pollen grain down to an ovule?
7. Which three things does a seed need to germinate?
8. Strawberry plants spread by growing runners. What kind of reproduction is this?

Answers

1. The transfer of pollen from an anther to a stigma
2. Anther
3. A seed
4. A fruit
5. Feathery stigmas that hang outside the flower
6. A pollen tube
7. Water, oxygen and a suitable temperature
8. Asexual

What to do next

Practise 10 questions on this topic

Try 3 exam questions, with mark schemes

Read the lesson, one step at a time

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