

Flower Structure & Plant Reproduction

Key ideas

Male part: the **stamen** (anther + filament) makes pollen. **Female part:** the **pistil** or carpel (stigma + style + ovary) contains the ovules, each with an egg cell.

Pollination moves pollen from an anther to a stigma (by insects, birds, bats, wind or water). **Fertilization** is the fusion of sperm and egg inside the ovule.

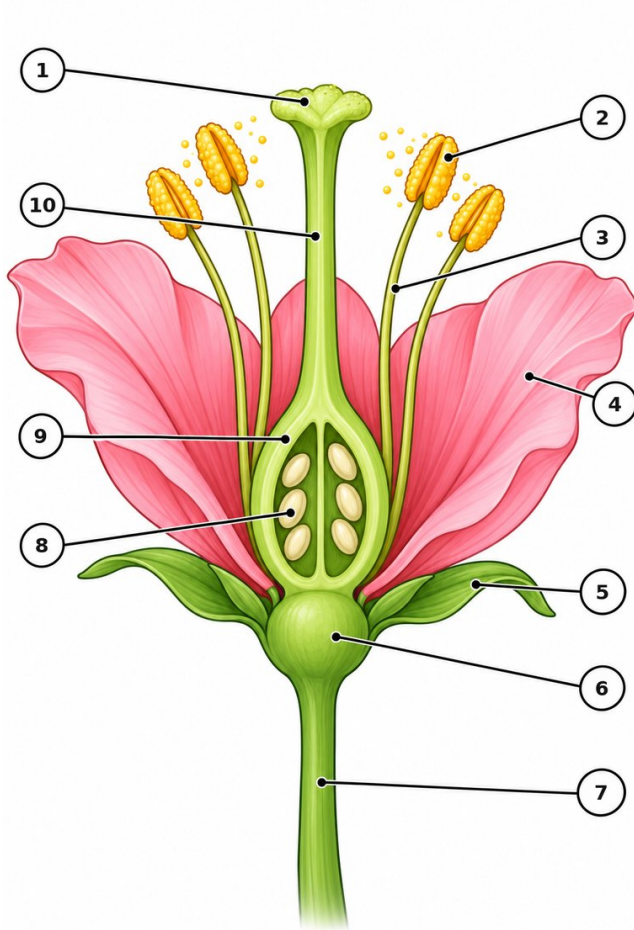
After fertilization, the **ovule becomes a seed** and the **ovary becomes a fruit**. Seeds are dispersed by wind, water, animals or bursting pods. Many plants also reproduce **asexually** (runners, tubers, cuttings).

A Label the flower

5 marks

The flower has been cut in half lengthwise. ½ mark each.

Word bank: Anther · Filament · Flower stalk (peduncle) · Ovary · Ovule · Petal · Receptacle · Sepal · Stigma · Style



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

B What does each part do?

3 marks

Write the letter of the matching function (½ mark each).

- | | |
|------------------|---|
| 11. _____ Anther | a. Contains the egg cell; becomes the seed |
| 12. _____ Stigma | b. Protects the flower while it is a bud |
| 13. _____ Ovary | c. Makes pollen grains |
| 14. _____ Ovule | d. Brightly coloured to attract pollinators |
| 15. _____ Petal | e. Sticky tip that catches pollen |
| 16. _____ Sepal | f. Holds the ovules; becomes the fruit |

C From pollen to seed

4 marks

17. Put the events in order. (2 marks)

- P A sperm cell fuses with the egg inside the ovule
- Q Pollen lands on the stigma
- R The ovule becomes a seed and the ovary becomes a fruit
- S A pollen tube grows down through the style
- T Sperm cells travel down the pollen tube to the ovule

_____ → _____ → _____ → _____ → _____

18. What is the difference between pollination and fertilization?

19. What is the difference between self-pollination and cross-pollination?

D Pollinators

3 marks

Name the most likely pollinator for each flower (½ mark each).

	Flower features	Most likely pollinator
20.	Bright petals, sweet scent, nectar and a landing platform	
21.	Small dull petals, no scent, huge amounts of light pollen, feathery stigmas hanging outside	
22.	Red, tube-shaped flower with lots of nectar but no scent	
23.	Large white flower with a strong scent that opens at night	

24. Why do wind-pollinated plants, such as grasses, make far more pollen than insect-pollinated plants?

E Seeds and dispersal

4 marks

Match each fruit to how its seeds are dispersed (½ mark each).

- | | |
|--------------------|---|
| 25. ____ Dandelion | a. Floats on water to a new shore |
| 26. ____ Burdock | b. Eaten by animals; seeds pass through the gut |
| 27. ____ Raspberry | c. Light, fluffy parachute carried by the wind |
| 28. ____ Coconut | d. Hooked burrs stick to animal fur |

29. Why is it an advantage for a plant to disperse its seeds away from the parent plant?

30. A student plants 50 bean seeds and 42 of them germinate. What is the percent germination?

F Sexual vs asexual reproduction

4 marks

31. Give two advantages of sexual reproduction in plants and one advantage of asexual reproduction. (2 marks)

32. An orchard owner wants every new apple tree to produce exactly the same apples as her best tree. Should she plant seeds or use cuttings and grafting? Explain. (2 marks)

G Spot the mistake

2 marks

33. A student writes: "Pollination and fertilization are the same thing." Explain the error and correct it.

34. A student writes: "After fertilization, the petals develop into the fruit." Explain the error and correct it.

Flower Structure & Plant Reproduction

Name: _____

Date: _____ Score: ____ / 25

ANSWER KEY

Key ideas

Male part: the **stamen** (anther + filament) makes pollen. **Female part:** the **pistil** or carpel (stigma + style + ovary) contains the ovules, each with an egg cell.

Pollination moves pollen from an anther to a stigma (by insects, birds, bats, wind or water). **Fertilization** is the fusion of sperm and egg inside the ovule.

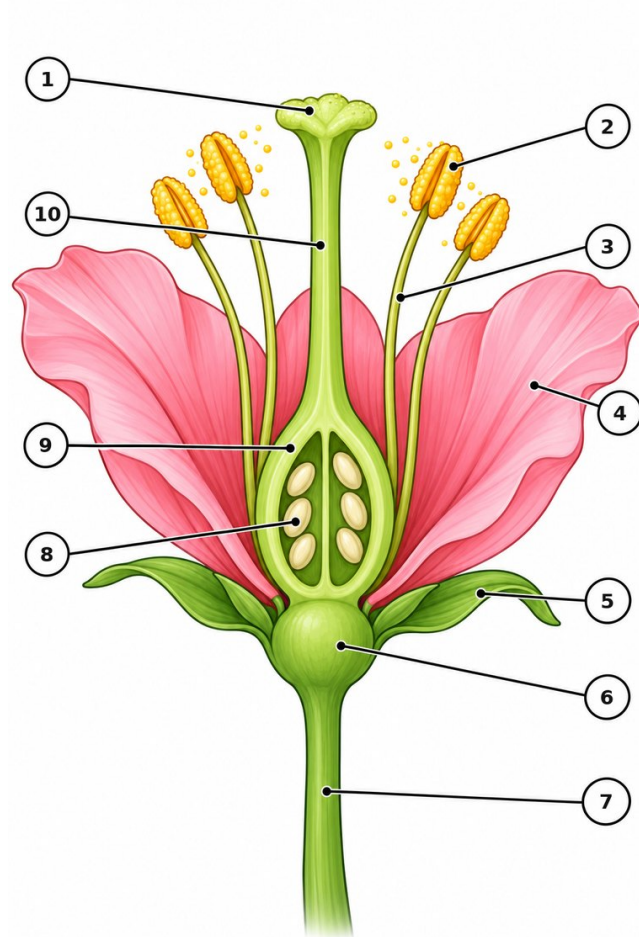
After fertilization, the **ovule becomes a seed** and the **ovary becomes a fruit**. Seeds are dispersed by wind, water, animals or bursting pods. Many plants also reproduce **asexually** (runners, tubers, cuttings).

A Label the flower

5 marks

The flower has been cut in half lengthwise. ½ mark each.

Word bank: Anther · Filament · Flower stalk (peduncle) · Ovary · Ovule · Petal · Receptacle · Sepal · Stigma · Style



1. Stigma
2. Anther
3. Filament
4. Petal
5. Sepal
6. Receptacle
7. Flower stalk (peduncle)
8. Ovule
9. Ovary
10. Style

B What does each part do?

3 marks

Write the letter of the matching function (½ mark each).

- | | |
|---------------------|---|
| 11. <u>c</u> Anther | a. Contains the egg cell; becomes the seed |
| 12. <u>e</u> Stigma | b. Protects the flower while it is a bud |
| 13. <u>f</u> Ovary | c. Makes pollen grains |
| 14. <u>a</u> Ovule | d. Brightly coloured to attract pollinators |
| 15. <u>d</u> Petal | e. Sticky tip that catches pollen |
| 16. <u>b</u> Sepal | f. Holds the ovules; becomes the fruit |

C From pollen to seed

4 marks

17. Put the events in order. (2 marks)

- P A sperm cell fuses with the egg inside the ovule
 Q Pollen lands on the stigma
 R The ovule becomes a seed and the ovary becomes a fruit
 S A pollen tube grows down through the style
 T Sperm cells travel down the pollen tube to the ovule

Q → S → T → P → R

18. What is the difference between pollination and fertilization?

Pollination is the transfer of pollen from an anther to a stigma. Fertilization is when a sperm cell fuses with an egg cell inside the ovule.

19. What is the difference between self-pollination and cross-pollination?

Self-pollination: pollen reaches a stigma on the same flower or plant. Cross-pollination: pollen comes from a different plant of the same species, which increases genetic variation.

D Pollinators

3 marks

Name the most likely pollinator for each flower (½ mark each).

Flower features	Most likely pollinator
20. Bright petals, sweet scent, nectar and a landing platform	Insects (bees)
21. Small dull petals, no scent, huge amounts of light pollen, feathery stigmas hanging outside	Wind
22. Red, tube-shaped flower with lots of nectar but no scent	Hummingbirds
23. Large white flower with a strong scent that opens at night	Moths or bats

24. Why do wind-pollinated plants, such as grasses, make far more pollen than insect-pollinated plants?

Wind carries pollen randomly, so most grains never reach a stigma of the same species. Making huge amounts increases the chance that some will.

E Seeds and dispersal

4 marks

Match each fruit to how its seeds are dispersed (½ mark each).

- | | |
|------------------------|---|
| 25. <u>c</u> Dandelion | a. Floats on water to a new shore |
| 26. <u>d</u> Burdock | b. Eaten by animals; seeds pass through the gut |
| 27. <u>b</u> Raspberry | c. Light, fluffy parachute carried by the wind |
| 28. <u>a</u> Coconut | d. Hooked burrs stick to animal fur |

29. Why is it an advantage for a plant to disperse its seeds away from the parent plant?

Seedlings don't have to compete with the parent (and each other) for light, water and nutrients, and the species can spread to new areas.

30. A student plants 50 bean seeds and 42 of them germinate. What is the percent germination?

$$42 \div 50 \times 100 = 84\%$$

F Sexual vs asexual reproduction

4 marks

31. Give two advantages of sexual reproduction in plants and one advantage of asexual reproduction. (2 marks)

Sexual: genetic variation, so some offspring may survive disease or a changing environment; seeds can be dispersed far and survive harsh conditions. Asexual: fast, needs only one parent and keeps good traits exactly.

32. An orchard owner wants every new apple tree to produce exactly the same apples as her best tree. Should she plant seeds or use cuttings and grafting? Explain. (2 marks)

Cuttings and grafting. These are asexual, so the new trees are clones of the best tree. Seeds come from sexual reproduction, so each seedling would be genetically different.

G Spot the mistake

2 marks

33. A student writes: "Pollination and fertilization are the same thing." Explain the error and correct it.

Pollination is pollen landing on the stigma. Fertilization happens later, when a sperm cell fuses with the egg inside the ovule.

34. A student writes: "After fertilization, the petals develop into the fruit." Explain the error and correct it.

The ovary develops into the fruit and the ovules become seeds. The petals usually wither and fall off.