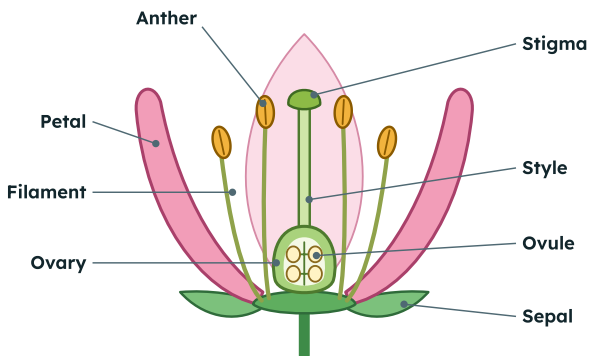
KS3 SCIENCE · BIOLOGY

Plant reproduction revision sheet

Name _____

1. Parts of a flower



A flower cut in half

A flower holds the plant's reproductive organs.

PART	WHAT IT DOES
Petal	Often bright and scented, to attract insects
Sepal	Protected the flower while it was a bud
Stamen: the male part	
Anther	Makes pollen, which contains the male sex cells
Filament	Holds the anther up
Carpel: the female part	
Stigma	Sticky. Pollen lands on it
Style	Joins the stigma to the ovary
Ovary	Holds the ovules. It becomes the fruit
Ovule	Contains a female sex cell. If fertilised, it becomes a seed

2. Pollination

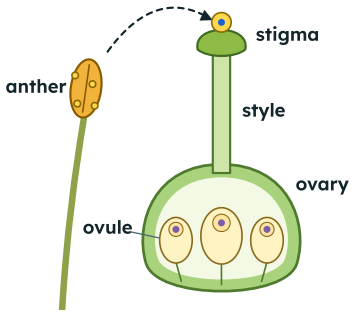
Pollination is the transfer of pollen from an anther to a stigma, on the same plant or on another plant of the same kind.


Insects carry pollen

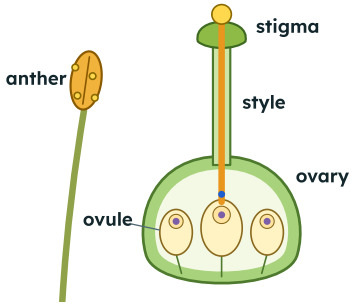
	INSECT-POLLINATED FLOWER	WIND-POLLINATED FLOWER
Petals	Usually large and bright	Small and dull, or none
Scent and nectar	Yes, to attract insects	No
Pollen	Sticky or spiky, so it clings to an insect	Light and smooth, and a huge amount of it
Anthers and stigma	Inside the flower	Hang outside. The stigma is feathery


Grass uses the wind

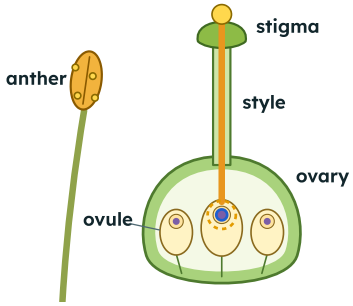
3. Fertilisation



Pollination. A pollen grain lands on the stigma.



The pollen tube grows down the style and into an ovule.

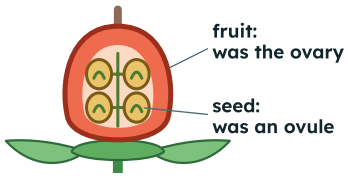


Fertilisation. The two nuclei join inside the ovule.

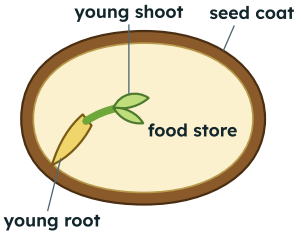
In the drawings: the yellow circle is the pollen grain, the orange line is the pollen tube, the blue dot is the male nucleus and each purple dot is a female nucleus.

- **Fertilisation** is the joining of a male nucleus with a female nucleus. It happens inside an ovule, after pollination.
- The male nucleus reaches the ovule by travelling down the **pollen tube**.
- The fertilised ovule grows into a seed.

4. Seeds and fruits



A fruit cut in half



A bean seed cut in half

- After fertilisation, each fertilised **ovule** becomes a **seed**.
- The **ovary** becomes the **fruit**, which contains the seeds. A tomato and a pea pod are both fruits.
- The petals and stamens wither and fall off.
- A seed has an **embryo**, with a young root and a young shoot, that grows into the new plant. It also has a **food store** and a tough **seed coat**.

5. Seed dispersal

Seed dispersal is the spreading of seeds away from the parent plant.



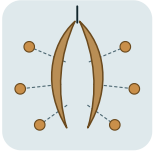
Wind
Light, with a parachute or a wing



Animals
Hooks catch on fur, or the fruit is eaten



Water
The fruit floats



Explosion
A dry pod snaps open

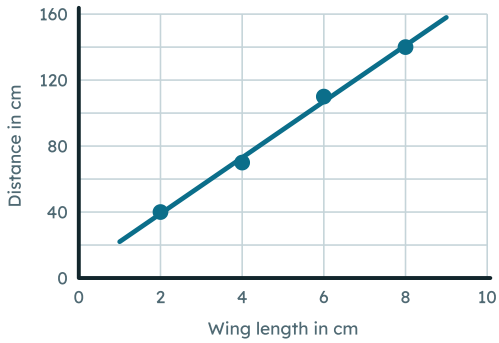
- A seed that lands beside its parent has to **compete** with it for light, water, space and minerals.
- Seeds that are spread out compete less with the parent and with each other, so more survive.
- Dispersal also lets a plant reach new places to grow.
- The features of a fruit or seed tell you how it is dispersed.

6. Investigating dispersal

Paper spinners, models of a winged seed, are dropped from 2 m in front of a fan.

- **Independent variable** (the one you change): the wing length.
- **Dependent variable** (the one you measure): the distance travelled.
- **Control variables** (kept the same): the height of the drop, the speed of the fan, the mass of the spinner.
- Repeat each drop and work out the **mean**.
- **Conclusion:** for these spinners, the longer the wings, the further the spinner travels. Longer wings mean more air resistance, so it falls more slowly and the wind has longer to carry it.

WING LENGTH IN CM	2	4	6	8
DISTANCE IN CM	40	70	110	140



Each point is one wing length. The line of best fit shows the pattern.

Key words

Stamen: the male part of a flower: an anther on a filament
Carpel: the female part of a flower: stigma, style and ovary
Ovary: holds the ovules, and becomes the fruit
Petal: often bright and scented, to attract insects
Pollen tube: grows from a pollen grain down the style to an ovule
Embryo: the young plant inside a seed
Anther: makes the pollen
Stigma: the sticky tip where pollen lands
Ovule: contains a female sex cell. If it is fertilised, it becomes a seed
Sepal: protects the flower while it is a bud
Fertilisation: the joining of a male nucleus and a female nucleus
Fruit: what the ovary becomes after fertilisation
Filament: the stalk that holds up the anther
Style: the stalk that joins the stigma to the ovary
Pollen: grains that contain the male sex cells
Pollination: the transfer of pollen from an anther to a stigma
Seed: contains the embryo of a new plant and a food store
Seed dispersal: the spreading of seeds away from the parent plant

Pictures are illustrations made for this sheet, not real photographs.