ABUNDANT BORDERS

What is a seed?

Put simply, a seed is the reproductive part of a plant. It is what we plant in the ground and from which a plant grows.

In our globalised world we can buy nearly any kind of food at almost any time of year and we forget where that food comes from and that out there, somewhere, it started with a seed.

Our ancestors were much closer to plant life cycle. They planted seeds, hoped for a good year, and saved all that they could to feed themselves throughout the winter.

They saved the best seeds to plant the following year.

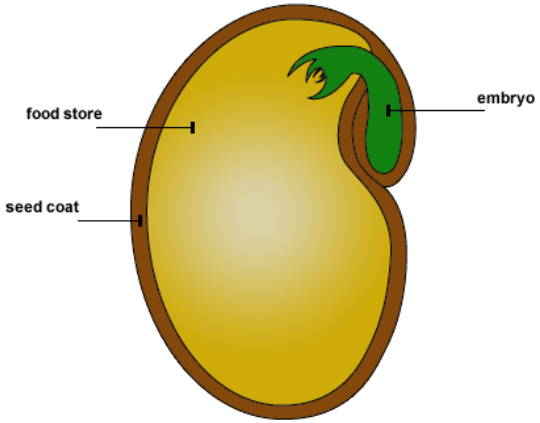
Seeds were the ultimate savings account.

What is a seed?

Inside each seed is all that is needed to create a new plant.

Seeds are, essentially, made up from three parts:

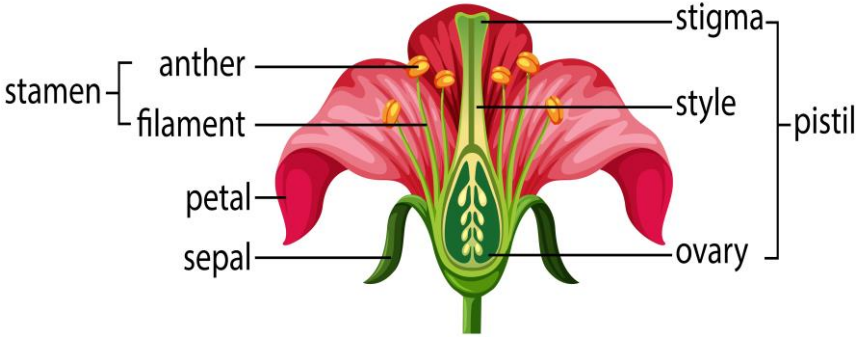
- The embryonic plant – which will grow into the new plant
- A food store, known as the endosperm – this takes up most of the seed and provides sustenance for the early stages of growth. Endosperm can be food for us too. When you eat foods like rice and wheat you are eating this endosperm. In fact, two-thirds of all human calories come from endosperms
- A seed coat – this is a tough, outer coating which protects the embryo from damage



But how are seeds created?

Flowers are important in the sexual reproduction of plants. They produce male sex cells (pollen grains) and female sex cells (contained in the ovules). The female parts of the flower together are called the **carpel**.

Many plants have flowers which attract birds, butterflies, bees and other pollinators.



Sepal – protects the unopened flower
Stamen - the male part of the flower
Anther – produces the pollen
Stigma – female part which collects the pollen
Ovary- contains the ovules which contain the female sex cells

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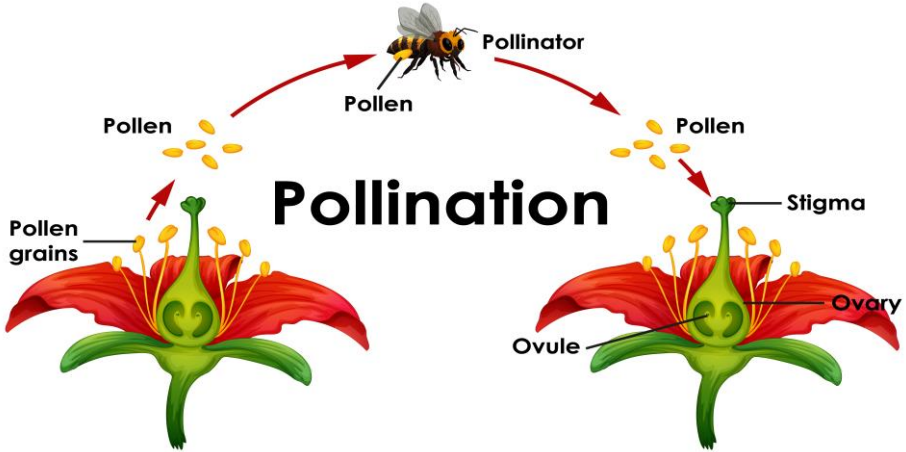
Pollination

Pollination takes places when pollen is moved between flowers.



Pollen can also move between flowers on the wind.
These plants have less visible flowers but the process of pollination is the same.

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Cross Pollination

- Cross pollination is when one plant pollinates a plant of **another variety**.
- The seeds from that pollination will have characteristics of both varieties and is a new variety.
- Sometimes cross pollinating is used intentionally in the garden to create new varieties. For example, a popular hobby is to cross pollinate tomato varieties to attempt to create new, better varieties. In these cases, the varieties are purposefully cross pollinated.
- Other times, cross pollination in plants occurs when outside influences, like the wind or bees, carry pollen from one variety to another. When growing plants for seed we must avoid cross-pollination, more of which later.

Characteristics of insect and wind pollinated plants

It takes a lot of plant energy to produce large flowers, scent and nectar. They do this to attract insects for pollination. If the plant is wind-pollinated it doesn't waste energy on showy flowers.

	Insect	Wind
Petals	Large – often brightly coloured	Small – often dull green or brown
Scent & Nectar	Usually scented with nectar	Usually unscented with no nectar produced
Pollen	A moderate number of pollen grains are produced as insects are efficient pollinators	Lots of pollen is produced as lots gets lost on the wind
Pollen Grains	Sticky or spiky to stick onto insects	Smooth and light to travel on even slight breeze
Anthers	Inside the flower, stiff and firmly attached to brush against insects	Loose and hanging outside the flower to release pollen into the air
Stigma	Inside the flower, sticky so that pollen sticks when an insect brushes past	Outside the flower to catch pollen drifting past

Fertilisation

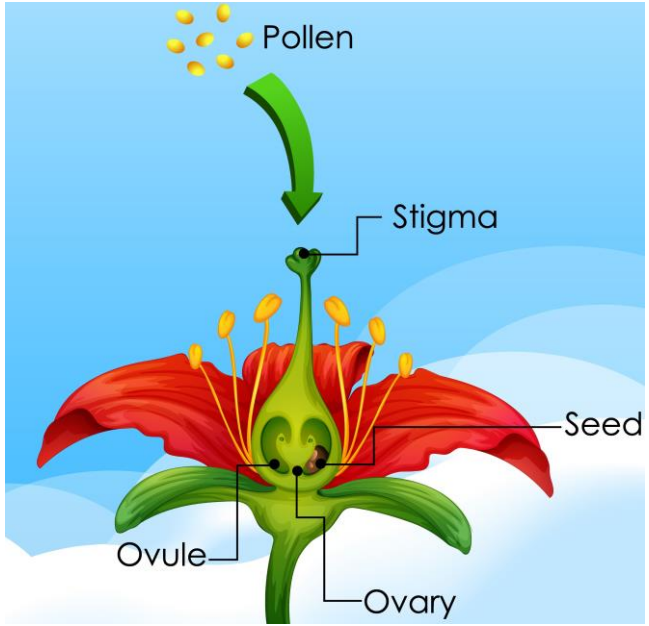
When a pollen grain lands on the stigma of a flower of the correct species, a **pollen tube** begins to grow. It grows down until it reaches an ovule inside the ovary.

The nucleus of the pollen then passes along the pollen tube and fuses (joins) with the nucleus of the ovule.

This process is called **fertilisation**.

After fertilisation the female parts of the flower develop into a fruit:

- the ovules become seeds
- the rest becomes the fruit



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What is HYBRID seed?

- **Hybrid ("F1") seed** is the result of a cross between two different , but heavily inbred parents. Seed saved from these plants will either be sterile or a give a whole mix of shapes and types, usually producing a poor crop.

- Only the seed company knows what the parents are, so only they can produce that variety. If you want to grow it, you have no other source of supply - good for the seed companies but not for gardeners who want plants suited to their local conditions!

- In general, the hybrid seed business has been developed for intensive food growing and not for the small grower. For example, supermarkets, which control the food that farmers grow, have set rigid limits on leek size and straightness, and the only way to achieve this is through hybridising. So all leek seed production is switching to hybrids.

- Hybrid seed production is less labour intensive than real seed production, most pollination being done by chemical sprays, so the wholesale seed growers are happy to let the old varieties fade away.

- Basically, seeds are now bred for large industrial scale food production and the home grower and the natural variation of the plants themselves, are not really considered as important. So when you're offered something that's 'good for freezing', what they mean is that it was bred to ripen all at once for machine harvesting and the small grower will get a glut.

Seed dispersal

In seed-saving we are purposefully collecting seeds for future planting, but in nature seeds can be spread in several different ways.

- Wind

Seeds which are dispersed by the wind tend to be small and have wings or other hair-like or feather-like structures. Plants that produce wind blown seeds, like a dandelion, produce lots of seeds to ensure that some of the seeds are blown to areas where the seeds can germinate.

- Water

Many plants that live in or near water have seeds that can float and are carried downstream.

- Bursting

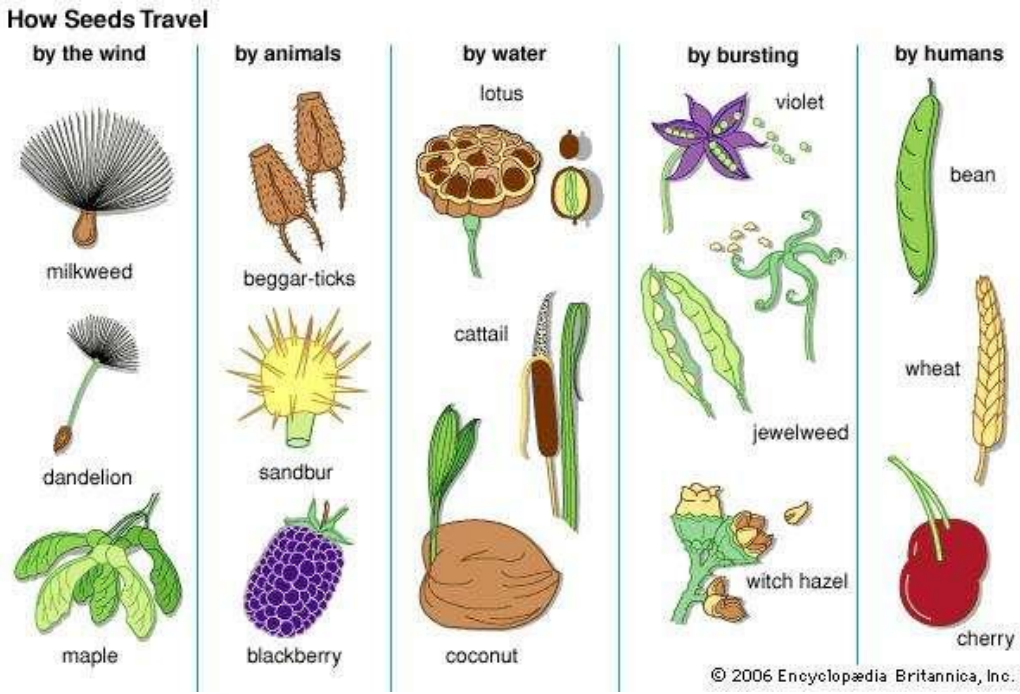
Some plants have seed pods which pop open explosively to eject their seeds far from the parent plan

- Animals

Some plants have barbs that get tangled in animal fur. By the time the seed falls out it has been carried to a new location. Some plants hide their seeds inside fruits which then get eaten by an animal. The seeds pass through the digestive tract and are excreted intact. Some animals bury seeds, like squirrels with acorns, to save for later, but they may not return to the seed, so it can grow into a new plant.

What is a seed?

- Seeds have evolved different shapes and sizes to best suit the means of their dispersal.



Happy Seed Saving!

If you have enjoyed reading about pollination, why not join a SEED-CIRCLE and share your interest, enthusiasm, and of course your seeds, with others in your area.

Contact robin@abundantborders.org.uk

BIBLIOGRAPHY

Realseeds.co.uk

The website has lots of great information on how to grow, save and store seeds.
They also sell seed to get started! We owe them special thanks for allowing us to use a lot of their information in these pages.

Back Garden Seed Saving – Sue Stickland

A fascinating book with lots of detail about saving seeds and it has easy to follow crop-by-crop guidelines.

Abundant Borders

There is lots of great information on our website at abundantborders.org.uk
We are happy to answer your questions through our Facebook Group (https://www.facebook.com/groups/virtualcommunitygarden/)

Videos

A great selection of videos from DIY seeds (https://www.diyseeds.org/en/films/)