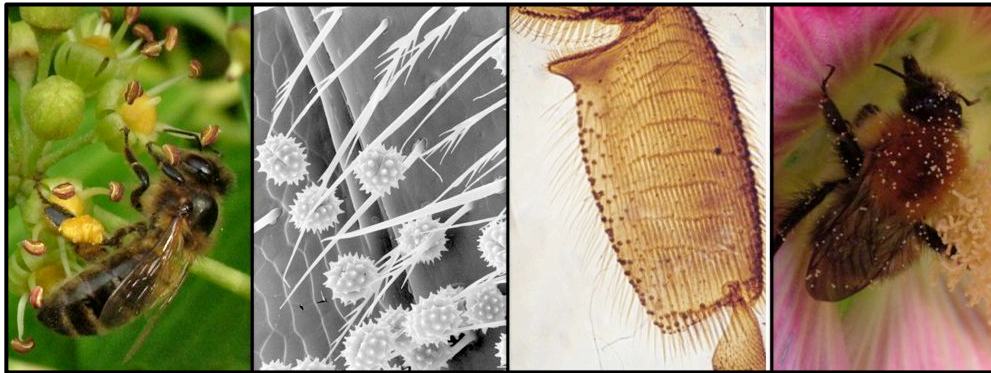


Bees & Flowers

Bees and flowering plants need each other. The bees pollinate the flowers and the flowers feed the bees with nectar and pollen. Most flowers have special organs called nectaries that secrete nectar. A flower is designed so that as a bee collects nectar, its body accidentally brushes against the male and female parts of the flower picking up and depositing pollen. A bee's body is covered in feathery hairs to help collect pollen. But the bees don't eat all the pollen.



- Honey bee worker collecting nectar and pollen from ivy. Ivy blooms in the autumn and is the last native British plant to flower. It is an important late food supply for bees and insects.
- Close up of the feathery hairs on the body of a bee showing trapped pollen grains. Bees are actually a type of hairy wasp that switched from feeding on prey to feeding on pollen.
- Close up of the pollen basket of a honey bee worker. Bumble bees also have pollen baskets. Other British bees carry pollen in a different part of the body to transport to the nest.
- A bumble bee can't help getting covered in pollen as it collects nectar. Bees do not deliberately pollinate flowers. Pollination occurs accidentally as bees collect nectar and pollen.

Most plants have flowers with both male and female parts. In some species the plant can use its own pollen to fertilize its seeds. This is called self pollination. However, many plants, including apples, will not use their own pollen. They need pollen from a different plant. This is called cross pollination. When crops require insect pollination, farmers often buy or rent bee colonies. Bumble bee colonies are commonly used to pollinate greenhouse crops like tomatoes. Honey bee colonies are used to pollinate outdoor crops like apples and almonds.

Although insects are the main way that plants transmit pollen from one plant to another, they are not the only way. Birds, such as hummingbirds, or even bats pollinate some flowers. In Britain, however, we don't have bird or bat pollination. Many plants, including many trees and grasses, use the wind to transmit pollen. Wind pollinated plants make large amounts of light pollen that is easily blown by the wind. A side effect of wind pollination is hay fever.



- Eyebright showing nectar guides. These help a bee or insect to orient its body on landing.
- Lantana inflorescence showing adaptive colour change. The rewarding flowers are yellow, the unrewarding buds and old flowers are red. Insects quickly learn which colour is rewarding.
- A bumble bee taking nectar from a hole cut in the flower tube by a previous bee.
- A bee orchid. Males of certain bees and wasps are fooled into visiting certain orchids.

Bee and insect pollination is very important in nature, and for both wild flowers and many crops. You can get an idea of this by looking at a field, garden or springtime woodland. The predominant colour is green. This is from the chlorophyll that the plants use to harvest the energy in sunlight. The other colours—the blues, yellows, and whites of the flowers—are there to attract and guide insects. Without insect pollination our world would be a lot less colourful.

Did You Know?

- * Nectar is a solution of sugar. The main sugar is sucrose, or table sugar. Nectar is generally in the region of 25-50% sugar.
- * Nectar is the main energy source for bees; pollen the protein and mineral source.
- * Bees are the most important pollinating insects. Next in importance are hover flies.
- * Many flowers have ultra violet markings that bees, but not humans, can see.

How Amazing!

- * Some plants cheat their insect pollinators. For example, some orchids have flowers that look and smell like female bees or wasps. The males are attracted to what they think is a mate, and in so doing transfer pollen from one plant to another.
- * Some bees cheat the plants from which they collect nectar. For example, some bumble bees chew a hole in the flower so that they can access the nectar from the side, without pollinating. Subsequent bees then use the same hole.