

## Learning About Bees & Flowers by Looking

Only an expert could identify all of Britain's 250 bee species, but anyone can identify some common species as they visit flowers and also see the amazing bee-flower relationship in which flowers reward bees with nectar and bees pollinate flowers. You can see how a bee inserts its tongue into a flower's nectaries to sip nectar, how its body gets dusted in pollen, and how it packs the pollen into a mass to take to its nest. You can see how a flower guides the bee with coloured petals and nectar guides, and how the flower is arranged so that the bee cannot avoid picking up and depositing pollen while gathering nectar. Not all "bees" on flowers are bees. Some insects mimic bees for protection.



**Foraging honey bee workers** Only worker honey bees forage. a) Tongue inserted in nectary of borage flower; b) Collecting nectar and pollen from bramble flower, grey pollen load in pollen basket; c) Collecting nectar and pollen from ivy, yellow pollen load; d) Britain has one honey bee species, *Apis mellifera*. Workers range from black to black with tan bands on the abdomen, usually with bands of grey hairs.



**Foraging bumble bees** Workers, queens and males all visit flowers. a) *Bombus terrestris*; b) *Bombus pascuorum*, dusted with pollen and with extended tongue; c) *Bombus lapidarius*; d) *Bombus pratorum*. Britain has 24 bumble bee species, 6 of which are common and widespread including those above. Bumble bees are stockier and larger than honey bees. Like honey bees they use a pollen basket on the hind leg to pack pollen. Large bumble bees in early spring are overwintered queens establishing nests.



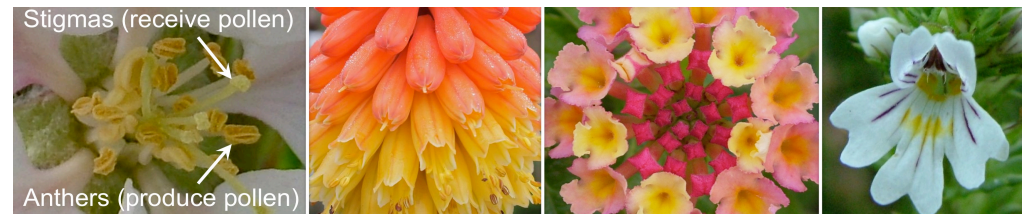
**Other bees** a) Female wool carder bee *Anthidium manicatum* on lamb's ear, mostly seen in July; males are larger than a honey bee and have distinct yellow stripes and defend territories of lamb's ear flowers; b) Ivy bee *Colletes hederæ*; this species recently colonized England from Europe and can be seen on flowering ivy in Sept. & Oct.; c) A sweat bee, *Lasioglossum*, on a wild rose packing pollen at the base of the hind legs; d) Leafcutter bee, *Megachile centuncularis* packing pollen on long hairs under her abdomen.



**Mimics** Hover flies that look like a) a wasp, *Helophilus trivittatus*; b) honey bee, *Eristalis tenax*, the drone fly; c) bumble bee, *Volucella bombylans*. Compared to bees, hover flies have a broad waist, 2 wings versus 4, short antennae, and large eyes that meet at the top of the head. Britain has 250 hover fly species; d) bee fly, *Bombylus*, perch-hovers as it sips nectar with its long tongue—look for it in spring; the larvae are parasites in nests of ground living bees; e) longhorn beetle, *Strangalia maculata*, mimics a wasp.



**Other Species** Many insects and spiders can be seen on flowers. Most feed on nectar and pollen but some are predators. a) Hummingbird hawk moth; b) Holly blue butterfly sipping nectar from borage without pollinating; c) Pollen beetles gorging on pollen in an evening primrose flower, July; d) Soldier beetles feeding and mating on *Achillea*, July; e) Conopid fly on knapweed flower; females lay eggs on foraging bumble bees, the larva developing inside the bee; f) Crab spider on marjoram waiting to ambush an insect.



**Flower Power** a) Centre of apple flower showing the anthers that produce pollen and the stigmas to receive pollen to fertilize the seeds; many plants, including apple, do not accept their own pollen and need an insect to transport pollen from a different plant; Some flowers, including red hot poker b) and lantana c), change colour when they produce nectar; insects quickly learn which colour means a reward; d) Nectar guides on petals, such as on this eyebright, are learned by bees and make it easier to land correctly.

### Did You Know?

- \* Over 30 years, Jennifer Owen found 59 bee species in her 741m<sup>2</sup> Leicester garden.
- \* 220 bee species have been recorded in Surrey, more than any other British county.
- \* Most bees are solitary. In Britain, only honey bees, bumble bees, & some sweat bees live in colonies with queen & workers. Some are cuckoos, laying eggs in nests of other species.