



How do bees make honey?

KS2 Ages 7-11 ⌚ 3 min read

Honey begins as flower nectar — the sweet liquid plants produce in their flowers to attract pollinators. A forager bee visits up to 1,500 flowers to collect enough nectar to fill its honey stomach (a second stomach, separate from its digestive one). A full honey stomach holds about 40mg of nectar — about 80% of the bee's own body weight.

Making honey is a bit like a relay race combined with a sophisticated drying process. The first bee collects the nectar (the starting gun). Back at the hive, it passes the nectar to a "processor" bee via their mouths — the processor chews and enzymes start breaking down the sugars. Then it passes to another bee, and another. All this chewing introduces enzymes and starts reducing the water content. Finally, the nectar is deposited in a cell in the honeycomb, where house bees fan it with their wings until enough water evaporates. What's left — thick, stable, enzyme-rich, low-water — is honey.

What do the enzymes do?

Bees add enzymes from their own bodies — particularly **invertase**, which breaks sucrose (the main sugar in nectar) into glucose and fructose. This is important because glucose and fructose don't crystallise as easily and have better preservative properties. Another enzyme produces **gluconic acid** and hydrogen peroxide, making honey mildly acidic and naturally antimicrobial. This is why honey kept in the right conditions doesn't go off — archaeologists have found 3,000-year-old honey in Egyptian tombs that was still edible.

Why does honey taste different from different regions?

Honey reflects whatever flowers the bees were visiting. Manuka honey (from New Zealand's mānuka bush) has strong antimicrobial properties and a distinctive flavour. Scottish heather honey is thick and has a floral, complex taste. Orange blossom honey tastes almost perfumed. The nectar source determines the flavour, colour, and chemical composition of the final honey.

How much honey does a hive produce?

A healthy hive of around 60,000 bees might produce 20–30kg of honey in a good year. A bee will produce about 1/12th of a teaspoon of honey in its entire lifetime. To make one kilogram of honey, bees collectively fly roughly 90,000km and visit about 4 million flowers. The jar of honey in your kitchen represents an extraordinary amount of collective work.