

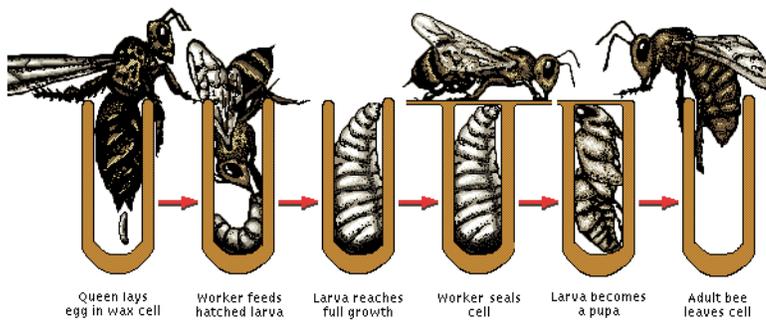
The Life Cycle of a Bee

Khalil Hamdan, Apeldoorn, The Netherlands

The life stages of a honeybee are egg, larva, pupa and adult. Development from egg to adult takes 21 days. The length of these stages is set out in the table below.

Worker Bee Life Cycle Timetable	
Hatching of egg:	3 days
Larva stage (Feeding):	5 days
Pupa stage:	13 days
Total:	21 days

Development stages of the bee



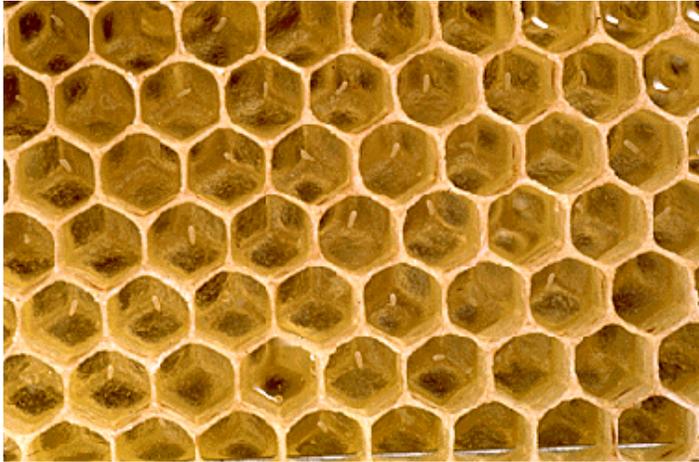
Honey bee life cycle from egg to adult. Photo source: www.ebka.org



Queen bee laying an egg in a cell in brood nest. Photo by P-O- Gustafssen

Egg

The queen bee lays an egg in a cell of the honeycomb. The egg of the honeybee is cylindrical, about 1.6 mm long and 0.4 mm in diameter. When first laid, it stands vertically, on the second day it bends over, on the third day it lays on its side. On the fourth day it hatches into a white legless larva.



Eggs in cells.

Photo source: MAAREC- Mid-Atlantic Apiculture Research and Extension Consortium

Larva

The larva lies coiled on the bottom of the cell. It comprises a head, thoracic and abdominal segments. The larva eats, grows bigger and sheds its skin 5 times between hatching and emerging.

During the first three days the larva is fed by the nurse bees on a diet of royal jelly, a protein-rich whitish milky fluid, produced from the head glands of worker bees. After the third day, the larva is fed beebread, a mixture of honey and pollen prepared by worker bees. Nine days after hatching, the curled-up larva is fully-grown, and can't feed any more. At this stage the cell is sealed over with a porous covering of wax and pollen, and starts to change into a pupa.



Bee larvae in cells. On the lower left are two about to pupate.

Photo source: en.wikipedia.org/wiki/Bees

Pupa

This is the non-feeding stage, during which the larva is transformed into an adult. On the 10th day, the larva spins a cocoon (protective covering) for itself and becomes a pupa. During pupation, gradually the adult body structures form. First the head and the thorax of the pupa develop and change colour followed by the abdomen, and finally the wings develop before emergence. Once the pupa has transformed into an adult, it is ready to emerge.



Pupal stage.

Photo source: www.bienkorf.be/volk.htm

Adult

On the twenty-first day from the laying of the egg, the adult bee bites its way out the capping of its cell and emerges, and the pupal envelope remains in the cell. After she is born, she will clean her cell and other cells around. A newly emerged bee is light in colour (greyish coloured).



Young bee hatching out.

Photo by P-O- Gustafssen

The newly hatched bee remains in the hive apart from orientation flights for about 21 days performing various duties, as the table illustrates. When it is 22 days old, the bee becomes a forager (field bee) and will leave the hive to visit flowers.

The life span of an adult worker bee varies with the time of the year. When the colony is active in spring and summer, worker bee may live as long as 5-6 weeks. During the inactive period in winter a worker bee lives five months or more.

Life span of a worker bee in days after emergence

Period of service as house bee

- 1 – 2 Cleans cells and warm the brood nest
- 3 – 5 Feeds older larvae with honey and pollen
- 6 – 11 Feeds young larvae with royal jelly
- 12 – 17 Produces wax and constructs comb, ripens honey
- 18 – 21 Guide the hive entrance and ventilate the hive

Period of service as field bee

- 22 + Forage for nectar, pollen, propolis and water