

The life cycle of honey bees (*Apis mellifera*) consists of four main stages: egg, larva, pupa, and adult. Here's a detailed timeline for each caste (queen, worker, and drone) in the hive:

Queen Bee:

1. **Egg Stage:** 3 days
2. **Larva Stage:** 5.5 days (larva is fed royal jelly throughout)
3. **Pupa Stage:** 7.5 days (cell is capped on the 8th day)
4. **Total Development Time:** 16 days from egg to emergence as an adult

Worker Bee:

1. **Egg Stage:** 3 days
2. **Larva Stage:** 6 days (larva is fed royal jelly for the first 3 days, then a mix of pollen and nectar)
3. **Pupa Stage:** 12 days (cell is capped on the 9th day)
4. **Total Development Time:** 21 days from egg to emergence as an adult

Drone Bee:

1. **Egg Stage:** 3 days
2. **Larva Stage:** 6.5 days (larva is fed royal jelly for the first 3 days, then a mix of pollen and nectar)
3. **Pupa Stage:** 14.5 days (cell is capped on the 10th day)
4. **Total Development Time:** 24 days from egg to emergence as an adult

Post-Emergence Life:

- **Queen Bee:**
 - Takes her mating flights a few days after emerging, typically within the first week.
 - Can live for several years, but often 1-2 years in managed hives.
- **Worker Bee:**
 - Roles change with age: cleaning (0-3 days), nursing (3-10 days), hive maintenance (10-20 days), foraging (after 20 days).
 - Lifespan varies: about 5-7 weeks in summer, up to 5-6 months in winter.
- **Drone Bee:**
 - Primary role is to mate with a queen.
 - Lifespan is typically a few weeks to a few months, depending on the season and mating opportunities.

This timeline illustrates the highly structured and efficient lifecycle of honey bees, which supports the complex social structure and division of labor within the hive.