

LIFE CYCLES

POLLINATION



The life cycles of pollinators and many flowering plants would not be complete without the other. Pollination is the link between these life cycles. Pollination is the transfer of pollen from one flower's male reproductive parts (anther) to another's female reproductive parts (stigma) to allow seed production. Pollinators collect pollen and nectar produced by flowering plants to survive and raise their young. Plants don't need to move to find food, but they do need animal pollinators such as insects, birds, bats and mammals to distribute their pollen for them. Some plants are pollinated by wind or water. Our human life cycle is also connected to the relationship between pollinators and plants. Highly nutritious crops such as blueberries, cucumbers, apples and many others need pollinators in order to produce fruit. Unlike managed honey bees that live in hive boxes, native pollinators need more natural types of habitat to build their nests and lay their eggs. You can help keep these cycles going by minimizing the use of chemicals in your garden and by creating and protecting pollinator habitat in your area.

INSECT

Insects transform from eggs to adults by either complete or incomplete metamorphosis. The major groups of pollinating insects such as bees, butterflies, moths, flies and beetles (pictured to the right) develop by complete metamorphosis. These insects must undergo four stages to become pollinators in their adulthood: from egg, to larva, to pupa, and finally the adult stage. Incomplete metamorphosis involves the same stages, except for the pupa stage. For example, grasshopper and dragonfly larvae are called **nymphs**, which look like smaller versions of the adults. The larvae remain as nymphs and continue molt until they reach the adult stage by shedding their outer layer multiple times. In complete metamorphosis, the last **molt** occurs after the pupa stage.



PLANT

All flowering plants start out as seeds, and require pollination to complete the cycle by producing seeds of their own (carrot pictured to the left). Seeds can be spread in any number of ways – by wind, water or animals. Once a seed germinates, or sprouts, it begins with two leaves, known as **cotyledons**. In order to grow into a mature and healthy plant, it needs light, water and nutrients. Plants are powered by the sun, taking in carbon dioxide from the air and water in the soil to produce sugars that become the plant's food. Soil nutrients such as nitrogen, potassium and phosphorus promote new growth, flowering and seed production. The plant's life cycle would end after flowering if it were not for pollination, which triggers seed production.



