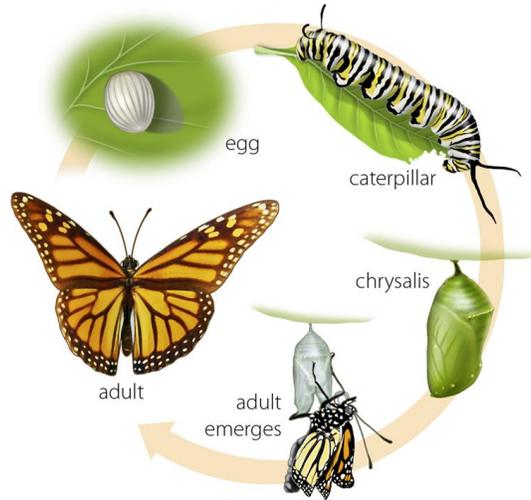


Metamorphosis



The Metamorphosis of the Monarch Butterflies at Rising Star Montessori School has been such a wonderful experience for everyone. By simply purchasing a milk weed plant, we have seen butterflies eat the milk weed plant, lay their eggs, grow into a caterpillar which then forms a chrysalis and when ready emerges as a beautiful Monarch butterfly and the cycle starts all over again. It has been a great learning opportunity not only for the students but for the staff also when they see the cycles first hand.

The Monarch Butterfly Life Cycle

There are four stages in the life cycle of a butterfly. The stages include, egg, larva, pupa, and adult. The entire process is called complete metamorphosis and is one of two ways insects develop from an egg to an adult. The other type of insect development is called incomplete metamorphosis.

Egg



Illustration of a monarch butterfly egg. Notice this egg surface is not like a chicken or bird egg.

A monarch begins life as a single, greenish egg attached to the underside of a milkweed leaf. The worm-like larva grows inside the egg. When it is ready, the larva chews a small hole in the egg shell and wriggles its way into the world. After a few minutes, the newly hatched larva has its first meal -- the remains of its egg. Female monarchs lay one to three eggs on the underside of milkweed leaves. This process is repeated until the female has laid hundreds of eggs.

Larva



After eating the shell, the larva begins to eat milkweed leaves. Milkweed is the only plant that monarch larvae will eat. The larva eats and grows, grows and eats. The larva grows so much that it outgrows its skin, much like outgrowing old clothes.

In order for the larva to keep growing, molting must occur. The old skin splits, revealing the new skin underneath. The larva wriggles free of the too-tight skin. After freeing itself, the molted larva often eats its old skin before moving on to more milkweed leaves.



After shedding their skins, monarch larvae continue to grow and will have to molt four more times. The last molt is much different than the others. The larva crawls away from its milkweed plant, searching for a suitable place. Some larvae will travel longer distances than others. When the larva has found a suitable place, it weaves a silk mat with a “button” in the center. Once the mat and button are ready, the larva grabs the silk with its legs and hangs upside down. The front part of its body will curve to make a “J-shape.”



Once in the “J”, the larva molts for the last time. The skin splits behind the head, and the larva wiggles while it hangs upside down to remove the old skin. This final molt is the trickiest, because the larva must shed its old skin and still hang onto the silk button. Once the larva embeds a hook-like structure at its rear end into the button, the rest of the skin can slip off.

Pupa



When the skin falls off, the larva becomes a pupa. The monarch has no eyes and no antennae. It has no legs, and it cannot move. All of the major changes in body shape, size, and arrangement happen. In monarchs, this stage can last as long as a week. At the end of this stage, an adult butterfly will emerge from the chrysalis.

Adult



A newly emerged butterfly will wait two or more hours before it can fly. New wings are small and shriveled, so the butterfly pumps body fluid through its wing veins in order to make them get bigger. Then, the monarch has to wait for air to replace some of the fluid. Until this happens, the monarch cannot fly, and its wings are easily damaged.



After the wings have hardened, the butterfly flies away to find its first meal. From this point on, the monarch drinks all of its food. The butterfly will visit several different kinds of flowers to get its nectar dinner.