



Not many can do what I do!



Last summer I picked a bouquet of swamp milkweed flowers to decorate my table. The next day, I noticed something

MAGICAL Monarchs

A monarch butterfly only lays her eggs on milkweed, the plant that monarch caterpillars eat. She glues each egg to the underside of a leaf or on a flower. Four days after an egg is laid, a caterpillar eats its way out of the eggshell and starts to eat milkweed. My caterpillars soon moved from flowers to leaves.



text and photos by Buffy Silverman



A caterpillar's job is to eat and grow. Every day I picked new milkweed stems with fresh leaves. The caterpillars chomped one leaf after another. It seemed like they pooped almost as much as they ate!

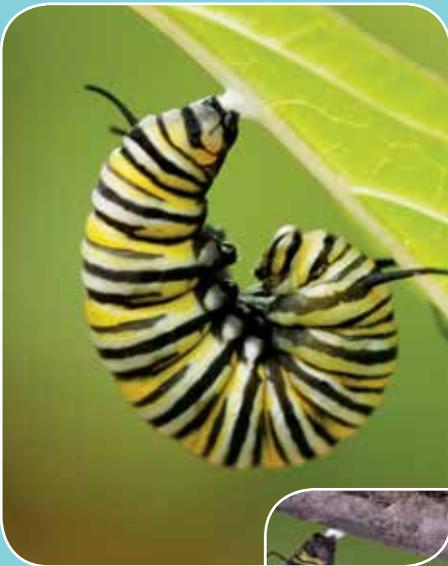


Like all insects, monarch caterpillars have a tough shell, called an exoskeleton, instead of a skeleton inside. This hard shell does not grow with the caterpillar. When a caterpillar gets too large, the exoskeleton splits. The caterpillar crawls out and sometimes eats the old skin. Then its soft outer skin hardens into a new exoskeleton.

After one week, my well-fed caterpillars were about seven times longer than the tiny creatures I had first spotted. One of the caterpillars stopped eating leaves and began wandering. Several times that day I scooped it off of the dining room table and placed it back on a leaf.

creeping through the pink flowers. A tiny monarch caterpillar nibbled there! Bits of pink petals dropped to the table. I looked closely and found a

second caterpillar hiding in the sea of pink. I decided to raise the caterpillars and watch them turn into butterflies.



The next day, my wandering caterpillar had settled down. After growing and shedding its skin four times, it was ready to encase itself in a chrysalis. It spun a silk mat and attached itself to a leaf, hanging upside down. It looked like a letter “J.” Soon the other caterpillar hung upside down in a J-shape too.

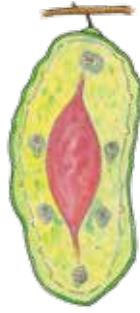


After the first caterpillar shed its final skin, its new skin hardened into a beautiful green shell! The chrysalis looked like a jewel, with a line of golden spots. These spots are spiracles, openings that let air in and out of the chrysalis.

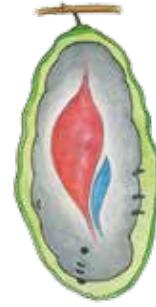


Soon two chrysalises hung from milkweed leaves. Although they were motionless, big changes were going on inside.

What's going on inside the chrysalis?
Even inside the caterpillar, adult butterfly parts, like wings and antennae, have started to grow, hidden underneath the skin.



All the parts of an adult butterfly grow from tiny clumps of cells inside the caterpillar. Caterpillar parts break down and rearrange into new butterfly parts.



The leaf-eating caterpillar's big stomach (shown in red) shrinks—butterflies sip nectar, so they don't need big guts.



It takes 10 to 14 days for an adult butterfly to grow inside the chrysalis. Five days after my chrysalises formed, we left for a one-week trip. I put the chrysalises outside, hidden by a thick plant where they would be safe from birds. As soon as we returned, I checked on the chrysalises.

The next day, the chrysalis had turned clear, and I could see that the butterfly was ready to emerge. The case that surrounded it began to crack.



One case was already empty—it had transformed and flown away. But the other held a butterfly! Orange and black wings showed through its pale green skin.



The butterfly pushed against the bottom. Its head escaped and its front legs grasped onto the sides. Then its abdomen slipped down, swelled up like a balloon.



New butterfly legs, eyes, wings, and muscles continue to grow from tissues that were part of the caterpillar. The air-sack (blue) gets bigger.



Muscles that were used for crawling are replaced by flight muscles. Nerves and breathing tubes fit themselves to the new shape.



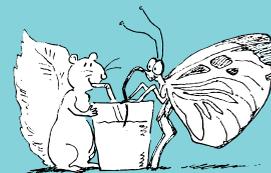
Finally, the butterfly is ready to emerge! It's getting pretty cramped inside the chrysalis.

Finally the butterfly was free.

Its crumpled wings began to unfold as the butterfly pumped fluid from its abdomen into them. It crept up the chrysalis case and hung on while its wings expanded. The wings were soft and floppy. They hung down, not yet ready for flight.



The butterfly's long mouth, called a proboscis, is made of two parts. When the butterfly first emerged, these parts were still separate strands. It coiled and uncoiled them until they zipped together, forming a single tube. Its proboscis would soon be ready to suck nectar from flowers.



Three hours after the monarch emerged, its wings began to tremble and flap. It fluttered and made a short flight. It rested for a few minutes, then flapped again and disappeared. I hoped it would find plenty of nectar to drink and grow strong enough for the long journey that monarch butterflies make to their wintering grounds in Mexico. And maybe its grandchildren would return to my milkweed patch next year! 🦋