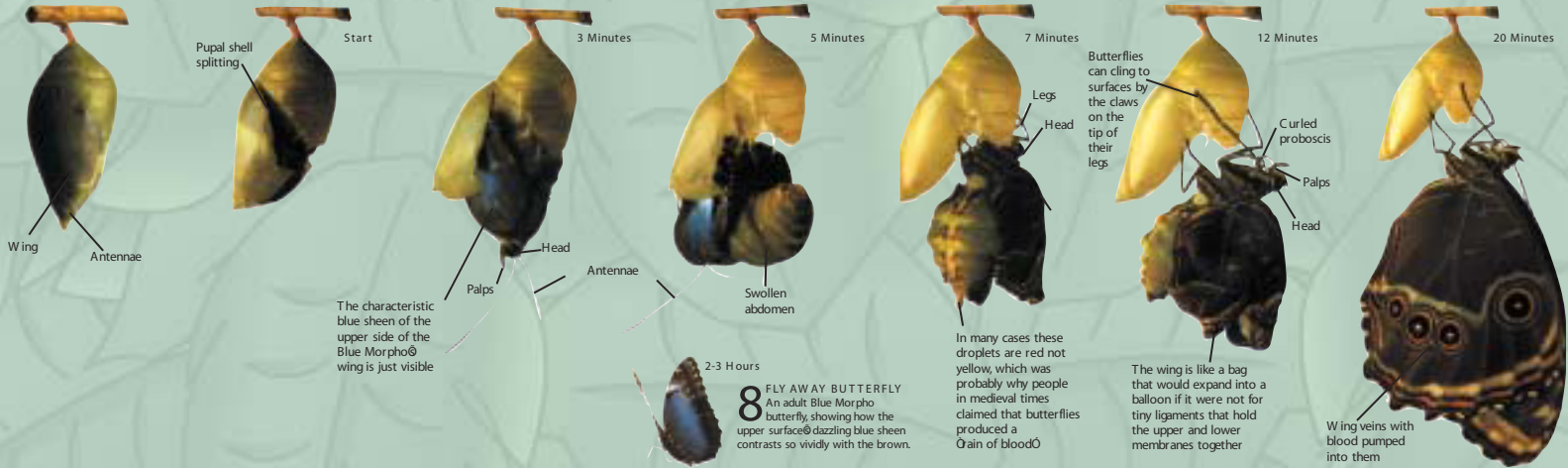




# An Emerging Butterfly

As it changes from an egg to an adult a butterfly renews itself on several different occasions. When the growing stages (metamorphosis) are over, all that remains is for the chrysalis to crack open and the adult butterfly to emerge. Within the unmoving chrysalis such tremendous changes have taken place that when this happens, a new creature appears to be born. The emerging butterfly shown here is a Blue Morpho, *Morpho peleides*, from Central and South America.



The characteristic blue sheen of the upper side of the Blue Morpho wing is just visible

In many cases these droplets are red not yellow, which was probably why people in medieval times claimed that butterflies produced a Grain of blood

The wing is like a bag that would expand into a balloon if it were not for tiny ligaments that hold the upper and lower membranes together

Wing veins with blood pumped into them

**1 READY TO HATCH**  
Hours before emerging the butterfly is still developing. By now, some of the Blue Morpho structures can be seen through the skin of the chrysalis. The dark area is the butterfly's wing and traces of the antennae and legs are visible toward the bottom of the chrysalis. It takes about eighty-five days after the egg is laid for a Blue Morpho adult to emerge.

**2 FIRST STAGE**  
Once the insect has completed its metamorphosis and is ready to emerge, it begins to pump body fluids into its head and thorax. This helps to split the chrysalis along certain weak points, so that the adult insect can begin to force its way out with its legs.

**3 HEAD AND THORAX EMERGE**  
Once the skin of the chrysalis is broken, expansion can proceed more rapidly. Inflation is due not only to the body fluids in the head and thorax, but also to the air the insect takes in. Although by now the antennae, head, and palps (sensory organs for tasting food) are visible, the wings are still too soft and crumpled for proper identification.

**4 COMPLETELY FREE**  
Having pushed its way out of the chrysalis, the butterfly's body now hangs free. At this stage, the butterfly's exoskeleton (the outside skeleton of all insects) is soft and still capable of more expansion. If, for any reason, the butterfly is damaged at this stage, or confined (perhaps by a thoughtless collector), complete expansion is not possible; all the parts harden and a crippled butterfly results.

**5 STEADILY GROWING WINGS**  
With the butterfly now out of its pupal skin, the most important actions are the ejection of the stored wastes from the abdomen and the expansion of the wings. As it forces blood from its body into its wings, a butterfly will usually hang head-up so that the pull of gravity helps to stretch the crumpled wings. Once the butterfly has pushed its way clear of the chrysalis with its legs, it gets rid of waste liquid collected during the pupal stage.

**6 BECOMING ITS FULL SIZE**  
By now the veins in the wings have almost filled with blood, and it is possible to see the wings visibly expanding. The expansion must take place fairly rapidly, or the wings will dry before they have reached their full size. If this happens the butterfly may be too crippled to fly. The butterfly's wing patterns are now clearly visible, as are its head, palps, and proboscis.

**7 WAITING TO FLY**  
After a period of about ten to twenty minutes, the wings reach their full size. The butterfly now waits for its wings to harden properly before it attempts to fly. Then, after an hour or so, and some preliminary opening and closing of its wings, the butterfly takes to the air. It usually flies straight to a plant or other food source for its first meal. The butterfly waits with its wings held apart while they dry and harden. If it is evening it will rest until the following day before it flies.