

Biology Stations Key

Egg Stage

1. One. Young, tender leaves
2. Upright. Pinhead sized, football-shaped.
3. White to off-white. Becomes grayer, black tip visible day before caterpillar emerges.
4. Usually underside. Typically near the center rib.
5. Vertical ridges. After eating its *chorion* (eggshell), the caterpillar eats the tiny hairs on the leaf surface.
6. $2778 \times 8 = 22,224$ pounds

Young caterpillars

1. Answer varies.
2. First.
3. Yes. Very small.
4. Caterpillars may spin a thread and hang from it. Caterpillars may roll in a ball. Cut a small piece of leaf with the caterpillar on it and move it to another location.
5. Frass (caterpillar droppings) and small holes eaten in leaves.

Older caterpillars

1. Yellow, black, and white stripes.
2. Answer varies. No, the front tentacles are longer. Scientists aren't entirely sure, but it is thought that they are used for sense of touch.
3. True legs have pointed tips. Eight pair of legs total.
4. Yes, although less conspicuous in 3rd instar.
5. Caterpillars may roll up in a ball and "play possum." Answer varies but usually a less than a minute.
6. Older caterpillars usually eat from the margin of the leaf. Answer varies.
8. Caterpillar is making sure that there is enough room for the butterfly to emerge.

Molting

1. Answer varies.
2. Taste buds. Caterpillar uses thread for holding onto leaf, for stabilizing body during a molt and as a base for hanging pupa.
3. Mandible (jaw), maxillary palp, spinneret, antenna, ocelli (eyes) labeling clockwise starting from right side of the diagram.

Pupa (chrysalis) stage

1. Answer varies.
2. Answer varies.
3. Answer varies. Answer varies. Most pupae (chrysalides) try to shake off the final molt of exoskeleton so that it does not get caught in its folds and cause deformations.
4. Answer varies. The purpose is uncertain although the gold dots probably play a role in the pigmentation process.

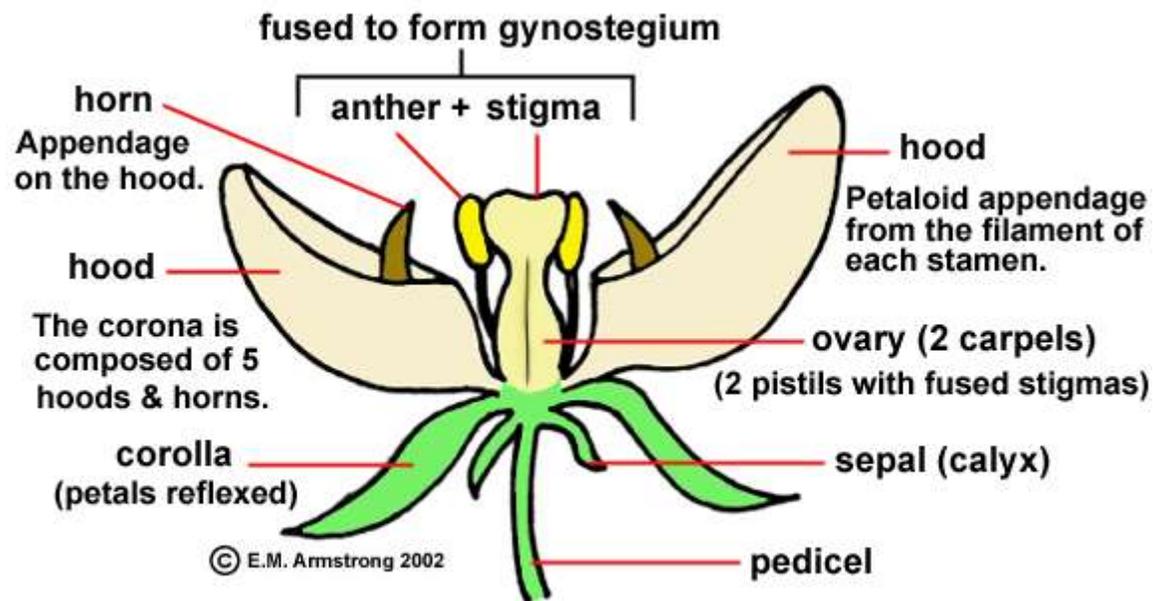
Adult stage

1. Between 10:00 a.m. and 12:00 p.m. as it is warm enough to dry and warm wings for flight later in the day. Overcast skies, rain and cooler temperatures can delay emergence.
2. Thorax, and abdomen.
3. Four.
4. A spot (androconial sac) on the vein of each hind wing of the male, claspers on the end of the male abdomen, female wing veins are thicker.

5. Four legs are easily seen. Insects are supposed to have six legs but the Monarch's front pair of legs is smaller than its others and held close to the thorax.
6. More surface area to collect solar radiation to warm the thoracic muscles for flight. The color black absorbs heat than lighter colors.
7. Compound eyes have thousands of *ommatidia*, each gathering light and processing visual information through its own lens and nerve system. The compound eyes of adult butterflies give them excellent perception of color and motion in a wide range.
8. Antennae are long and thin with knobs at the end.
9. Two.

Milkweed

1. Answer varies with species of milkweed.
2. Answer varies with species of milkweed.
3. Answer varies with species of milkweed.
4. Dogbane
5. Answer varies with species of milkweed.
6. Corolla with five reflexed petals (facing downward), corona with five "petals" or hoods (a petaloid appendage from the filament of each stamen) (facing upward); pollen sacs.



Milkweed Flower (longitudinal section)