

# Rearing Monarch Butterflies

(Instructions for Indoors)



Monarch butterflies go through 4 stages of life: egg, larva or caterpillar, pupa or chrysalis, and adult. This transformation is called complete metamorphosis.

All cages and containers should be placed in indirect light, do not place them in full sun or near an air conditioning vent or unit inside. A dining room table, kitchen counter, bookshelf are fine for rearing.

**Egg:** Collect the egg on a piece of the milkweed leaf. Leaves should be placed into a closed (with a lid) container to hatch. Put a damp (not wet) paper towel into the container. Next, place the lid with the eggs on top of the paper towel. The leaves will keep longer, if you place them on a plastic lid inside of the closed container. Close the lid to keep the eggs moist. The caterpillar will emerge in 3 – 5 days and will be extremely small. Open your container once a day to check for newly hatched caterpillars. The first thing the caterpillar will do is eat the egg. They are so small during the first 1-3 days that they can drown in a drop of water. If the leaf they are on is getting dry, put a new one in beside of the dry one and the caterpillar will find it. If it has a difficult time transferring to the new leaf, cut the small section of the leaf that it is on and place that on top of the new leaf.

**(Caution:** Remove newly hatched caterpillars to another container such as a butterfly

rearing cage where they can continue to grow. Caterpillars go through 5 stages or instars each lasting 2-3 days. First instar caterpillars can eat other eggs, if left in the container with the eggs.) First instar caterpillars are very small and will hide in the folds of leaves. Check old leaves and folds of leaves before disposing of them.

**Larva:** During this time your caterpillar will stop eating and become very still. Don't be alarmed; it is in the process of **molting**. This is important because they need to shed their skin in order to grow. When this is happening, DO NOT disturb your caterpillar! It will resume eating when molting is complete in 24 or more hours. It may look sick during this time, but it is not. A good rule is that if it is detached, don't unlatch. They can molt on the food, sides or top of the containers. Just leave them there and clean around them.

A Monarch caterpillar will need fresh milkweed, from the time it hatches from its egg until it becomes a chrysalis in 10 to 14 days. Caterpillars will eat more in the 4<sup>th</sup>-5<sup>th</sup> instar than at any other stage (pick some extra milkweed, wash it, and place it into a plastic bag. Place the bag of milkweed into your refrigerator vegetable bin for later use (these leaves will last several days in the vegetable bin). Make sure to check leaves for eggs and small caterpillars before placing them into the refrigerator. Leaves may be picked, washed, and put into rearing containers or cut stalks of milkweed with leaves and place those into containers (soda bottles, deli containers with holes in the top of the lid and water in the bottom). If using containers with water make sure there are no gaps in the holes in the top of the containers because the caterpillars may fall in and drown. Keep the plant stem in water. It may

last longer, if you cut the end of the stem just before putting it in water.

Your caterpillars will leave droppings while they are eating. These droppings are called **frass** and are the waste product of the caterpillar. A paper towel can be placed in the bottom of the rearing cage to catch frass. **(NOTE:** It is important to change the paper towel on the bottom of your rearing cage every day or every couple of days depending on the amount of frass present, to prevent the spread of parasites that can occur in frass.)

**Pupa:** On about the 10<sup>th</sup> day or so (or when the caterpillar is approximately the size of your pinky finger and approximately 10-14 days) the caterpillar will find a firm place and begin to web. Usually they will climb to the top of the cage and web. Occasionally they will web on the bottom of a leaf. **(NOTE:** It is important not to disturb the caterpillar while it is webbing. Once it has climbed to the top of the container, leave it alone.) A rearing cage should be tall enough for the butterfly to hang down when emerging.

A short time after the small cone shaped web is completed; the caterpillar will back up onto it and attach at its rear (prolegs). In a few hours the caterpillar will drop all its legs 2 at a time until it is hanging in a 'J' position. The caterpillar will hang in this position for 12 hours or more (most often overnight). In the morning you will notice the caterpillar moving slightly. It is getting ready to pupate (become a chrysalis). Watch it very closely when the tentacles are extremely limp, pupation (or becoming a chrysalis) will happen very soon. The process of pupating takes only 1-2 minutes and it is easy to miss.

Once the monarch has pupated it should not be touched for 24 hours. After 24 hours it is

hard and gold will start to appear on it. Remove any leaves left in the container and put a fresh, dry paper towel on the bottom of the cage or container.

**Adult:** In 10 to 14 days the chrysalis will become very dark and the color of the wings will be clearly visible. On that day the butterfly will emerge. This usually happens early morning, but again it only takes a minute or 2 and it is easy to miss it. The butterfly will emerge headfirst and immediately climb to the top of its chrysalis shell and hang for 2 to 3 hours before dropping to the bottom of the container. When the butterfly emerges the body will be extremely fat and the wings small. The butterfly will pump the liquid from its body into the wings and it will gain a normal appearance. (**NOTE:** During this process a small drop of liquid that looks like blood will drop from the butterfly. This liquid is called **meconium** and it is a part of the normal process.) Let your butterfly be for a few hours before handling it. It is very important that the wings hang straight down so they dry without any curled edges. (**NOTE:** Always pick up the butterfly when the wings are closed. Never pick it up by one wing. If it is **NOT** cold or raining out (butterflies cannot fly if the temperature is below 50 degrees) remove the butterfly from its container, place it on the back of your hand and release it. Butterflies do not have to eat the first day, so if the weather is not favorable, wait to release it until the second day. They do, however, need to be feed on the second day. How to Hand Feed a Butterfly recipe in description. <https://www.youtube.com/watch?v=kua2aHTG0jc>

#### **Possible Problems and Fixes:**

The caterpillar has chrysalized on the bottom of a leaf and the leaf is drying out.

- **Fix:** Remove the leaf from the plant and use a stick pin and pin the leaf to the inside of the rearing cage. Do not stick the chrysalis. Make sure to weave the pin down and then in and out with the sharp point on the outside of the cage.
- The chrysalis has fallen from the top of the cage.
- **Fix:** Gently tie a piece of thread around the black stem at the top (the cremaster) of the chrysalis and then pin it to the top of the cage.
- The milkweed is drying or is almost gone.
- **Fix:** Place a new stalk of milkweed into the cup right next to the old milkweed, or if your milkweed is lying at the bottom of a cage, place the new milkweed on top of the old leaves, the caterpillar will find it. Remember to remove old milkweed later and check it for small caterpillars before you throw it away. They can hide in folds.
- Do not place your Monarch rearing container in direct sunlight. Always use indirect light for rearing Monarchs.
- Separate larger caterpillars from smaller ones. The larger ones can eat the smaller ones.
- Wash your hands thoroughly before taking care of your caterpillars and afterwards. Milkweed sap can lacerate your eyes, flush with sterile eye solution and seek medical attention.
- Your caterpillar has leaked green fluid, pupated early, or is black and limp. These are possible signs of pesticides on the plants, parasitized by a fly, or sickness, respectively. If possible, isolate your caterpillar from any other caterpillars. If you need further information, join “Raising Butterflies and Moths for Conservation (+ All Pollinators).” See the website below. We will support your rearing efforts.

#### **For more information:**

Facebook Rearing Album with Photos and Descriptions of the whole process:  
<https://www.facebook.com/media/set/?set=oa.1103404693007515&type=3>

Hobbyists are welcome to join:  
**Raising Butterflies and Moths for Conservation (+ All Pollinators)**  
Learn more about creating habitat and rearing butterflies and moths—especially, Monarch butterflies.  
<https://www.facebook.com/groups/butterflyandmothconservation/>

Monarch Watch Rearing:  
<http://www.monarchwatch.org/rear/index.htm>

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