

A young girl with long dark hair and a woman with long blonde hair are both smiling and looking down at monarch butterflies perched on their fingers. They are holding a green and white patterned bag. The background is a soft-focus outdoor scene with greenery and sunlight.

# Insect Lore

Growing  
Butterflies  
Since 1969

## Welcome to the Miracle of Metamorphosis!

 **WARNING:**  
CHOKING HAZARD—Small parts  
Not for Children under 3 years

## Caterpillars to Butterflies Instruction Guide

## 1. Insect Lore Butterfly Activities and Crafts Online

Visit us at [InsectLore.com](http://InsectLore.com) to find helpful instructional videos, our Caterpillar Quick Guide, and answers to common questions. See our Pinterest Boards at [pinterest.com/insectlore](http://pinterest.com/insectlore) to find butterfly games, lessons, crafts, FAQs, and more!



**These instructions are for all Insect Lore Butterfly Kits.**

***If you have purchased a butterfly kit with a Voucher,  
Steps 2, 3 and 4 are for you.***

***If you have purchased a butterfly kit with live caterpillars,  
please skip ahead to Step 5.***

## 2. Plan Your Butterfly Metamorphosis Timeline

Before redeeming the voucher for your Cup of Caterpillars, be sure you are ready to take care of them. You'll need to watch over your caterpillars, care for them responsibly, and observe their exciting changes on a daily basis! That's why planning is important.



- *Plan for any school breaks, holidays or extended weekends that might interrupt your project.*
- *Keep in mind you will release your butterflies within 3 to 4 weeks after you receive your Cup of Caterpillars. Your caterpillars will develop more quickly in warmer environments.*
- *Remember, you must be available to open the package containing your caterpillars immediately upon receipt. Your caterpillars will not survive in a hot mailbox or warehouse.*

## 3. Visit InsectLore.com to Redeem your Voucher

When you are ready to order your Cup of Caterpillars, it is best to redeem your voucher online. See your voucher for details.



- *Order your Cup of Caterpillars when it is warm enough in your area. Ensure that daytime temperatures will be at least 55 degrees Fahrenheit upon release.*
- *Keep your voucher number in a safe place so you can refer to it if you contact Insect Lore about your shipment.*
- *Once your order is received, it takes 1 or 2 business days to get your caterpillars ready, and then about 1 to 3 business days for express shipping. Insect Lore will email you a tracking number so you can track your order.*
- *Please note that in order to ensure your live caterpillars' survival, shipping may be delayed if temperatures are extreme.*
- *Live insects are non-returnable, but every live caterpillar order guarantees that 3 out of 5 caterpillars will develop into adult butterflies. If your order does not fulfill this guarantee, please contact Insect Lore within 30 days of receipt of your caterpillars.*



## 4. Be Prepared to Receive Your Caterpillars

Please track your package so you know when your caterpillars are scheduled to arrive. Simply visit [InsectLore.com](http://InsectLore.com), click on “My Account” at the bottom of the page, and fill in the required fields. Expect to receive your caterpillars in a special box that reads: *“Insect Lore Original Cup of Caterpillars!”*

- Do not leave your caterpillars unattended in a mailbox – especially during extreme temperatures.
- Remove the cup of caterpillars from the box as soon as possible.



## 5. Your Caterpillars Have Arrived!

Your caterpillars come with all the nutritious food and moisture they need to grow into Painted Lady butterflies. You'll notice that the lid of the cup has tiny air holes to ensure that your caterpillars get all the fresh air they need.



- Always handle your Cup of Caterpillars gently and be sure to keep the caterpillars sealed in the cup they arrive in. Your caterpillars are hardy, but try not to disturb them too much by tapping or shaking the cup. This cup will be their cozy home for the next 7 to 10 days.
- Keep the cup upright, indoors and away from direct sunlight or drafts. Direct sunlight will cause the interior of the cup to heat up and may cause excess moisture to form inside. This moisture can cause the caterpillars to sicken and die.
- Try to maintain a consistent room temperature of 68 to 75 degrees Fahrenheit.
- While they are caterpillars, it is important to leave the lid on the cup at all times.

Don't worry if your caterpillars are inactive when they first arrive; sometimes they need to rest after their journey to you, so give them a day or so to get used to their new surroundings. Your caterpillars will become more and more active as they eat the food at the bottom of the cup. Eating and growing is what caterpillars do best!



## 6. Watch Them Grow and Become Chrysalides

Your caterpillars will eat, spin silk and grow for approximately 7 to 10 days before changing into chrysalides. If your environment is hot and humid, your caterpillars will develop more quickly. During this incredible period of growth, they will shed their exoskeletons 4 times and grow more than 10 times their original size! When they have finished growing, the caterpillars will climb to the top of the cup. Once there, they will hang from the paper disk in a “j” shape under the lid. They will shed their exoskeletons one last time (5 times in total!) before they pupate (or become chrysalides).



- Do not disturb the caterpillars for at least 2 days (3 days are recommended) in order to allow them to safely harden into chrysalides. This is a very delicate time, so keep the cup nice and quiet during this final molt.
- Make sure you have your Insect Lore habitat ready to receive its new tenants!

### What's an "exoskeleton"?



While we humans have skeletons inside our bodies, with tissue and skin on the outside, caterpillars' bodies are just the opposite! Their tissues are inside their bodies and the skeleton is the outside covering. That's why their skeleton is called an "exoskeleton". When caterpillars grow, the exoskeleton gets tighter and tighter. Since the exoskeleton will not stretch, caterpillars must shed their exoskeleton (molt) in order to continue growing. Your caterpillars will molt five times in total before becoming chrysalides and that's why you might see little black balls at the bottom of the cup - they're actually little balls of cast-off caterpillar exoskeleton!

Sometimes you may even see the remains of the molted exoskeleton hanging from the tip of the chrysalis.

### Wiggle, Wiggle, Shake!

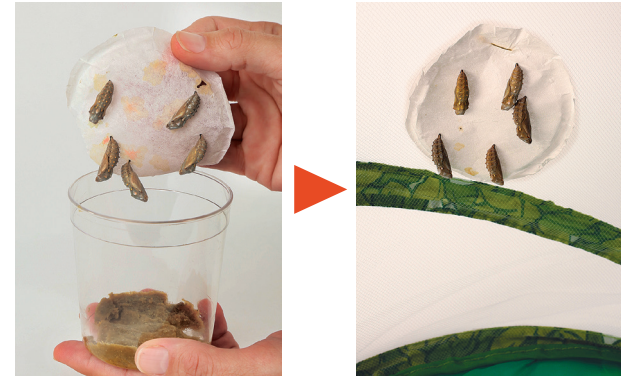
You may find that your chrysalides will wiggle or shake dramatically when you move them to the butterfly habitat - or even if you disturb them just a little.

Understandably, you might think that the butterflies are about to emerge when you see this behavior. This unusual wiggling is a perfectly normal response in the chrysalis community. In fact, this behavior is actually a natural defense mechanism! Chrysalides wiggle and shake when they are disturbed in an effort to frighten potential predators.

So next time you see your chrysalides wiggling, you'll know they are just telling predators to stay away! Chrysalides need calm and quiet surroundings so they can metamorphose into beautiful butterflies!

## 7. Move Your Chrysalides To The Butterfly Habitat

After two to three days, your chrysalides should be fully formed. It's a good idea to wait until the last caterpillar that has formed into a chrysalis has hardened for at least two days before moving all of the chrysalides from their cozy cup to their airy new home.



- Gently open the cup and remove the paper disk with the chrysalides attached.
- Remove any silk strands and frass from the paper disk and the chrysalides. This is a very important step! If the silk and frass is not removed, the butterflies may become entangled in the silk when they emerge.
- Pin the paper disk with the chrysalides attached to the lower inside of the butterfly habitat, about four inches from the bottom. Do not pin the disk to the inside roof of the habitat. Upon emergence, the butterfly is heavy and is grasping for a secure hold.
- Keep your butterfly habitat in a safe place.

### If a chrysalis falls, what do I do?

Sometimes a chrysalis falls to the bottom of the Cup of Caterpillars before it has fully hardened. Not to worry! Leave that chrysalis there to harden for the required time. Then take a plastic spoon, scoop the fallen chrysalis and remove any silk and frass that may be surrounding it.

Place the chrysalis on a paper towel on the floor of the habitat, close to an inside wall. When the butterfly emerges, it will instinctively climb up the wall of the habitat, and then hang there to stretch and pump fluid into its wings.



### More on the removal of silk and frass

It is very important to remove the silk and frass surrounding your chrysalides just before moving them into your Insect Lore Habitat.

This step will ensure that your butterflies will emerge from the chrysalides successfully.

You have probably noticed that your healthy caterpillars spin silk and deposit “frass” or caterpillar waste, in the cup while they are eating and growing.

This silk and frass remains in the cup during the entire process and sometimes can surround the caterpillars while they are transforming into chrysalides.

Allow your chrysalides to fully harden for three days and then open the lid of your cup and remove the paper disk with the chrysalides attached.

Before pinning your chrysalides inside your Butterfly Garden Habitat, you must remove any silk or frass that encircles them. If you skip this step, your butterflies may become entangled when they emerge from the chrysalides. Entanglement could result in wing deformity or even the death of a butterfly.

So, using a cotton swab, carefully remove all of the silk and frass surrounding your chrysalides.

Once all of this material is removed, you can move the chrysalides to the habitat and wait for your butterflies to emerge safely!

## 8. The Magical Moment Of Emergence

For 7 to 10 days, the chrysalides may look like they are resting peacefully, but an amazing transformation is taking place inside! The caterpillar parts inside each chrysalis are liquefying and re-arranging to become the cells, tissues and organs of a beautiful butterfly. As the days pass, be sure to keep a close eye on the chrysalides.

Are your chrysalides beginning to darken? This is a big clue that your butterflies are preparing to emerge. You'll be able to see the outlines of their wings and bodies inside the chrysalides.

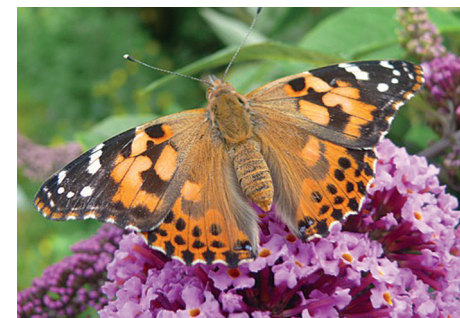
The magical birth of a butterfly happens surprisingly quickly. When a butterfly is ready to emerge, it takes in air through tiny spiracles (tiny holes) in the chrysalis. This added intake of air pressure helps the butterfly split the chrysalis open.



The butterfly will climb out of the split chrysalis with soft, crumpled wings and then position itself, head upward, in a vertical position. Once your butterflies have emerged, do not disturb them while they are expanding and drying their wings. Your butterflies need some time to rest and recover after their prolonged and complex transformation. You'll see that when the butterfly first emerges, its wings are tiny and shriveled. The butterfly will sway from side to side, forcing hemolymph (insect blood) into the veins of its wings in order to expand them to their full size. Do not touch or disturb the butterfly during this process. You may see the butterfly expel a small amount of red meconium during this wing expansion. Evidence of meconium means that your butterfly is healthy!

When a butterfly hatches, its tongue (or proboscis) begins as two long strands or halves that must be fused together. You will see the butterfly coiling and uncoiling the two halves during wing expansion. The two halves eventually join to form a tube-like tongue. The butterfly will use this tube to sip nectar.

Once its wings are fully expanded and the proboscis is fused, your butterfly is ready for flight and food!





## Meconium can be a little messy

You might wonder about the small red spots you see on the sides or on the floor of your habitat after your butterflies have emerged from their chrysalides.

This red liquid is called meconium and is a normal part of the process.

When the butterfly emerges from the chrysalis, it hangs from the sides of the habitat and pumps hemolymph, or insect blood, into its wings to stretch, strengthen and harden them. In fact, real insect blood is actually a greenish or yellowish color!

While the butterfly is stretching and hardening its wings, it expels drops of red meconium from its abdomen. It is often mistaken for blood, but it isn't blood at all. Instead, it is the leftover waste material stored in the butterfly's abdomen not needed to complete metamorphosis.

We recommend that you place a cloth or a paper towel under your habitat prior to moving your chrysalides, to prevent any drops of meconium from potentially staining your tabletop or valued furniture.

## 9. Feed And Observe Your Butterflies

One to two hours after emergence, your butterflies will be fully formed and ready to fly! You may feed your butterflies nectar (sugar water), fruit, or nectar-bearing flowers.

**Nectar:** Mix 3 teaspoons of sugar with 1 cup of water. Stir thoroughly until dissolved. Place a folded paper towel (or cotton ball) on a paper plate on the floor of the habitat. Sprinkle a few drops of nectar on the paper towel (or cotton ball) so your butterflies may feed from it. Do not leave an open container of sugar water in the habitat. Your butterflies may fall into it and drown.

**Fruit:** While they mainly feed on nectar from flowers, butterflies are also partial to the juices from fresh or fermenting fruit. Be sure to score the surface of fresh fruits like orange or watermelon with a knife in order to bring the juices to the surface - making it easier for the butterflies to sip! The butterfly's mouth, or proboscis, functions like a straw to sip these nutritious liquids. When not unfurled to drink, the proboscis stays curled up beneath the butterfly's head.

**Flowers:** You may choose to decorate your habitat with beautiful flowers. Sprinkle the nectar, or sugar water, on the flowers daily with the pipette included with your kit

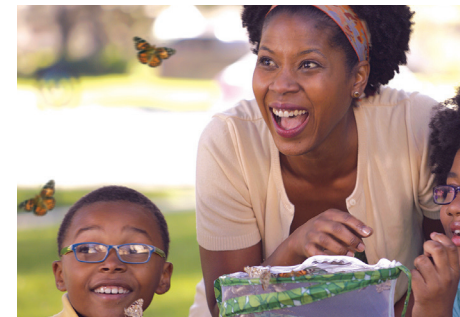
## Butterfly feeding habits in nature

Butterflies enjoy an all-liquid diet. While they mainly feed on nectar from flowers, butterflies also occasionally sip from mud puddles rich in minerals and salts. This behavior is called puddling. Male butterflies tend to puddle more than females; it is thought that the beneficial salts they acquire during this behavior are transferred to the female during mating, resulting in increased egg production.



## 10. Set Them Free!

Release your butterflies three to four days after they have emerged from their chrysalides.



- Make sure that daytime temperatures are above 55 degrees Fahrenheit and try to choose a day that is dry and not too windy. On cooler days, butterflies must warm their flight muscles in a sunny spot before they can fly. If a butterfly has to sit still for too long, it may be vulnerable to predators. Your butterflies will need warmth in order to fly, feed and mate.
- Simply unzip the habitat and watch your butterflies take flight! Your butterflies will often land on little hands and faces before saying goodbye. It's an experience your family and friends will never forget!
- Do not shake the habitat.

Your butterflies will be safe and happy in their habitat as long as you feed them as recommended. Please be sure to release your butterflies within a few days, before mating and egg laying begins. It would be a very big job to care for all of the caterpillars that hatch from the eggs! When you release your butterflies outdoors, your little friends will be free to continue the amazing life cycle all over again. Remember, butterflies are important and helpful members of our environment!



### A word about Painted Lady butterflies

Painted Lady butterflies are the most widely distributed butterfly species in the world, making their home on every continent except Australia and Antarctica. They are also extremely resourceful butterflies, able to live in a variety of environments, like marshes, mountains, fields and forests. If you live in a suburban or urban area, don't worry - the Painted Lady is a migrating butterfly and can fly thousands of miles to find food. Once released, your butterflies can often be seen for several days in the vicinity, especially if you have butterfly-attracting blooms in your garden.

## 11. Wash Your Habitat

Your butterfly habitat is easy to clean and store away until your next project. Simply place a drop of mild soap into a basin of water and swish your habitat in the soapy water. Rinse the habitat thoroughly. Hang your habitat to dry and it will be ready for more butterfly friends!

## 12. Be a Social Butterfly!

Your butterfly experience is important to us! Please share your stories, reviews and images with us on Facebook, Pinterest, Twitter, YouTube and Instagram, or at InsectLore.com!



## Frequently Asked Questions

### What is the scientific name of the Painted Lady butterfly?

The scientific name of the Painted Lady butterfly is *Vanessa cardui*.

### Is a butterfly an insect?

**Yes!** Like all insects, a butterfly has three body parts: head, thorax and abdomen, three pairs of jointed legs, one pair of antennae and an exoskeleton. It may look like your Painted Lady butterflies have only four legs, but they do indeed have six. The two front legs are tucked up high on the thorax and are very easily overlooked.

### How long is the butterfly life cycle?

Approximately 3 weeks. Females lay eggs 5 to 7 days after emerging from the chrysalis. The eggs hatch after 3 to 5 days. Caterpillars emerge from the eggs and eat for 7 to 10 days before forming chrysalides. Adult butterflies emerge from the chrysalides in 7 to 10 days.

### What does the word "larva" mean?

"Larva" is another word for "caterpillar"!

### Should I provide food and water for my caterpillars?

**No.** Your caterpillars arrive with all the food and moisture they need to grow into healthy butterflies. Once your butterflies have emerged from the chrysalis stage, feed them with fruit, nectar (sugar water), or nectar bearing flowers.

### My caterpillars seem to be running out of food. What should I do?

Your caterpillars are shipped with more than enough food to develop into healthy adults. If the food appears to be running low, it is a sign that your caterpillars will be close to pupating.

### Can I remove the lid of the cup and touch my caterpillars?

**No.** Removing the lid could introduce bacteria and mold into the caterpillar environment. Oils and salts from your hands could harm your caterpillars. Do not open the cup until your chrysalides have formed and it is time to move them to your butterfly habitat.

### What are the little brown balls appearing in my cup of caterpillars?

Those little balls are "frass", or caterpillar waste. It means your caterpillars are eating and growing!

### What is a "chrysalis"?

A chrysalis is a pupa. When a caterpillar changes into a chrysalis, it is "pupating". Chrysalides are always bare. A cocoon does not surround them.





### **All of my caterpillars have formed chrysalides except for one slowpoke!**

#### **What do I do?**

Sometimes a couple of the caterpillars will form chrysalides sooner than the others. If it is time to move these chrysalides and the remaining caterpillars still need time to eat and grow, here's what to do. Open the lid of the cup. Remove the paper with the chrysalides attached. Pin the paper disk to the wall of your habitat. Replace the paper disk with a coffee filter so your remaining caterpillars will have paper to attach to when they are ready to transform into chrysalides. Place the lid back on the cup. Then cut away the extra coffee filter paper that might be sticking out under the lid.

#### **What is an "imago"?**

"Imago" is another word for "adult butterfly".



#### **How can I tell whether a butterfly is male or female?**

Because of their egg mass, females have a larger, more rounded abdomen than males. Look at your butterflies from above. The male butterfly's abdomen has straight sides, while the female's abdomen is curved.

#### **How long will my butterflies live?**

Adult butterflies typically live for 2 to 4 weeks during the warm parts of the year. During that time they will feed, mate, lay eggs, and begin the amazing butterfly life cycle, or metamorphosis, all over again!

#### **When should I release my butterflies?**

Release your butterflies within a week after they have emerged from their chrysalides.

#### **Are Painted Lady butterflies native to my state?**

Painted Lady butterflies are found almost everywhere! They are native to Canada, the United States, Europe, Asia, Africa and even Iceland!

#### **What is a group of butterflies called?**

A group of butterflies is called a "swarm", "rabble", "kaleidoscope", or "flutter" of butterflies.



#### **What order do butterflies belong to?**

Butterflies belong to the order Lepidoptera. This group of insects includes moths as well.

#### **Butterflies use their wings to fly, but why else are the wings important?**

Butterflies use their wings as lures to attract mates. The great variety of colors and forms has evolved for this need. The wings also act as camouflage in mimicking the environment where the butterfly rests.

#### **Can I reuse my butterfly habitat?**

**Yes!** Visit us at [InsectLore.com](http://InsectLore.com) to order another Cup of Caterpillars!

**Visit [InsectLore.com](http://InsectLore.com) for more Butterfly FAQs!**

## **Insect Lore Butterfly Activity Guide**

**1. Make your very own butterfly journal. Observe, measure and record the daily changes in your caterpillars' growth and behavior. Here are some sample investigations:**

- What does a caterpillar look like?
- How much have your caterpillars grown?
- Are your caterpillars spinning silk?
- How many legs does a caterpillar have?
- How many times did your caterpillars shed their exoskeletons?
- How does a caterpillar change?
- When did your caterpillars become chrysalides?
- How long is the chrysalis stage?
- What happens when a butterfly emerges from the chrysalis?



**2. Let's talk about the amazing changes that take place during the butterfly life cycle! Metamorphosis always occurs in a specific order and butterfly development is divided into four stages: egg, caterpillar (larva), chrysalis (pupa) and butterfly (adult).**

- Find and read books about the butterfly life cycle.
- Make flash cards showing each stage of metamorphosis.
- Can you place the cards in order and describe what happens during each stage?

**3. Is a butterfly an insect? Look closely! A creature is an insect if it has:**

- 3 body segments:
  - Head: containing the eyes, proboscis and antennae
  - Thorax: where the legs and wings attach
  - Abdomen: containing the digestive system and other organs
- 6 legs
- An exoskeleton - a tough covering on the outside of the insect's body



**4. When the caterpillars become chrysalides, draw a picture in your butterfly journal of what you think your butterfly will look like. Then draw another picture of your butterfly after it has emerged.**

**5. Plan the release of your butterflies to coincide with a special day or school celebration!**



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