



PAINTED LADY BUTTERFLY REARING KIT

Butterfly Wings n' Wishes

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Your Larvae Kit Includes:

- Painted Lady Butterfly Larvae (amounts vary based on your purchase)
- Specially formulated caterpillar diet for them to eat
- Rearing chamber(s) for them to live in
- An accessory kit with a feeding vial (it has an X in the lid) for the adult butterfly, paintbrush(s), and other accessories

THE PAINTED LADY BUTTERFLY

The Painted Lady (*Vanessa cardui*) is one of the most widespread butterfly species in the world. They are a migrant (like the Monarch), but travel irregularly, and don't have a set destination. A female can lay around 500 very tiny eggs during her adult life: about size of a pinhead, these eggs are bright blue, with ridges. She will lay only on host plants specific to her species: stinging nettle, thistle, and mallows/malvas, including hollyhock. Although the larvae start off very tiny (the size of a comma), they will grow to around 3 cm (1-1.5 inches) long in just two weeks. The larvae "pupate," or form a chrysalis, by hanging upside down and shedding their caterpillar skin. The chrysalis stage is when they transform their body into an adult butterfly.

Painted Ladies can adapt to eat a gelatinous diet in captivity, and ours is made of a nutrient-rich mix of toasted soy flour, plant matter, vitamins and minerals (no peanuts or other nuts). This is what you see in the containers.

You caterpillar project will take a total of 3-4 weeks.

Everything you need to raise your caterpillars should be included in your kit. Please read the following closely: chances are all the info you need is included in the next couple pages or in our FAQ section at the back. If you still can't find what you need, give us a call and one of our staff will be happy to help you out.

GETTING STARTED WITH YOUR KIT

There are three types of kit: one small, and two larger. They are a little bit different, so read about yours. The two large ones are very similar: one just has more caterpillars.

REARING KIT #2: This is our smallest kit and the easiest: it's ready to go as it is! The caterpillars will complete their development communally in this cup (which is enough space for the small number of larvae), and hang upside down on the paper towel liner to form a chrysalis inside.

- Your larvae have been shipped in a 16 oz. raising container with enough food to sustain them *for their entire development* to chrysalis
- Some people want to clean their larvae container – this is not recommended, and there is more on this on the next page.
- The only thing you will have to do is refresh the paper barrier on the lid, as they may nibble on it, and overly humid conditions can sometimes cause mold.
- We have provided you with some new paper towel in your accessories kit. It is important that the paper barrier is clean when the caterpillars reach maturity at about 1-1.5 inches in length, as it provides a rough surface for which to hang upside down from.
- Otherwise you can leave this kit as is.

LIFE CYCLE KIT #3,

CLASSROOM STUDY KIT #4: The big kits! Due to the volume of caterpillars in these kits, you **must split them up**. In the wild, painted ladies are somewhat solitary as caterpillars and don't flourish in crowded close conditions. You have been given all the supplies to make your larvae little individual

houses of their own, which resemble how they would live outside (where they make web nests on leaves). You have been provided with a cup full of caterpillars, and a cup full of food. The accessory pack includes enough small, individual vials for all of them, some paintbrushes for moving them around, and a larger vial for feeding the adults. There is no rush: as this is done within 5 days of arrival, they'll be fine.

Please note that the lids do indeed have a pinhole for breathing.

To separate the larvae:

- Get a clean spoon, and scoop about 1-2 cm of food into each small vial. Each caterpillar will eat about 6-9 grams of food providing conditions are correct, so you have been given lots.
- Once your food is divided, use the paintbrush to GENTLY transfer a single caterpillar into each little cup. Brush the caterpillars gently from below or near their feet, if possible.
- In these tiny cups, no paper towel is needed: the lid is small and has ridges for them to hang upside down from.
- Any extra caterpillars can remain in the shipping cup with the extra food.
- Refrigerate unused food: it will keep for around 2 weeks.

No matter what kit you have, **leave the lids on the containers** as the caterpillars grow, to preserve the food and protect the animals. **Do not handle the caterpillars** as they grow: the less you disturb them, the better.

PLEASE NOTE:

These are very susceptible to air quality. **Keep them away from strong cleaners** and disinfectants (including QUAT cleaners), antibacterials, non-stick pans & surfaces, cooking fumes, essential oils, perfumed room sprays, cedar, and pesticides.

CARING FOR CATERPILLARS

It's important to keep your caterpillars upright, indoors, and out of direct sunlight. Direct sunlight is dangerous! It heats up the containers, creating condensation.

Keep them in a quiet place in a room you can monitor, at normal room temperature of 18-22°C. Keep away from heat or air vents, cleaning products/disinfectants, kitchens, essential oils, cedarwood, or fragrances. Try not to disturb them; optimum survival rates occur with less interference.

Poops: also called frass. It will be the same color as their food (so yours will be light tan – not black. The black bits are shed skins).

Try not to clean too much: they wouldn't have someone scooping their poop in the wild, and their messy web nests make them feel comfortable. At the lab, we don't clean them at all, though some people feel compelled to scoop the poop. If you do want to scoop, use the paintbrush, don't touch the caterpillar, don't touch the webbing (which is a sign of good health): and only do it once. They are happier while messy and undisturbed.

When they are fully grown (in about 7-10 days), they will stop eating and crawl to the lid and hang upside down in a "J" shape to form a chrysalis. When this happens do not disturb the vial for a couple days: they need time to harden. This is the most vulnerable period in their lives.

Tips on Lids: *If you have the Kit #2, you have extra filter paper to replace under the lid as a surface to form their chrysalis on, because they tend to chew it.*

If you have the #3 or #4, and the caterpillar is moved into a small vial with a rough lid, which they can attach directly to. Please note all the lids have air holes.

THE CHRYSALIS

Let the chrysalis set up and harden for 2-3 days before transferring them. The outside of the chrysalis should be soft and firm (like skin) and uniform grey-taupe, sometimes with gold or white spots. There should not be splits or holes, or any ooze. You will see the discarded exoskeleton of the caterpillar nearby, a little black blob with spikes. Butterflies need room to emerge and spread their wings, so do not leave the chrysalis in the little vials for more than 4 or 5 days.

TRANSFERRING THE CHRYSALIS: Take the lid off, and use your paintbrush to gently remove most of the loose webbing that may be around the body of the chrysalis.

- **For the Kit #2**, open the lid and peel the paper towel away, the chrysalis will be attached. This paper towel is easy to pin onto the wall of the flight cage. Use a safety pin or sewing pin (you don't need to pin it to the roof). Do not pin the chrysalis itself.
- **For the Kit #3 and #4**, the lids are hard to pin because the plastic is thick. So, put a spot of glue on the back of the plastic lid, and glue the lid to a piece of paper towel, fabric, or a string. Then, pin *that* onto the wall of your cage.

Please note that it is important to leave the chrysalis intact and attached to any surface it has been formed on: do not detach the chrysalis itself, and do not stick it with a pin, squish it, or otherwise harm it. The chrysalis is the animal's body.

Keep the flight cage in a warm, well lit spot with plenty of indirect light.

*Once they are hung, **mist your chrysalis daily** with water; to mimic morning dew and increase humidity.*

Adult butterflies should emerge within 7–10 days.

FALLEN CHRYSALIS: If any of your chrysalis did not attach itself to the lid, rest those gently on the bottom of your flight cage and the butterfly should emerge as usual. Chrysalis would fall off in nature too. The butterfly will emerge, crawl along the ground, and clamber up something grippy (the walls) until they can hang and fill their wings.

THE FLIGHT CAGE:

Your flight cage can be a variety of structures, **providing it is grippy/rough-textured**. Emerging adult butterflies need to crawl around if they fall, and even fully formed adults cannot walk on a smooth surface like glass/plastic. *Do not let your butterflies emerge in a container made of anything smooth.* We have reusable professional grade flight cages specifically designed for butterflies, but we've have seen all sorts of DIY cages: Ikea laundry hampers, cardboard boxes with net-covered holes cut in them, homemade ones. You can get creative.

THE ADULT BUTTERFLY

THE EMERGENCE:

Although this is easily the most amazing step in the process, we often miss it because it happens quickly. The butterflies will emerge from their chrysalis 7-10 days after they formed it.

A hint: the chrysalis will begin to darken as they become ready to emerge. On the day of, beautiful wing patterns will be visible through the now-translucent chrysalis. They typically emerge in the morning or early afternoon, when it is hottest and sunniest.

When they are freshly hatched, their wings are crumpled and soft: they will find a place to dangle upside down and pump fresh fluid into their wings. The wings will become firm and ready to fly. You will observe them shedding "red stuff." This is meconium (not blood), the transformational fluid that filled their chrysalis and is now being discarded. It is natural.

FEEDING THE ADULTS:

Mist the adult butterflies daily; this provides them with fresh drinking water.

A feeding vial for your adult butterflies has been enclosed in your accessory baggie. It has a lid with an x-shaped slit cut in it. To make a feeding station:

- Cut a piece of paper towel about the size of a post-it note and push it through the lid hole; about 3-5 cm should protrude from each side.
- Into the cup can go a solution of **water mixed with 5% sugar**. **Gatorade is also popular** (they like red).
- When you put the lid back on the now full cup, you create a "wick:" the paper towel sucks the liquid up so your adult butterflies can land and drink.
- The slight sugar content of the liquid will ensure your butterflies are happy and healthy.
- Butterflies also love fresh watermelon and oranges, which they will land on and drink directly from - this is a nice treat! And cute to watch.

RELEASING THE BUTTERFLIES:

Plan your release for 3-7 days after emergence, or a little longer if you must wait for good weather. They may not all emerge on the same day: just like humans, some take longer than others to reach full growth. It is fun to observe the adults in class as you wait.

You will need to **refresh the food every day or two** (recipe on previous page) for your butterflies. You may not see them feeding, and you may not see the liquid level change, but you don't want it to go putrid on them.

At 4 days old, they begin to find mates, and you may see the butterflies "pairing." A few days after that, females will begin searching for appropriate host plants to begin laying eggs. Time to let them go if you haven't yet!

Plan your release for a hot and sunny day, with the best weather possible: butterflies are creatures of sunlight and heat and releasing them on a nice day is important for their transition into the wild.

Your painted lady butterflies will fly great distances to locate the right plants! Chances of them remaining near your release location will be increased if both host and nectar plants are in the area.

Remember: you are dealing with living animals. Nature is not perfect; in the wild, survival rates would be very low, with only around 1-5% of eggs surviving to adulthood. In captivity, you can expect a much higher survival rate of 70%-90%. Please incorporate these statistics into your lesson plan, and never assign a single caterpillar to a single participant, as some of them will not make it. It is always ideal to observe insects as a population.

Please read our sanitation information and warranty policy in event of higher than normal casualties. If you need help, we pride ourselves on our customer service! Give us a call if you'd like some advice, want to report something interesting, are having problems, or just want to chat about bugs.

FUN FACTS ABOUT YOUR BUTTERFLIES

What are Painted Ladies?

The Painted Lady (*Vanessa cardui*) is one of the most common butterflies in the world. This is mostly because they are not picky eaters: they can lay their eggs on a variety of host plants such as Canada thistle, any mallow, or stinging nettle. The painted lady's closest cousin in Canada is the red admiral butterfly (*Vanessa atalanta*), another common visitor to our gardens. Many butterflies use host plants that we consider weeds on which to lay their eggs. Plants that are native to the butterfly's home range will always be preferred over exotic cultivars. Our native butterflies may not even recognize something from across the world: keep this in mind if you are planting a butterfly garden.

What is a Butterfly?

A butterfly is an insect, so it has three main body parts: head, thorax, and abdomen, as well as six legs. The head has two large eyes, two antennae, and a long, curly straw-like tongue (proboscis), which is used to suck up water, nectar from flowers, juices from rotten fruit, or sap from trees. The legs are attached to the thorax. The abdomen (the back end) is the biggest part of the body. There are holes on the sides of the abdomen called spiracles through which the butterfly breathes. Air pollution, including tobacco smoke, can upset this process and most insects can be affected by this.

Wait, I don't see 6 legs here?

Like all insects, butterflies have six legs, but caterpillars seem to have more. In fact, they have only six formal legs behind the head, but can have up to 10 "prolegs" or temporary legs further back. These legs help them move around as a caterpillar, but they are lost during metamorphosis. But that's not all! It looks like the adult butterfly has only 4 legs - well, butterflies in the Brushfoot family (like Painted Ladies) lose another two legs during metamorphosis, which end up tiny and hidden underneath their heads (think like t-rex arms) as sensory organs, and use only four main legs to walk.

Lifespan?

Different species of butterflies have different life spans, but they are often surprisingly short. Some butterflies like the Painted Lady live only a handful of weeks from birth to death. Others like the Mourning Cloak over-winter as adults and can live an average of 10 months. The adult stage is usually the shortest of all the stages of life.

Protection?

Butterflies protect themselves in many ways: some blend in with their surroundings (camouflage); some look like other animals that may be dangerous (mimicry); some taste bad or are even poisonous if you eat them (for instance, monarch larvae eat only milkweed, so they absorb the poison from that plant). Some have large eye spots or bright colours like orange to startle predators. The caterpillar of the Tiger Swallowtail can even arch its back and bloat its head so that it looks like a striking snake!

Inside the chrysalis:

A chrysalis is the name for a butterfly's transformative stage: the pupa. The exoskeleton of the caterpillar splits and peels off one last time, revealing the new structure underneath. Butterflies do not make a cocoon; cocoons are an extra step, a protective shelter that some insects spin around their pupa, usually made of silk or dead leaves, or something else (moths commonly make these, as do bees).

Tell me about the powder on the wings? I thought touching the wings hurts the butterfly.

Not true - the wings are covered with tiny scales, which give the butterfly its beautiful pattern: this is what brushes off on your fingers when you touch a butterfly. Luckily, they can still fly without their scales, so it doesn't kill a butterfly if this comes off (though of course their wings are very thin and fragile, so care must be taken not to break or squish: and removing all the scales might remove their protective coloration). By the end of the butterfly's life, many of these scales are missing and the butterfly's colour begins to fade - just as our own appearance changes with the passage of time.

What is the purpose of these fancy names?

There are millions of individual living species on our planet. Although the common names for them are very easy, they might change based on where people live. Common names are also different in other languages. This would be very confusing! So, each animal has its very own *scientific name*, unique to it. This is like a dinosaur name. It is always written in italic. The scientific name for your butterflies is *Vanessa cardui*.

Popular Project Ideas:

- Keep track of life cycle stages on the calendar, noting how long each one takes.
- How quickly did the larvae grow each day? Can you count how many times they shed?
- What was the temperature of the room where you raised your larvae? If some were colder and some were warmer, did that affect their growth?
- Did they grow more quickly during the day - or when it was cold at night?
- How long did the chrysalis stage last? Was it the same for every one of the chrysalis?
- What did the butterflies do when you released them?
- What was the temperature outside for release? Did this have an affect on their behaviour?
- What are some of the differences between butterflies & moths?
- Why do some butterflies survive, and some do not? In nature, what reason would there be to have both strong and weak animals?

REQUENTLY ASKED QUESTIONS & TIPS FOR TEACHERS



Eek! This seems so complicated. How do I start?
Don't panic. Everything you need should be included, and remember that caterpillars have been doing this for a long time without our help. Read all

the instructions first. All caterpillars are shipped on plenty of food, so even if you have the #3 and #4 that require transferring the caterpillars, you can take your time. The tiny size we ship our caterpillars at means they are delicate, so letting them grow for a day or two in the shipping container may actually make it easier for you to move them.

Do they have enough air?

Yes, there have been holes poked in all the lids (sometimes only teeny pinholes), and the lids are not airtight to begin with.

Can I handle or play with my larvae?

No - removing the lids introduces bacteria, and they are very fragile. It is best to leave them alone, as they would be in nature. Humans carry diseases that might hurt your caterpillars, and we sometime have oils and residues on our clothes, bodies and hands that are not good for little bugs (soap, detergent, lotion, perfume).

What is this webbing?

This is a form of protection the caterpillars make, and is completely natural. In fact, it's an indicator of healthy caterpillars!

Wait a second. I don't see any small vials for individual transfer. Is this right?

If you ordered a Kit #3 or #4, and there are no small vials, we probably made a mistake (we are human after all). Please call us right away, we'll send you more! If you have a Kit #2, there are no vials for transfer. They will complete their growth stage entirely in the provided container.

I'm confused about feeding!

You have been provided with enough pre-made larvae food to raise your larvae as per instructions. Do not adjust the consistency of the food by adding water. The larvae are easily drowned if the food is too damp, and tap water is not safe. Do not leave the food in an open container: it dries out easily and then they can't eat it. Any extra food can be stored in the refrigerator for 2 weeks: the food being eaten does not need refrigeration.

What is this food made of?

This is a patented all-natural diet. It is a proprietary combination of minerals, vitamins and plant matter on a soy carrier: mixed carefully in correct quantities to set it into the gel form you see and smell now. Because there are no chemical additives or perfumes, it smells exactly like what it is: nature's baby food. Enjoy! It is safe and non-toxic for people and animals to eat accidentally, unless you are allergic to soy.

Exactly how much should I be cleaning this...?

As little as possible. Caterpillars are happiest when messy; that is their natural state, as they would not be moving out of their own little rolled up web nest made of a leaf in the wild. You should clean no more than once or twice. Many keepers never to clean at all, and this does not affect the caterpillars. If you do feel you need to clean, never touch the caterpillars: just brush out the waste. Remember to

keep your hands and paintbrush clean. (For complete cleanliness a 10% bleach to water solution is recommended for all equipment that comes into contact with the larvae, particularly for any used equipment).

Where should I put them in my class?

Caterpillars should be kept in a quiet place you can monitor, at room temperature with the opportunity of having a natural day/night cycle if possible. **Do not place them in direct sunlight!** Natural, indirect window light is ideal. If you are in a location that can get very cold (like a portable) consider placing the larvae in a more stable environment for the time the heat is shut off: like a long weekend. We also recommend keeping them away from heat or AC vents that may disrupt them with noise & blowing.

One or more of my caterpillars has died.

This is normal: it is standard for around 10-20% of your larvae not to survive. In nature the survival rate is very low: only around 5% would survive (bugs have to deal with predators, pesticides, fractured habitat, parasites, viruses, disease, pollution, and car windshields). In the classroom you are eliminating many of these threats (hopefully!), so you can expect a survival rate of 70%-90%. We also always include a few *extra* larvae in every order to help you out. Incorporate the mortality statistic into your lessons; it is a valuable demonstration of the role insects play in an ecosystem. The casualties would help feed other hungry mouths, such as frogs and baby birds. If you feel as though your die off rate is higher than normal, please see our [Larvae Guarantee and Replacement Policy](#) for more information.

The kids want to name their caterpillars/I want to give each kid a caterpillar.

We really don't recommend this. Considering the percentage that may die naturally, naming them and assigning them one-on-one may cause more disappointment than benefits in the learning experience. We suggest observing insects as a population, by keeping them in group(s), and utilize the outcome in your lessons to describe the role insects play in an ecosystem.

I've ordered from you before and I still have all my vials and equipment. I'd like to reuse them to save on waste.

The answer is no, unfortunately. We do insist that you use new caterpillar supplies for each batch, simply because of the probability of disease. Even if your larvae were perfectly healthy last time, there is always a chance a pathogen can be contracted from unsanitary equipment. We strive extremely hard to keep our caterpillars healthy, so that the released animals are not spreading disease. For your leftover containers, we recommend re-using them if you can: some of them make great small organizing containers for beads, slime, or little toys. They are food-safe and suitable for human or animal food storage as well. Reduce, reuse, recycle.

The Chrysalis did not attach properly/fell off.

Don't worry. If any of your chrysalis did not attach itself properly, just rest the chrysalis on the bottom of your flight cage and the butterfly should emerge as usual if you treat it like the others.

Do I need to do anything special to make them emerge?

Not really, besides misting them daily. Billions of butterflies have emerged without our help at all. The reason humidity is important: in the wild, overnight conditions would create dew and ambient

moisture. You need to replicate this, as dry conditions can cause them not to emerge properly.

This chrysalis never hatched. Why?

Remember – even if you do everything absolutely correct – **nature itself is not perfect**. A certain number of eggs just do not hatch, some larvae just die, some caterpillars do not form their chrysalis properly, and even some chrysalis that are formed correctly still do not produce a perfect adult butterfly. These weak ones would feed hungry mouths, giving a higher chance of survival to other animals.

My butterfly has emerged, but something is wrong.

Crumpled wings that won't straighten? Deformities in adults are, unfortunately, as common as any other problem. The metamorphoses is not always perfect; sometimes there is something

wrong and you just cannot do anything about it. Butterflies with deformities may not survive.

There is red stuff. Is it bleeding?

No. As the adult emerges from the chrysalis, a small amount of fluid, called **meconium**, falls from their body. This is not blood: it's a special fluid used to help transformation inside the chrysalis. Mammals also utilize this fluid in the womb, where it's mostly made of amniotic fluid and lanugo. Your butterflies will release it when no longer needed: this can continue to happen for several days after emergence and is natural.

Important Sanitation Information:

- **We have a do not reuse policy regarding all caterpillar kit materials (vials, paintbrushes, etc). Do not reuse these materials from batch to batch (although feel free to use them for other, non-caterpillar purposes!)**
- **Only house the caterpillars in the supplies we provide: caterpillars placed into alternative housing cannot be replaced.**
- **Flight cages and habitats for the adult butterflies are exempt: you can re-use them from year to year for the adults. You can also use cages from other suppliers. It's a good idea to sanitize them in a 10% bleach solution between uses.**
- **We cannot be held responsible for larvae losses due to improper equipment, inappropriate housing, or excessive handling. Follow our instructions as closely as you can, and try not to introduce too many variables during your project.**
- **If we short-shipped you on supplies, let us know right away so we can remedy that!**

LARVAE REPLACEMENT POLICY

Remember: you are dealing with living animals. Nature is not perfect; in the wild, survival rates would naturally be very low, with only around 1-5% of butterflies surviving to adulthood. We cannot assume all larvae will survive, but in proper conditions, you should expect survival rate of 70%-90%.

If over 40% of your larvae have died, contact us immediately: you may be eligible for a free replacement within the same caterpillar season. We also offer replacements for mishandling during shipping from our lab. We do not offer refunds.

To be eligible for a replacement:

- Ensure that your losses are not due to sanitation, housing, or environmental issues (such as having moved them into an unapproved container, allowing them to roam free, playing with them, toxicity exposure such as QUAT cleaners or off gassing from cleaning products, non-stick surfaces, disinfectants, inappropriate housing/handling, or your dog eating them).
 - You will need to provide photos of the rearing conditions and caterpillars, PLUS a description of your issues.
 - We replace kits in-season: very often the same week your kit is reported failed, with appropriately sized caterpillars to complete the project in time. Report any suspected issues as quickly as you can!
 - Warranty is only valid based on percentage losses of complete kits, not individual caterpillars or portions thereof.
- Losses must be reported within 30 days of delivery.**

If you have bought your larvae through a retail store, please contact your retailer directly.

If your purchase was made directly through us, we can be reached at:
780-462-1839 bugs@butterflyab.com www.butterflyab.com

Nature is not perfect, but we strive to provide you with as good an experience as possible.
Do not hesitate to contact us if you feel this has not been the case.

All of your Painted Lady butterflies are Canadian born and raised, produced in our family-run facility and CFIA-approved laboratory in Edmonton. Butterfly Wings n' Wishes is a conservation and education-oriented business, and we believe every creature - great and small - deserves to be appreciated.

We thank you for your contribution to pollinator populations and for supporting a better future.

We would also like to thank our many amazing retailers across Canada, who provide local access to these projects and others like them. For more information, please visit us online.

"The more you understand your world, the more interesting it becomes."

Butterfly Wings N' Wishes respectfully acknowledges that we operate on Treaty 6 territory, a traditional gathering place for diverse Indigenous peoples whose histories, languages, and cultures continue to influence our business, our way of life, and our community.
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