Butterflies & Moths

PLA Time

Painting guide. Use these colors and markings to paint your model.



Eastern Tiger Swallowtail

Papilio glaucus · Butterfly

Wings · Stripes, border · Accents

Male shown. Yellow with four black stripes on each forewing and a wide black border. Females usually have more blue on the hindwings, and some are mostly black.

Host plants: Tulip tree, wild cherry, sweetbay



Pipevine Swallowtail

Battus philenor · Butterfly

Wings · Hindwing sheen · Spots

Black wings with a blue-green sheen toward the hindwing edge and a row of pale spots. The orange spots are underneath only.

Host plants: Pipevines



Zebra Longwing

Heliconius charithonia · Butterfly

Wings · Stripes

Long black wings with narrow pale-yellow stripes. The hindwing has a stripe and a curved band of yellow spots.

Host plants: Passionvines



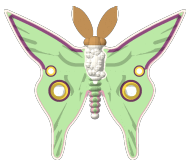
Common Buckeye

Junonia coenia · Butterfly

Wings · Bars, rim · Band · Eyespot

Brown with two eyespots on each wing. Front wings have two orange bars and a cream band. The big hindwing eyespot has a magenta crescent.

Host plants: Plantain, snapdragon



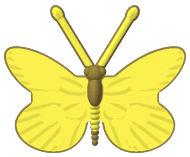
Luna Moth

Actias luna · Moth

Wings · Leading edge · Eyespot ring · Antenna

Pale green with long tails, a purple-brown leading edge and a see-through eyespot on each wing. White furry body, tan feathery antennae.

Host plants: Sweetgum, hickory, walnut



Cloudless Sulphur

Phoebis sennae · Butterfly

Wings

Male shown: clear lemon-yellow with no markings on top. Females are yellow or whitish, with a dark forewing spot and uneven dark edges.

Host plants: Partridge pea, senna



Monarch

Danaus plexippus · Butterfly

Wings · Veins, border · Dots

Orange with black veins and a thick black edge dotted with white. Males have a small black scent patch on each hindwing.

Host plants: Milkweeds



Gulf Fritillary

Dione vanillae · Butterfly

Wings · Black marks · Spots

Bright orange with black marks near the edges and three black-ringed white spots on each forewing. The silver spots are underneath only.

Host plants: Passionvines, including maypop



Red Admiral

Vanessa atalanta · Butterfly

Wings · Bands · Spots

Dark brown-black with an orange-red band across each forewing, white spots near the tips, and an orange-red edge with black dots on the hindwing.

Host plants: Nettle-family plants



Carolina Sphinx

Manduca sexta · Moth

Forewing · Hindwing · Bands · Body spots

Mottled gray-brown with wavy lines. Hindwings are paler, with two close zigzag black lines. Usually six yellow-orange spots run along each side of the body.

Host plants: Tomato, tobacco



Hummingbird Clearwing

Hemaris thysbe · Moth

Border, veins · Thorax · Abdomen

A daytime moth that hovers like a hummingbird. Clear wings with red-brown borders and veins, an olive-green thorax and a mostly dark burgundy abdomen.

Host plants: Honeysuckle, hawthorn, some viburnums



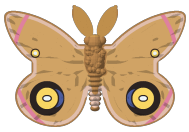
Cecropia Moth

Hyalophora cecropia · Moth

Wings · Red · Band, crescent · Edge

A giant moth. Dark brown wings, a red patch by the body, a pale crescent, a white band then a red band, and a tan edge. Red body with a white collar and white bands.

Host plants: Maple, wild cherry, birch



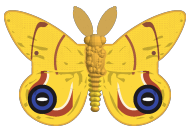
Polyphemus Moth

Antheraea polyphemus · Moth

Wings · Eye ring · Eye patch · Lines

Tan to cinnamon. Each hindwing has a huge eyespot with a see-through center in a yellow ring, and pink lines run near the edges.

Host plants: Oak, maple, birch



Io Moth

Automeris io · Moth

Wings · Eyespot · Outer band

Male shown: yellow, with a big black-and-blue hindwing eyespot (white dash) and a red-brown band. Females have brown to reddish-purple forewings.

Host plants: Many trees and shrubs



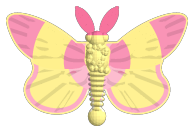
Buck Moth

Hemileuca maia · Moth

Wings · Band · Male tip

Smoky black wings with a wide white band and a small dark spot on each wing. Males have a reddish tip on the body. A day-flying fall moth.

Host plants: Oaks, including live oak



Rosy Maple Moth

Dryocampa rubicunda · Moth

Pink · Yellow · Antennae

A small fuzzy moth. Forewings are pink with a wide pale-yellow band, hindwings are mostly yellow. Pink antennae and legs. Colors vary.

Host plants: Maple

How to use this guide

Paint the big wing areas first, then the stripes, bands, spots and eyespots. The raised rings on the wings are eyespots, so paint right up to them. Colors vary in real butterflies and moths, so treat these as a guide. Handle the thin antennae gently and use a small brush. Your model's names are engraved on the flat underside.



Host plants are the plants the caterpillars eat. Eight of these are butterflies and eight are moths.

These simplified models show the upper sides of the wings. Shapes, antennae and markings are adapted for printing and painting. Models are not shown at the same scale.

Made from plants

PLA Time

Your butterfly or moth is printed in PLA, a bioplastic that can be made from plant sugars, such as those in sugar cane.

From sugar cane to your butterfly or moth

1. **Sugar cane grows**
   After harvest, the stalks are crushed to get sugary juice.
2. **Sugar is extracted**
   The plant sugar is cleaned and concentrated.
3. **Microbes ferment it**
   Microorganisms ferment the sugar into lactic acid, also made in yogurt.
4. **Acid becomes PLA**
   The lactic acid is processed into PLA plastic, in small pellets.
5. **Pellets become filament**
   The pellets are melted and drawn into a thin thread wound on a spool.
6. **Printed in layers**
   Our 3D printer melts the filament and lays it down one thin layer at a time.
7. **Your model**
   A solid model, ready for you to paint.

What is PLA?

PLA stands for polylactic acid. It is a bioplastic, which means it can be made from plants instead of petroleum. Sugar cane, corn and cassava are common plant sources, and the exact source depends on the filament maker.

Microbes ferment the plant sugar into lactic acid. Chemists then link those molecules into long chains, and that is PLA. The plastic is solid at room temperature, melts at a low temperature, and sets quickly, which is why it works so well in 3D printers.

When you're done with it

Made from plants does not mean it melts away in the garden. PLA breaks down very slowly in backyard compost, landfills and outdoors. It needs managed industrial composting (heat around 131-140 F, moisture, microorganisms and time) to break down well, and it is not suited to backyard compost.

So please treat your butterfly or moth like a keepsake. Paint it, display it, pass it on. These models are not certified compostable, so do not put them in curbside recycling or compost collection unless your local program says it accepts them.

Painting your butterfly or moth

- Wash it gently with warm soapy water and let it dry.
- A thin coat of primer helps paint stick, but acrylic craft paint also works directly on PLA.
- Start with the wing color shown on the other side. Use thin coats and let each one dry.
- Add stripes, bands, spots and eyespots last, using a small brush.
- Finish with a clear matte sealer if you want the paint to last.

Caring for it

Standard PLA can soften and warp around 131-149 F, so keep your model out of hot cars and direct summer sun. Louisiana summers are tough on PLA. Dust it with a soft brush, and handle the thin antennae gently.

Butterfly or moth?

Butterflies usually fly by day, rest with their wings folded up, and have thin antennae with a little knob at the tip. Most moths fly at night, rest with their wings flat or folded over the back, and have feathery or plain antennae without knobs. Some moths, like the buck moth and hummingbird clearwing, fly in daylight. In this set the butterflies are the tiger swallowtail, pipevine swallowtail, zebra longwing, common buckeye, cloudless sulphur, monarch, gulf fritillary and red admiral. The rest are moths.

Did you know?

Sugar cane is a giant tropical grass that can grow taller than a person. Louisiana and Florida are the two leading sugar cane states in the U.S.

Lactic acid, the building block of PLA, is also produced during fermentation in foods like yogurt and sourdough bread.

Adult luna and cecropia moths cannot eat. They live on energy stored as caterpillars, and a luna moth lives only about a week.