

Butterfly



Learn all about the beautiful world of butterflies: Monarch, Western Swallowtail, Red Admiral, Painted Lady. Cast each butterfly for study and display.



BUTTERFLY CASTING KIT

BUTTERFLY

★ Read directions thoroughly before starting. ★

Butterflies are some of the most beautiful insects in Nature. There are many different types (species) of butterflies in the world. Butterflies come in all colors, shapes and sizes. There are 28,000 butterfly species in the world.

People who have the job of studying butterflies are called Lepidopterists. They study all about the habits, life cycles and the habitats (areas where they live) of this amazing insect.

Many people have made their interest in butterflies into a hobby. They enjoy finding and studying live butterflies wherever they live. It's very difficult to study such a fast moving insect. Many people want to be able to get closer to the butterflies. There are butterfly nets made to catch the butterflies for closer study and display.

People love to have butterflies in their gardens. It has become more and more common for gardeners to make gardens just so butterflies will come to live there. They plant flowers that butterflies will like, flowers with nectar (butterfly food) and plants on which caterpillars can eat and grow.

Butterflies are interesting and fun to learn about. Some people keep records of all the different butterflies they have seen.

Reading about the life of butterflies can help people to know where to look for them. Read about butterflies in this booklet and make four beautiful butterflies of your own. When you are finished you will be able to display a Monarch, Western Tiger Swallowtail, Red Admiral, and a Painted Lady.

MATERIALS PROVIDED,

- General information about butterflies.
- Information about four fascinating butterflies; the Monarch, Painted Lady, Red Admiral, and the Western Tiger Swallowtail.
- Casting (PerfectCast) material to make the four butterflies featured in this kit. To make additional butterflies, PerfectCast is available from your local retailer.
- A mold tray containing molds of the four butterflies.
- Instructions explaining how to use the mold trays.
- Paints and paint brush with which to finish the models.
- Magnets used to attach the models to a steel background like a refrigerator.
- Bibliography.

MATERIALS NEEDED

- Disposable container to mix PerfectCast. A can or paper cup will work nicely.
- Mixing utensil.

★ Adult supervision suggested ★

INSTRUCTIONS

Find an area with a flat, level, stable working surface, such as a counter-top, desktop or table. Make sure the surface is waterproof; some excess water may spill out of your container. Use a disposable container to mix the PerfectCast and water.

1. Place the mold tray on a flat, stable surface.
2. In a disposable container, mix PerfectCast using a ratio (by volume) of 1 part cold water to 3 parts PerfectCast. *See tip below for suggestion on estimating the amount of PerfectCast to use for your cast.*
3. Stir the PerfectCast/water mixture with a spoon or mixing stick until it is evenly mixed (about 1½ minutes). Tap the container on the table several times to remove air bubbles. There should be no lumps.
4. Pour the PerfectCast mixture into the mold. Tap the mold on the work surface to remove the remaining bubbles.

WARNING: DO NOT POUR EXCESS MATERIAL INTO DRAIN OR TOILET BOWL. DISPOSE EXCESS MATERIALS IN THE GARBAGE.

5. Let PerfectCast set for 30 to 40 minutes. If the object is delicate, allow at least one hour before demolding.
6. After the mixture hardens, carefully press each part out of the mold. If a section breaks, use glue to repair it or cast additional sections.
7. Read the educational information on the butterflies.
8. Let casts dry for 2 hours before painting. Separate the paint pots from each other with sissors before painting. See page 8 for color mixing guide.
9. Cut four magnets to the appropriate sizes, glue the magnets on the back of each butterfly.

Tip: How to measure the volume of the objects to be cast.

If you have purchased additional PerfectCast or don't want to mix all the PerfectCast included in your kit, follow the instructions below to determine how much PerfectCast to mix.

Fill all the cavities you intend to cast with water and pour into a measuring cup. This is the total volume of the finished casts.

For each fluid ounce needed, mix 1½ fluid ounces of PerfectCast and ½ fluid ounce of water. The mixture should have a consistency of a runny milkshake or melted ice cream.

WARNING: Don't place hand in casting material while it is hardening. Don't pour excess material into drain or toilet bowl. Dispose of excess material in garbage.

GENERAL INFORMATION

Butterflies belong to the insect order called Lepidoptera. Lepidos is Greek for “scales” and ptera is Greek for “wing.” Those words combined mean “scaly wings.” Lepidoptera is a very large group of insects consisting of moths and butterflies. Of these 150,000 different species worldwide, 28,000 are of the butterfly species.

The body of a butterfly consists of three main parts: the head, thorax (chest) and abdomen (tail end).

THE HEAD

The head of the butterfly contains the sensory and feeding apparatus. Located in the butterfly’s head are its brain, compound eyes, its proboscis, and two antennae.

COMPOUND EYES

The butterfly’s eyes consist of many hexagonal (six-sided) lenses. Light is carried from the lens onto a structure called the rhabdome, from there the optic nerve carries that information to the brain. Butterflies see ultraviolet rays. These rays are invisible to the human eye.

PROBOSCIS

Having no jaws, the butterfly sips liquid food through the proboscis. The proboscis uncoils to sip food, and coils up again into a spiral when not in use. This tube-like organ is flexible and is used to suck liquid from flowers and fruit.

PALPS

Located on each side of the proboscis, are scaly mouthparts called palps. Covered with sensory hairs, these palps help the adult butterfly to identify whether a substance is good for eating.

ANTENNAE

Located at the front of the head are two antennae, necessary for the butterfly’s sense of smell, touch, taste, temperature wind movement. At the tip of each antenna is a small bulb, a feature that moths do not have. At the base of the antennae is an organ that helps the butterfly with its orientation and balance. This organ is called Johnston’s organ.

THORAX

The butterfly’s trunk or center section is called the thorax. The thorax itself has three segments. Attached to each segment is a pair of jointed legs. Also attached to the second and third segments are the wings. There are muscles located in the thorax to help the wings and legs to move.

LEGS

All butterflies have six jointed legs. Attached to each leg is a foot that includes a pair of grasping claws and sensory organs used for tasting food. On about half the butterfly species, the two front legs

are shorter than the back legs. These short legs are used to clean the antennae.

ABDOMEN

Located in the relatively soft abdomen are the heart, digestive system, reproductive organs and spiracles (breathing pores.) If you look very closely at the body of the butterfly, you will notice that the abdomen area is divided into segments. Technically there are ten segments, but two or three of them are fused and not easily seen.

WINGS

Butterflies have two sets of wings; two forewings and two hindwings. The front and the back wings most often have different patterns. The wings of butterflies can range from very colorful to drab. Some of the very colorful species have drab colored under wings camouflage them from predators when they are not flying. Whether they are drab or brilliantly colorful all butterfly wings are made up of iridescent scales arranged in overlapping rows. Throughout the wings are veins that support the wings and provide nourishment through the blood supply.

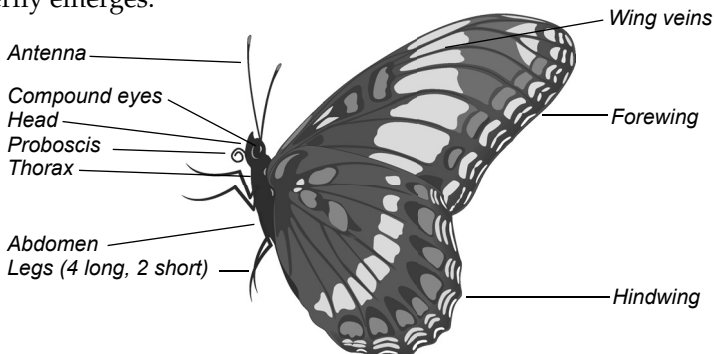
On the forewings of male butterflies are located scent scales. These specialized scales release a substance that attracts females of the same species.

FLYING

Butterflies cannot fly if their body temperature is below 86 degrees. They rely on the sun to warm them up in cool weather. The speeds of butterflies vary greatly among species, from 5 mph to 30 mph. Many of the slower butterflies are poisonous.

LIFE CYCLE

Butterflies go through four different life stages. An *egg* is laid on a leaf. The *larva*, also known as caterpillar hatches from the egg and begins to eat constantly from the leaf or the flower on which it rests. As it grows the caterpillar sheds its skin many times. It grows up to 2000 time its size until it begins its next stage. During the next stage the larva turns into a *pupa* or chrysalis. This is its resting stage after which a beautiful *adult* butterfly emerges.





THE MONARCH (*Danaus plexippus*)

Monarch butterflies are the most famous butterfly in North America. This butterfly is recognized for its cinnamon-orange coloring with black veins and white dots on the black wing borders. Millions of Monarchs migrate from eastern and central North America to spend the winter in the mountains of central Mexico. A migrating Monarch can travel up to 80 miles a day.

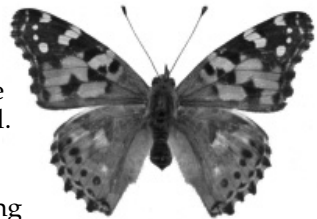
Monarch caterpillars feed on milkweed plants. They become poisonous from eating this toxic plant and store this poison in their body. This poison remains with them into the adult stage. Predators who eat them become very sick because of this poison. The Monarchs bright colors are a warning to predators that they are poisonous. Its wingspan is $3\frac{1}{4}$ - 5 inches.

As an adult the Monarch feeds on milkweed, lantana, lilac and thistles as well as other flowers. Their habitats are open fields, meadows, weedy areas marshes and roadsides.

The Monarchs range from southern Canada through the United States, Central America to most of South America. They are also present in Australia, Hawaii, and other Pacific islands.

PAINTED LADY (*Vanessa cardui*)

The Painted Lady is very common in North America and around the world. It is the most widely distributed butterfly in the world. Its color is orange brown with darker wing bases; black apex patches and white bars on the leading edge of the forewing. The hindwing has a row of five small black dots that sometimes have blue scales. Its wingspan is $2-2\frac{7}{8}$ inches.



The caterpillars of the Painted Lady feed on thistles, hollyhocks, various legumes.

The adult Painted Lady feeds on plants 3-6 feet high, preferring thistles and cosmos. Their habitats are almost everywhere in open areas such as gardens, old fields and dunes.

The Painted Lady range on all continents except Australia and Antarctica.



RED ADMIRAL (*Vanessa atalanta*)

Another common butterfly, the Red Admiral has distinctive markings. The tips of their forewings have fiery red-orange slashes and white spots on the outer parts. The hindwings are multicolored in browns and blues with pale buff

along margin. Its wingspan is 1 ¾ - 3 inches.

The adult Red Admiral feeds on sap from trees, fermenting fruit and bird droppings. When these are unavailable they will feed on milkweed, red clover and asters, among others.

The Red Admiral range from Guatemala, north through Mexico, into the United States, to northern Canada. They also can be found in some Caribbean Islands, New Zealand, Europe, North Africa, and Asia.

WESTERN TIGER SWALLOWTAIL (*Papilio rutulus*)

This popular butterfly is named for the “tails” on their hindwings. Also on the hindwings there is a red dot with some blue dots above. They have a yellow marginal band at the edge of their forewings and yellow with black stripes on the major part of the wings. Its wingspan is 2 ¾-4 inches.



The caterpillars feed on cottonwood, aspen, willows, wild cherry and ash.

Adults Western Tiger Swallowtails feed on nectar of many flowers including thistles, California Buckeye and zinnias, as well as other plants.

The Western Tiger Swallowtail lives near rivers and streams, wooded suburbs, canyons, parks, and roadsides.

COLOR GUIDE

Monarch

Cinnamon-orange coloring with black veins and white dots on the black wing borders

Western Swallowtail

Yellow marginal band at the edge of the forewings and yellow with black stripes on the major part of the wings.

Red Admiral

The tips of the forewings have fiery red-orange slashes and white spots on the outer parts. The hindwings are multicolored in browns and blues with pale buff along the margin.

Painted Lady

Orange brown with darker wing bases; black apex patches and white bars on the leading edge of the forewing. The hindwing has a row of five small black dots that sometimes have blue scales.

IMPORTANT NOTE:

The non-grooved side of the magnet is the side that is most strongly attracted to metal. Magnets should be cut into 8 equal lengths. Glue two magnets on each butterfly. Remember to glue the grooved side of the magnet (when in doubt test on metal) to the butterflies.

BIBLIOGRAPHY

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Scott, A. James (1986), *The Butterflies of North America*, Stanford University Press

Smart, Paul (1975), *The Illustrated Encyclopedia of the Butterfly World*, T.Y. Crowell Company

Urquhart, F.A. (1960), *The Monarch Butterfly*, Univ. of Toronto Press

COLOR MIXING GUIDE

Kits come with different sets of colors depending on the title of the kit. Mixing instructions may include colors not included in your kit.

Acrylic paints can be thinned with water if they get too thick. Be sure to clean brushes with soap and water before the paint hardens or the paint will become permanent.

Primary colors can be mixed to obtain many other colors. Mix a small amount of two or more colors on a non-absorbent surface.

Always begin with more of the lighter color and a small amount of the darker color. To darken or lighten colors, add small amounts of black, brown or white and mix. Take your time and allow the paint to mix thoroughly before adding more paint.

- White skin - add small amounts of red and yellow to white
- Black/brown skin - add small amounts of white, yellow, red & black
- Army green - mix blue and yellow and a small amount of black
- Ammonite green - mix blue and yellow and a small amount of white
- Carmel - mix small amounts of brown and yellow to white
- Tan or beige - add small amounts of red, brown and yellow to white
- Brown - mix black, yellow, red and green
- Orange - add small amounts of red with yellow
- Gray - mix small amounts of black with white
- Pink - mix small amounts of red with white
- Purple - mix red and blue
- Gold - mix small amounts of yellow with silver
- The pot labeled GL is glue
- Some kits come with a pot labeled ST. This is stain that can be used to antique your creation after painting. Paint on and wipe off.

Download other Kit brochures at: <http://skullduggery.com>

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