

BUTTERFLY



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Butterflies, because of their beauty are probably one of the most popular insects. They have a mystical magic to them. In this curriculum, we will explore these magical insects.

What makes an insect?

Insects have a chitinous exoskeleton, a three-part body (head, thorax and abdomen), three pairs of jointed legs, compound eyes and one pair of antennae.

Butterflies are considered insects because they have a head, thorax, and abdomen. They also have six legs, antennae, and four wings. The head of the butterfly includes two antennae, two eyes, and a proboscis.

How do you identify a butterfly? – Butterfly vs Moth

The insect order Lepidoptera consists of butterflies and moths. The name refers to the tiny scales covering the adult insect's wings. Butterflies account for only eight percent of the lepidopteran insect species. Moths are far more common, accounting for 92 percent of lepidopteran species. Butterflies and moths look very similar. How do you know the insect you are admiring is a moth or a butterfly?

Butterfly vs moth

		
	Butterfly	Moth
Color	Typically bright	Typically dull (provides camouflage)
Antennae	Thin with a clubbed tip	Feathery appearance
Resting Stance	Wings erect and held together	Wings open over back
Pupae	Chrysalis - usually exposed and attached to a leaf or twig	Cocoon - usually protected by soil, leaf litter, or bark

Body	Skinny body without “fur”	Fat, furry body
Active	Usually diurnal (day)	Usually nocturnal (night)

Activity 1: Build a moth and a butterfly antennae headband

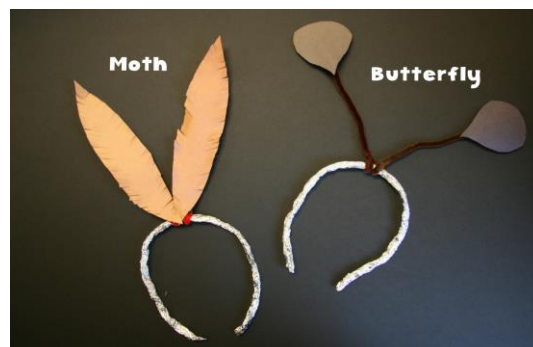
Look at these two images and focus on the antennae of these two beautiful insects. The right is a moth, left is a butterfly.



Materials: Cardstock, Construction Paper, Scissors, Pipe Cleaners, Aluminum Foil, Glue

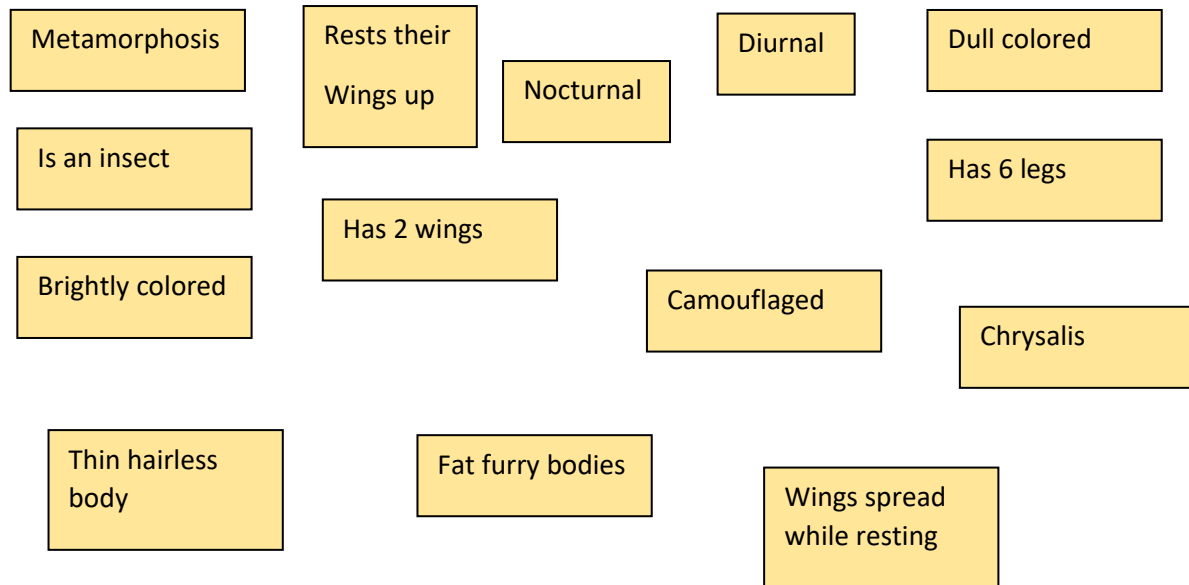
Instructions: Fold the pipe cleaners to make a headband and cover them completely with foil. Cut out the shape of 2 tear drops (for butterfly tips) and 2 pointed ovals (for Moth) out of the construction paper. Cut the edges of the oval to give it a feathery appearance. Use more pipe cleaners and glue to attach the shapes to the head band.

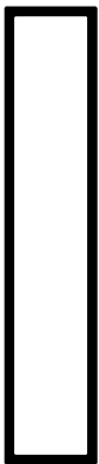
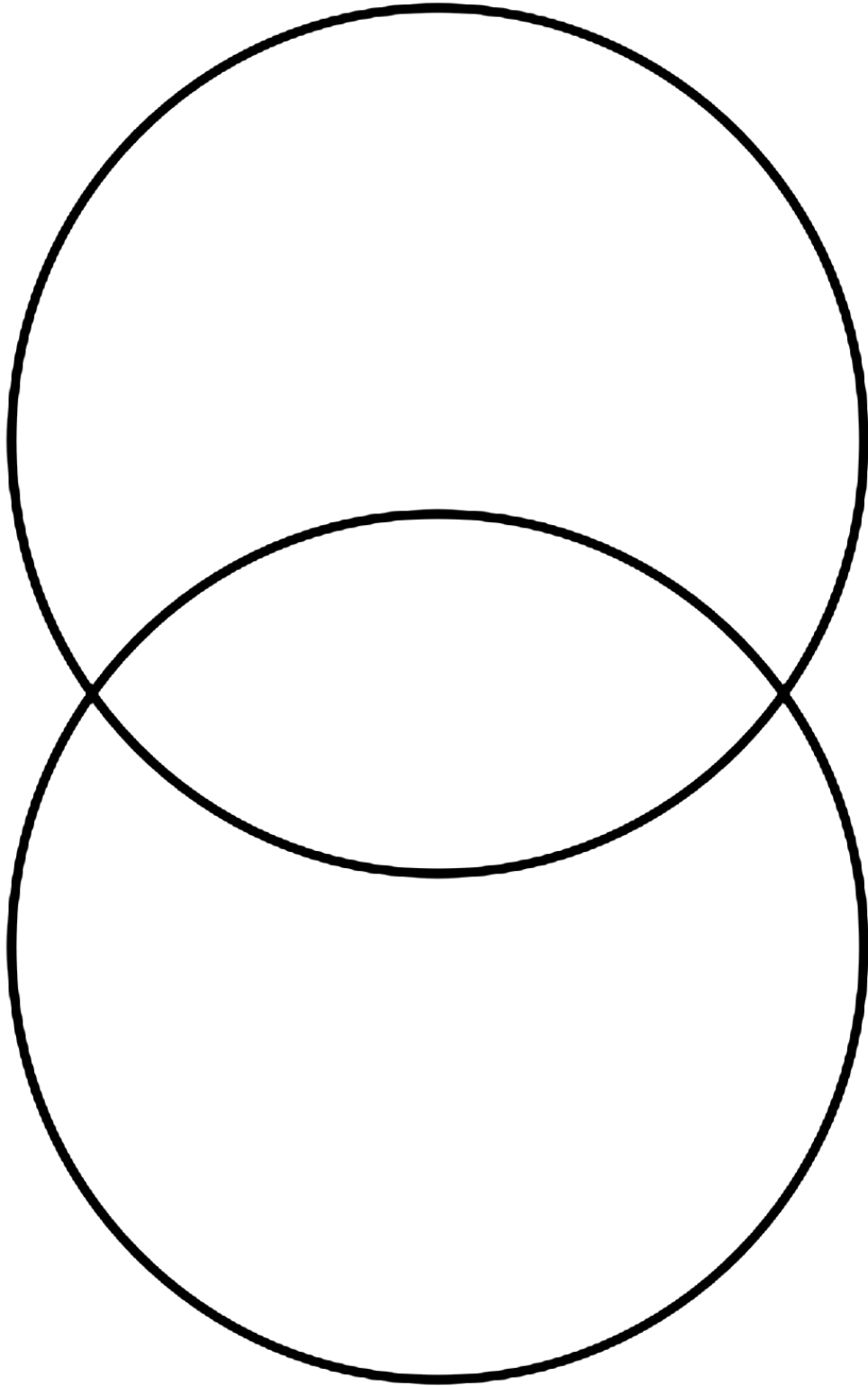
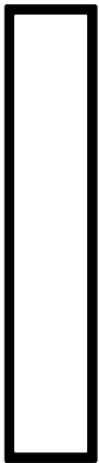
Credit: Omaha’s Henry Doorly Zoo



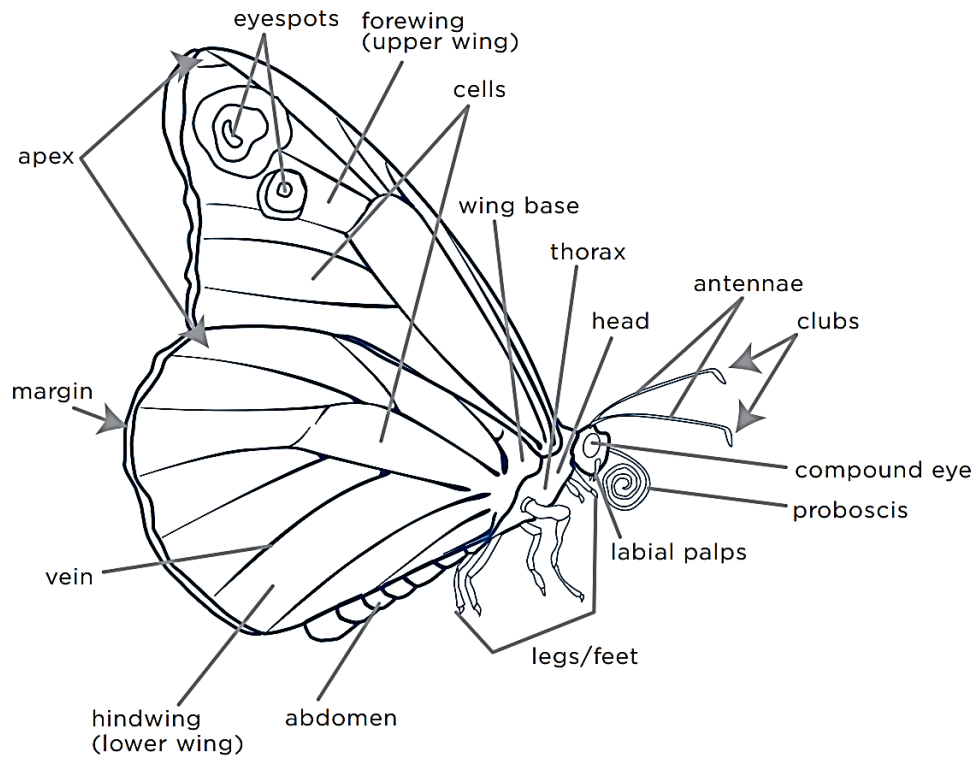
Activity 2: (Math connection) Make a Venn diagram of what is common and what is unique to butterfly and a moth.

Instructions: Print and cut each of these labels and a copy of the Venn chart. If a particular label(a feature) is present in both butterfly and moth, place it in the intersected area. Place the unique features in the butterfly or moth only sections.

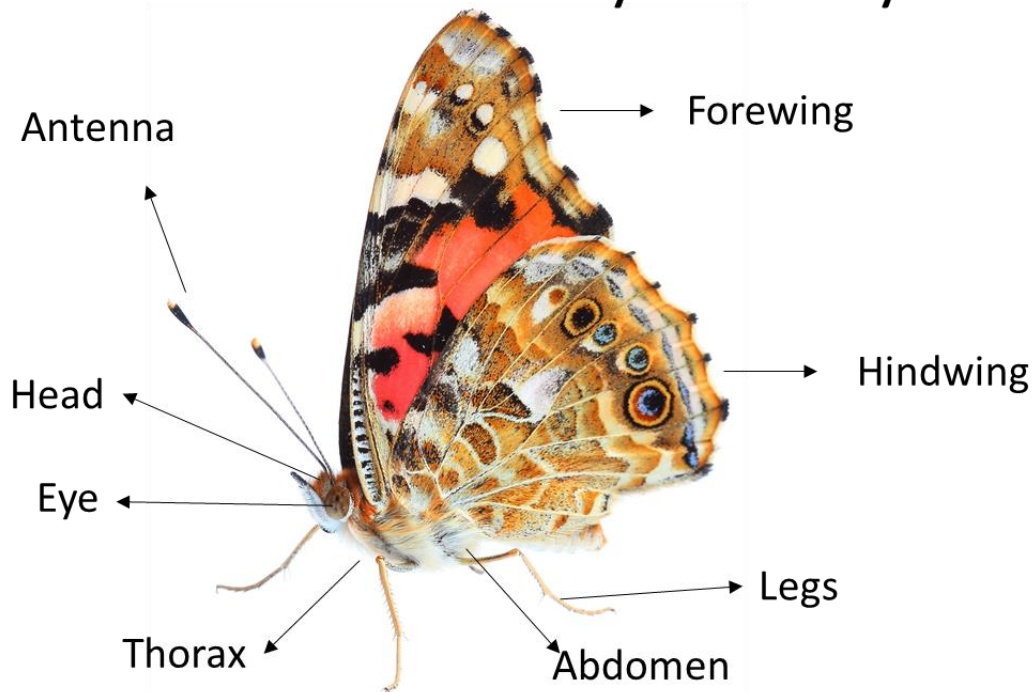




Butterfly anatomy



Parts of a Painted Lady Butterfly

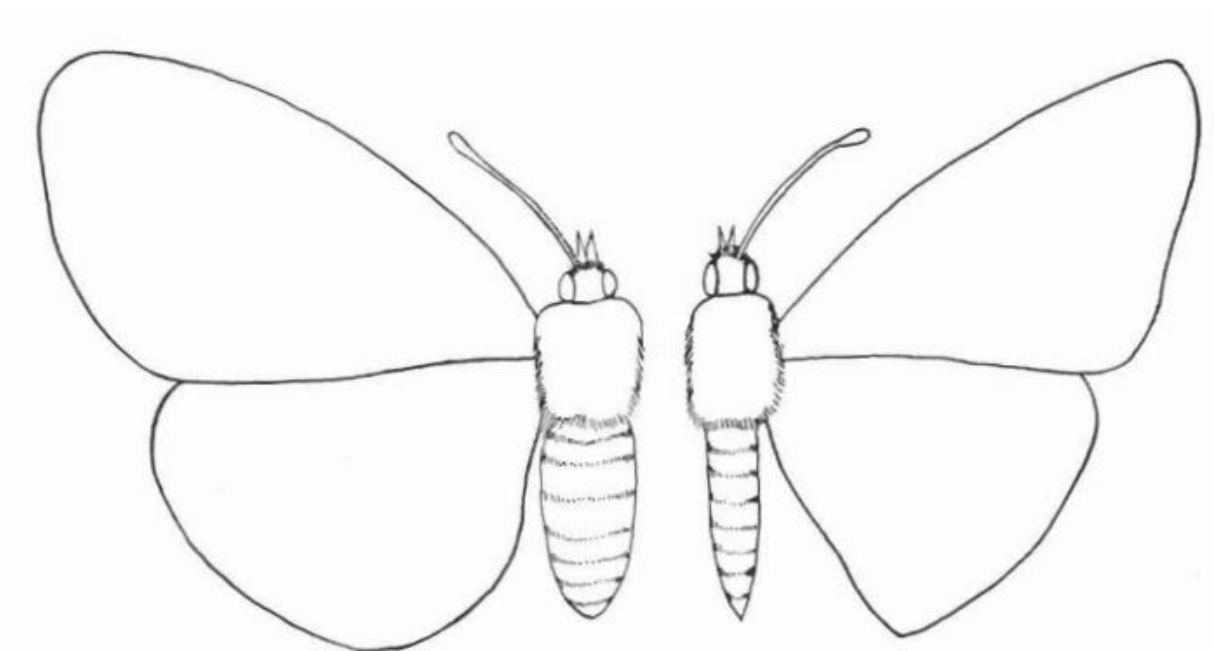


Butterfly – Male vs Female

Now that we have mastered the identification of moth vs butterfly, how do we tell a female and a male butterfly apart?

With some species the difference is easy, in others the differences are more subtle and with a few it is quite difficult.

Generally, female butterflies are large in wingspan and individual wing size than males of the same kind. Some female butterflies have more rounded wings than their male counterpart. Their abdomens containing large number of eggs are fatter and heavier than the slender ones of males. (Source: Cornell)



Extension for elementary students: Look at the pictures of various species of butterflies, both male and female. For each species, list what the differences are – male vs female.

Butterfly families

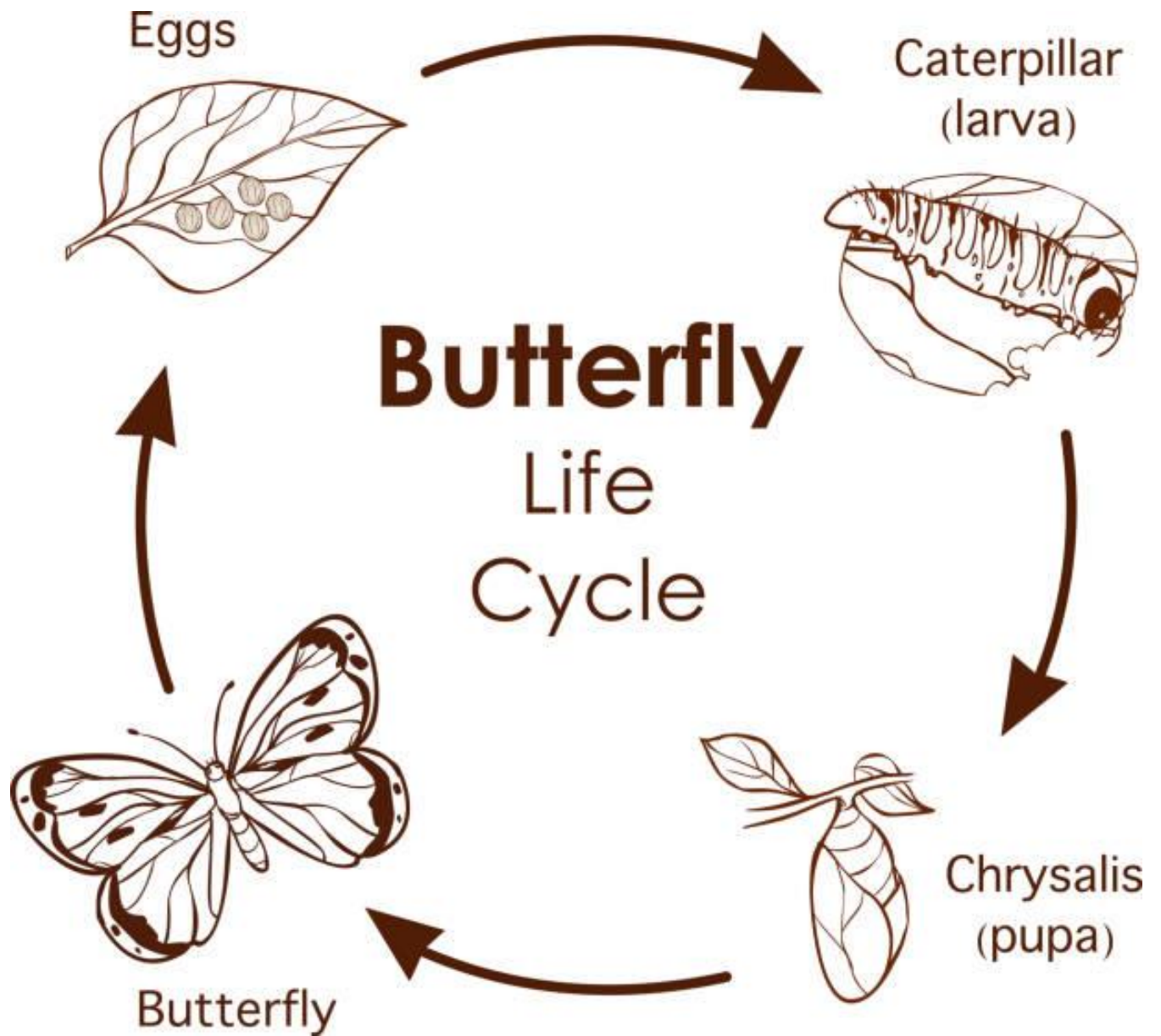
There are over 700 species of butterflies in the United States belonging to six different families. Butterflies occur in all 50 states. Here is a list of common characteristics and an example of each family. I have attached a detailed butterfly identification guide from US Army Corps at the end of this unit.

Family	Common name	Characteristics	Image
Hedylidae	American moth-butterflies	Small, brown, like geometrid moths; antennae not clubbed; long slim abdomen	
Hesperiidae	Skippers	Small, darting flight; clubs on antennae hooked backwards	
Lycaenidae	Blues, coppers, hairstreaks	Small, brightly coloured; often have false heads with eyespots and small tails resembling antennae	
Nymphalidae	Brush-footed or four-footed butterflies	Usually have reduced forelegs, so appear four-legged; often brightly colored	
Papilionidae	Swallowtails	Often have 'tails' on wings; caterpillar generates foul taste with osmeterium organ; pupa supported by silk girdle	
Pieridae	Whites and allies	Mostly white, yellow or orange; some serious pests of Brassica; pupa supported by silk girdle	
Riodinidae	Metalmarks	Often have metallic spots on wings; often conspicuously colored with black, orange and blue	

Life cycle of the butterfly

The butterfly, like most insects, develops through a process called metamorphosis. There are two common types of metamorphosis; incomplete and complete. Grasshoppers, crickets, dragonflies, and cockroaches go through an incomplete metamorphosis. In this process the young, called nymphs, usually look like small adults, but without their wings. Butterflies, moths, beetles, flies, and bees go through a complete metamorphosis. In this process the young, called larva, differ from the adults in appearance and the type of food they eat.

There are four stages in the butterfly life cycle; the egg, caterpillar, pupa, and adult. The adult female butterfly lays her eggs on a host plant. The plant will then become food for the hatching caterpillars. The next stage is the larva, which is called a caterpillar if the insect is a butterfly or moth. Caterpillars spend the majority of their time eating. As they grow, they will shed their skin approximately four or five times. The food eaten during this stage will be stored and saved for the adult stage. The third stage is the pupa. The pupa of a butterfly is also called a chrysalis. The length of the pupa stage depends on the species. From the outside it may appear that the chrysalis is not changing, but inside the cells are growing at a rapid pace and becoming the legs, wings, eyes, and other body parts of the adult butterfly. The last stage is the adult. The main job of the adult butterfly is to mate and lay eggs. While some species rely on nectar for energy, others do not feed at all. It is important for the adult female to find the right plant to lay her eggs on since caterpillars cannot travel far to find the right food.

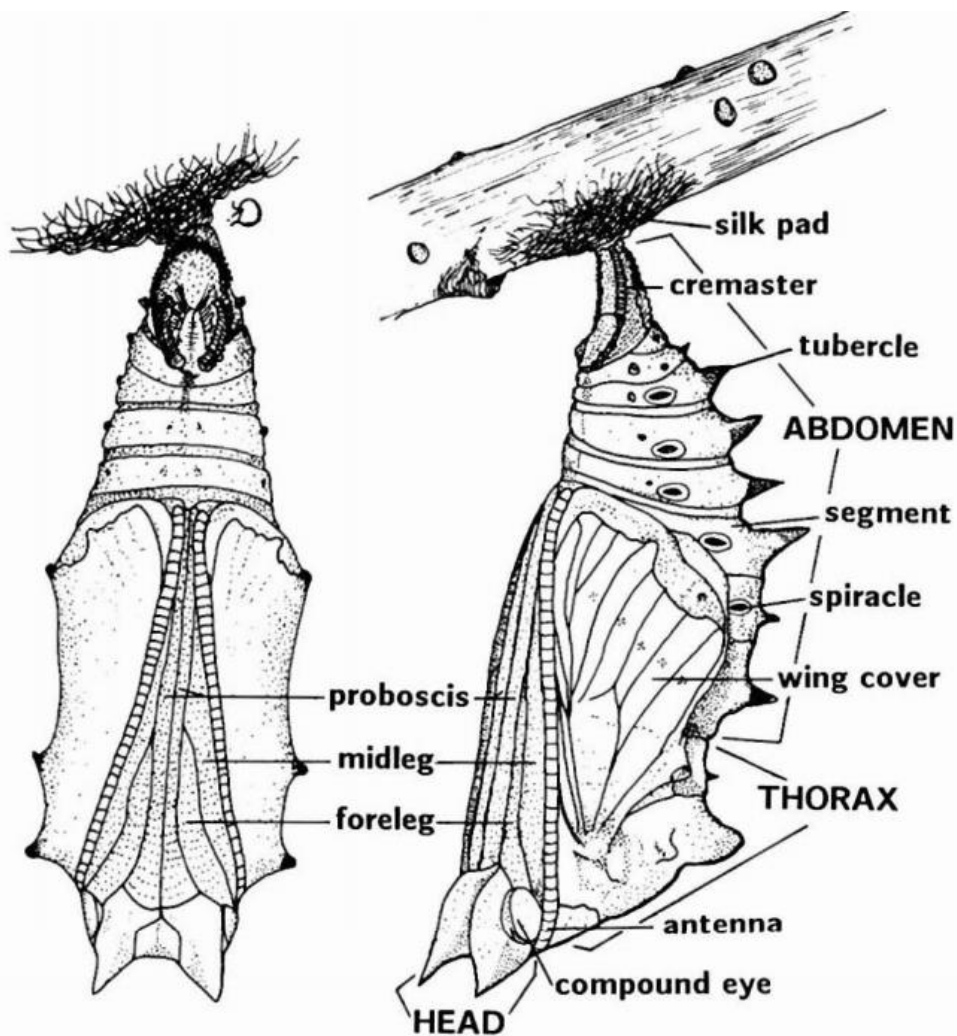


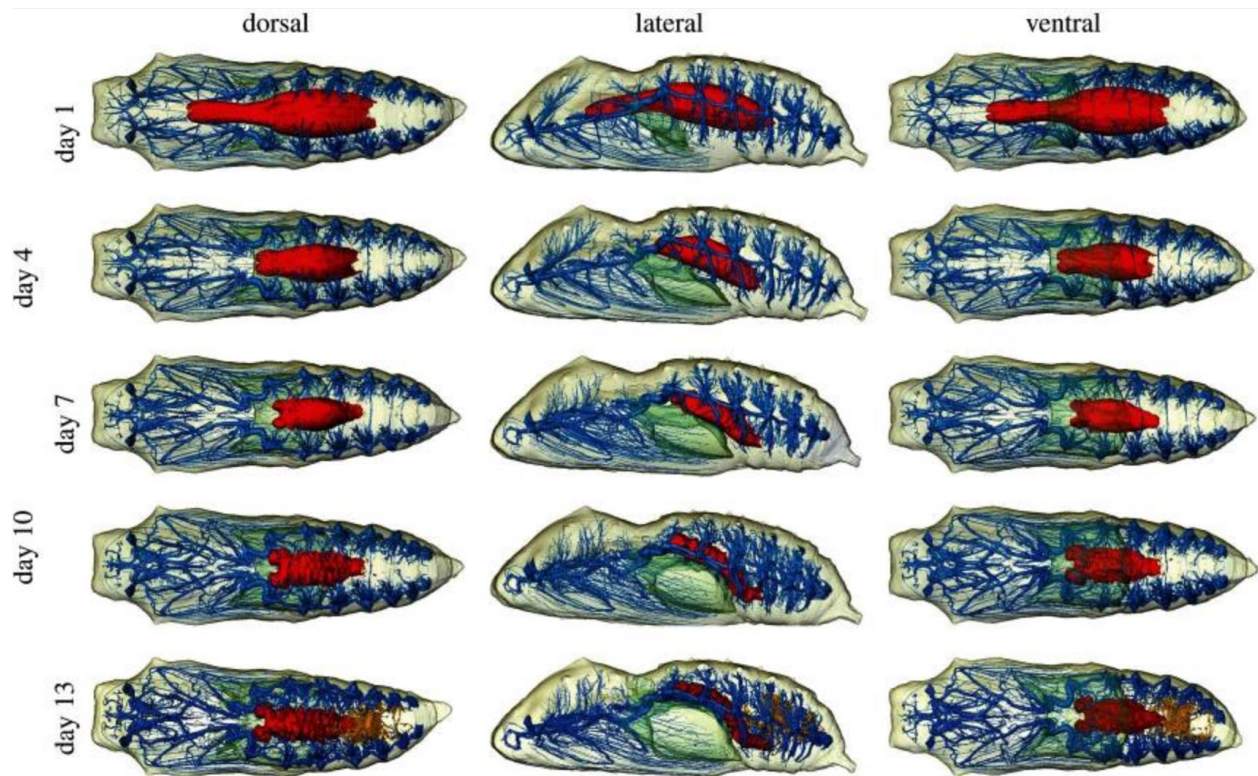
A composite image showing the life cycle of a monarch butterfly. It includes a small caterpillar on a leaf, a larger caterpillar with a tail, a chrysalis on a leaf, a pupa on a leaf, a pupa on a leaf, a pupa on a leaf, and a monarch butterfly with its wings spread.

The diagram illustrates the life cycle of a butterfly, showing the progression from egg to adult and back to egg. The stages are arranged in a circle, connected by a light green line. The stages are: Egg (a small cluster of yellow eggs on a green leaf), Larva (a green caterpillar with black and red spots on a green leaf), Pupa (a green chrysalis with black and red spots on a brown twig), and Adult (a yellow and black butterfly on a yellow flower). The cycle is completed by an arrow pointing from the adult butterfly back to the egg stage.

Activity: Extension for elementary students

Until recently, the only information on how the transformation occurs inside is chrysalis was that it “melts”, almost forms a soup and then reforms. In 2013, used micro-CT scans to see this transformation. The results are fascinating. The traditional knowledge about completely melting and reforming is mostly true but parts of the “soup” stayed in place. Comparing this parts of a chrysalis (below) and the micro-CT scans (next page), can you figure out what underwent a complete transformation, what was formed first and what stayed in place?





Painted lady butterfly chrysalis during metamorphosis. Breathing tubes in blue; guts in red.

Activity 3: (Math connection) Butterfly symmetry

Symmetry in biology is the balanced distribution of duplicate body parts or shapes. Many animals are symmetrical in some way. Most exhibit bilateral symmetry, meaning they can be divided in half, with both halves being a mirror image of the other. The beautiful design of a butterfly's wings is a great demonstration of bilateral symmetry.

Instructions: Print out and place them on a bigger sheet of paper. Now, can you complete the butterflies?



Food and habitat

Adult Butterflies feed on a wide variety of foods for energy and reproduction. They primarily feed on flower nectar but they also feed on sap and rotten fruit. All butterflies drink water, but male butterflies also drink liquids to obtain minerals that are important for reproduction. If one male finds a good mineral-rich wet spot to drink, others of the same species follow his example. This is known as “puddling.” Females don’t puddle but they do drink water to stay hydrated.

Butterflies drink their liquid food through a proboscis. The proboscis is a long straw-like tube that unrolls from the head when the butterfly needs to take either food or water for its liquid diet. Popular nectar-producing flowers that attract butterflies are butterfly bush, butterfly weed, purple coneflower, asters, Joe-Pye weed, coreopsis, black-eyed Susan, liatris, pentas, and many others.

Caterpillars feed on leaves and foliage of native plants including quaking aspen, elm, ash, hawthorn, poplar, cottonwood, hackberry, willow, winter cress, false nettle, milkweed, viburnum, mallows, cinquefoil, asters, rock cress, carrots, clovers, vetch, nettle, grasses, and others.

Activity 4: Build an imaginary butterfly garden

Choose your favorite butterfly (or 2). Based on the tables in the next few pages, can you build an imaginary garden to attract them and keep them thriving? I am attaching a USDA butterfly habitat guide as well, for more direction.

Common caterpillar food plants and species attracted to them.

Plant	Plant type	Butterfly species attracted
Alfalfa (<i>Medicago sativa</i>)	forb	clouded sulphur, alfalfa sulphur, eastern tailed blue
Aspen (<i>Populus spp.</i>)	tree	white admiral, red-spotted purple, western admiral, Lorquin's admiral, viceroy, mourning cloak, tiger swallowtail, western tiger swallowtail
Birch (<i>Betula spp.</i>)	tree	mourning cloak, white admiral
Blueberry (<i>Vaccinium spp.</i>)	shrub	brown elfin
Cherry (<i>Prunus spp.</i>)	tree, shrub	red-spotted purple, tiger swallowtail, spring azure
Clover (<i>Trifolium spp.</i>)	forb	clouded sulphur, alfalfa sulphur, eastern tailed blue
Dogwood (<i>Cornus spp.</i>)	tree, shrub	spring azure
Elm (<i>Ulmus spp.</i>)	tree	comma, question mark, mourning cloak
Everlasting (<i>Gnaphalium spp.</i>)	forb	American painted lady
False indigo (<i>Amorpha spp.</i>)	shrub	dog face, silver-spotted skipper
False nettle (<i>Boehmeria cylindrica</i>)	forb	red admiral, question mark, comma, Milbert's tortoiseshell
Grasses, sedges - various genera		common wood nymph, little wood satyr, eyed brown, ringlet, fiery skipper, European skipper
Hackberry (<i>Celtis spp.</i>)	tree	question mark, comma, hackberry butterfly, tawny emperor, snout butterfly, mourning cloak
Knotweed (<i>Polygonum spp.</i>)	forb	purplish copper
Locust (<i>Robinia spp.</i>)	tree, shrub	silver-spotted skipper
Lupine (<i>Lupinus spp.</i>)	forb	silvery blue, other blues
Mallow (<i>Malva spp.</i>)	forb	west coast lady, gray hairstreak
Milkweed (<i>Asclepias spp.</i>)	forb	monarch, queen
Oak (<i>Quercus spp.</i>)	tree, shrub	sister, banded hairstreak
Passionflower (<i>Passiflora spp.</i>)	forb	gulf fritillary, zebra
Pawpaw (<i>Asimina spp.</i>)	tree	zebra swallowtail
Pipevine (<i>Aristolochia spp.</i>)	forb	pipevine swallowtail
Queen Anne's lace (<i>Daucus carota</i>)	forb	black swallowtail, anise swallowtail
Dock (<i>Rumex spp.</i>)	forb	American copper, purplish copper
Spicebush, sassafras (<i>Lindera spp.</i>)	shrub	spicebush swallowtail, tiger swallowtail
Stonecrop (<i>Sedum spp.</i>)	forb	Phoebus parnassian
Tulip poplar (<i>Liriodendron tulipifera</i>)	tree	tiger swallowtail
Turtlehead (<i>Chelone spp.</i>)	forb	Baltimore, buckeye
Vetch (<i>Vicia spp.</i>)	forb	alfalfa sulphur, eastern tailed blue, western tailed blue, other blues
Violet (<i>Viola spp.</i>)	forb	great spangled fritillary, meadow fritillary, other fritillaries
Willow (<i>Salix spp.</i>)	tree, shrub	western admiral, Lorquin's admiral, viceroy, mourning cloak, western tiger swallowtail
Winter cress (<i>Barbarea spp.</i>)	forb	Sara orange tip, falcate orange tip, cabbage white

Common adult butterfly nectar sources.

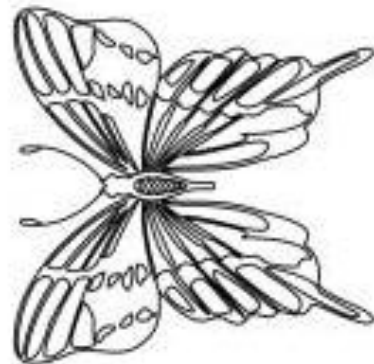
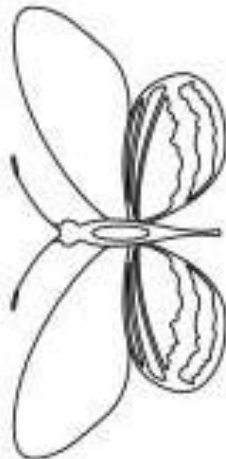
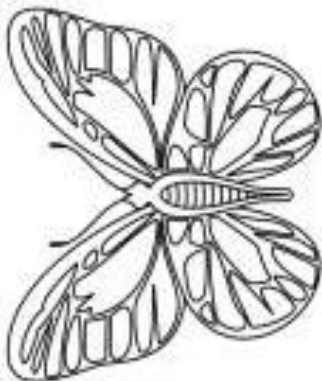
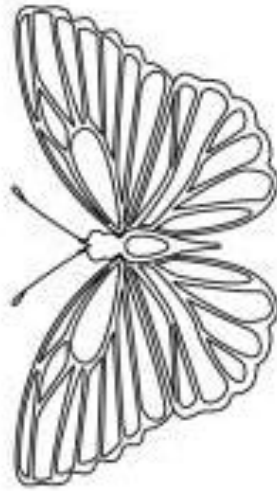
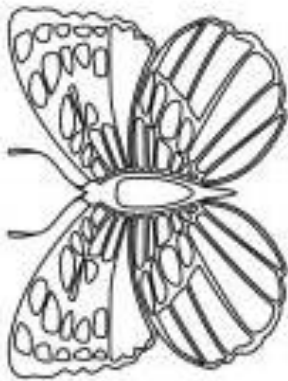
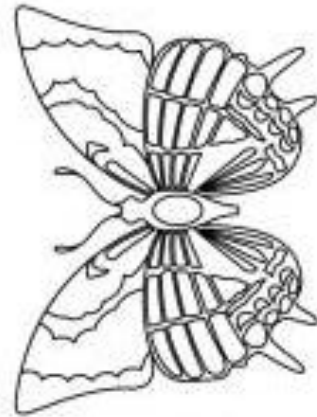
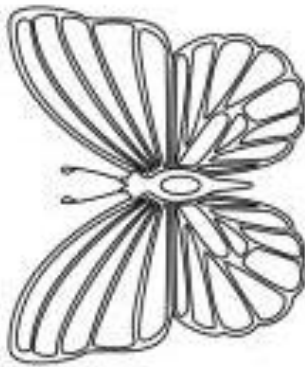
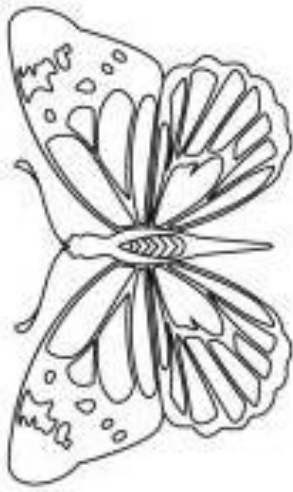
Annuals	Height (ft.)	Color
Cosmos (<i>Cosmos bipinnatus</i>)	3	pink, whites
Heliotrope (<i>Heliotropium arborescens</i>)	1	purple
Lunaria, honestly (<i>Lunaria annua</i>)	2-3	purple, white
Mexican sunflower (<i>Tithonia rotundifolia</i>)	3-5	yellow, orange
Nicotiana, flowering tobacco (<i>Nicotiana glauca</i>)	2	pinks, whites
Pentas (<i>Pentas lanceolata</i>)	1.5	purple, rose, white
Perennials (early)		
Arabis (<i>Arabis albida</i>)	.5	white
Purple rock cress (<i>Aubrieta deltoidea</i>)	.5	purple
Perennials (midseason)		
Bee balm (<i>Monarda didyma</i>)	3	pink, red
Black-eyed Susan (<i>Rudbeckia spp.</i>)	3	yellow
Butterfly weed (<i>Asclepias tuberosa</i>)	2-3	orange
Catmint (<i>Nepeta mussinii</i>)	1	blue-purple
Coreopsis (<i>Coreopsis spp.</i>)	2	yellow
Daisy, shasta daisy (<i>Chrysanthemum maximum</i>)	2-3	white
Daylily (<i>Heemerocallis spp.</i>)	2-3	yellow, orange, peach, pink
Erigeron, fleabane (<i>Erigeron speciosus</i>)	1-3	lavender-blue
Lavender (<i>Lavandula angustifolia</i>)	1-3	purple
Liatris, blazing star (<i>Liatris spp.</i>)	2-4	mauve
Lily (<i>Lilium spp.</i>)	2-5	yellow, pink, white, red
Mint (<i>Mentha spp.</i>)	1-4	purple, white
Purple coneflower (<i>Echinacea purpurea</i>)	2-3	pink, white
Sunflower (<i>Helianthus spp.</i>)	3-5	yellow
Perennials (late)		
Aster (<i>Aster spp.</i>)	3-5	purple, ruby, pink, blue
Globe thistle (<i>Echinops exaltatus</i>)	2-4	purple
Obedient plant (<i>Physostegia virginiana</i>)	2.5-4	pink
Showy sedum (<i>Sedum spectabile vulgare</i>)	1-1.5	pink
Wildflowers (early)	Height (ft.)	Color
Clover (<i>Trifolium spp.</i>)	.5	pink, white
Hawkweed (<i>Hieracium spp.</i>)	.5-1	yellow, orange
Winter cress (<i>Barbarea spp.</i>)	1-1.5	yellow
Wildflowers (midseason)		
Butterfly weed (<i>Asclepias tuberosa</i>)	1-2	orange
Daisy, oxeye daisy (<i>Chrysanthemum leucanthemum</i>)	1-2	white
Dogbane (<i>Apocynum androsaemifolium</i>)	1-2	pink
Milkweed (<i>Asclepias spp.</i>)	3	pink
Mountain mint (<i>Pycnanthemum spp.</i>)	1-2.5	white
Vetch (<i>Vicia spp.</i>)	6	purple

Wild bergamot (<i>Monarda fistulosa</i>)	3-4	lavender
Yarrow (<i>Achillea millefolium</i>)	2	white
Wildflowers (late)		
Aster (<i>Aster spp.</i> , <i>A. novae-angliae</i>)	4	purple-blue
Boneset (<i>Eupatorium perfoliatum</i>)	4-5	white
Goldenrod (<i>Solidago spp.</i>)	3	yellow
Ironweed (<i>Veronia spp.</i>)	3-7	purple
Joe-Pye weed (<i>Eupatorium spp.</i>)	5-9	pinkish, purple
Shrubs (early)		
Rhododendron (<i>Rhododendron spp.</i>)	up to 18	pink, purple, white
Spicebush (<i>Lindera benzoin</i>)	15	yellow
Shrubs (midseason)		
Butterfly bush (<i>Buddleia davidii</i>)	6-15	purple
Buttonbush (<i>Cephalanthus occidentalis</i>)	15	white
New Jersey tea (<i>Ceanothus americanus</i>)	3	white
Sweet pepperbush (<i>Clethra alnifolia</i>)	4-6	white
Shrubs (late)		
Bluebeard (<i>Caryopteris clandonensis</i>)	2-4	blue
Sweet pepperbush (<i>Clethra arborea</i>)	25	white
Trees		
Buckeye (<i>Aesculus spp.</i>)	75	white, greenish yellow, pink
Plum, cherry (<i>Prunus spp.</i>)	20-30	pink
Willow (<i>Salix spp.</i>)	10-45	greenish yellow

Source: USDA

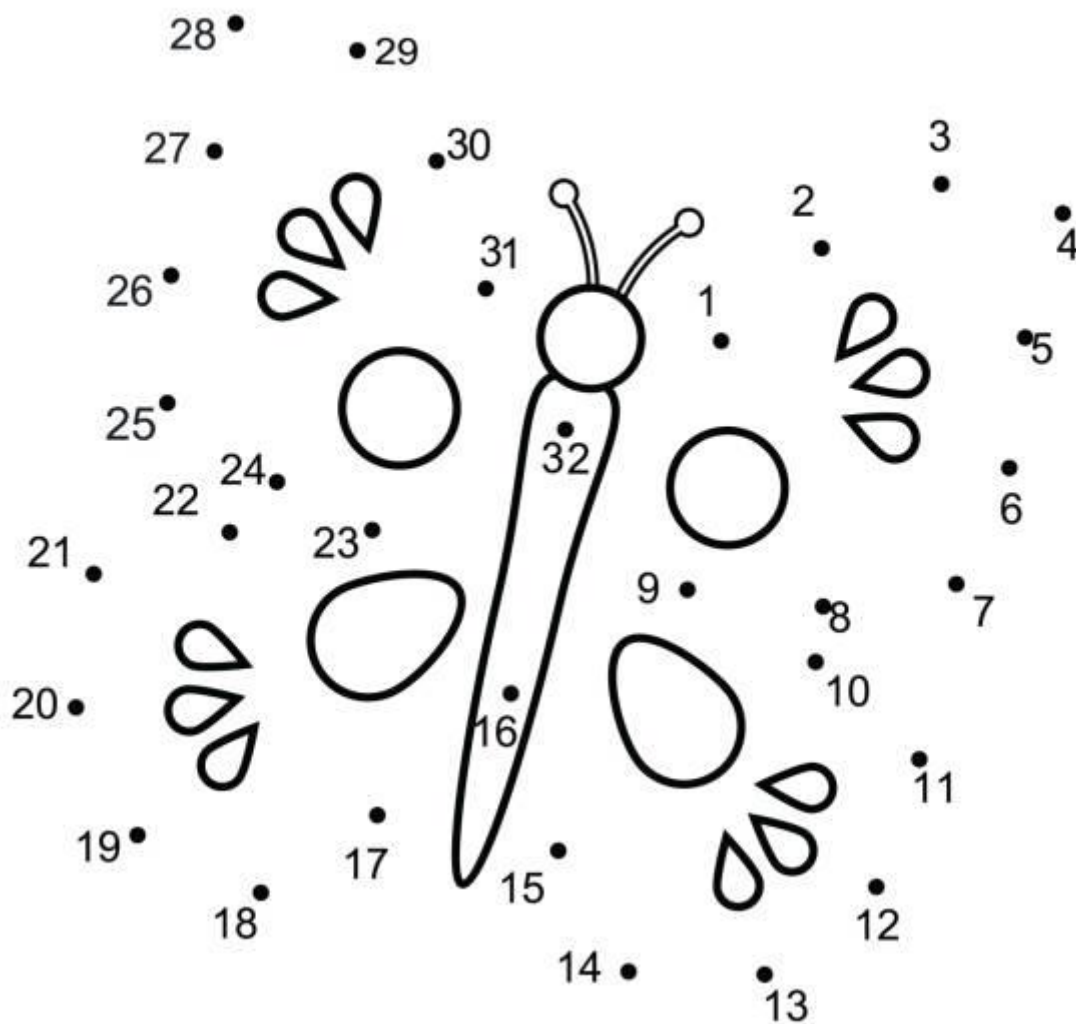
Activity 5: Coloring pages



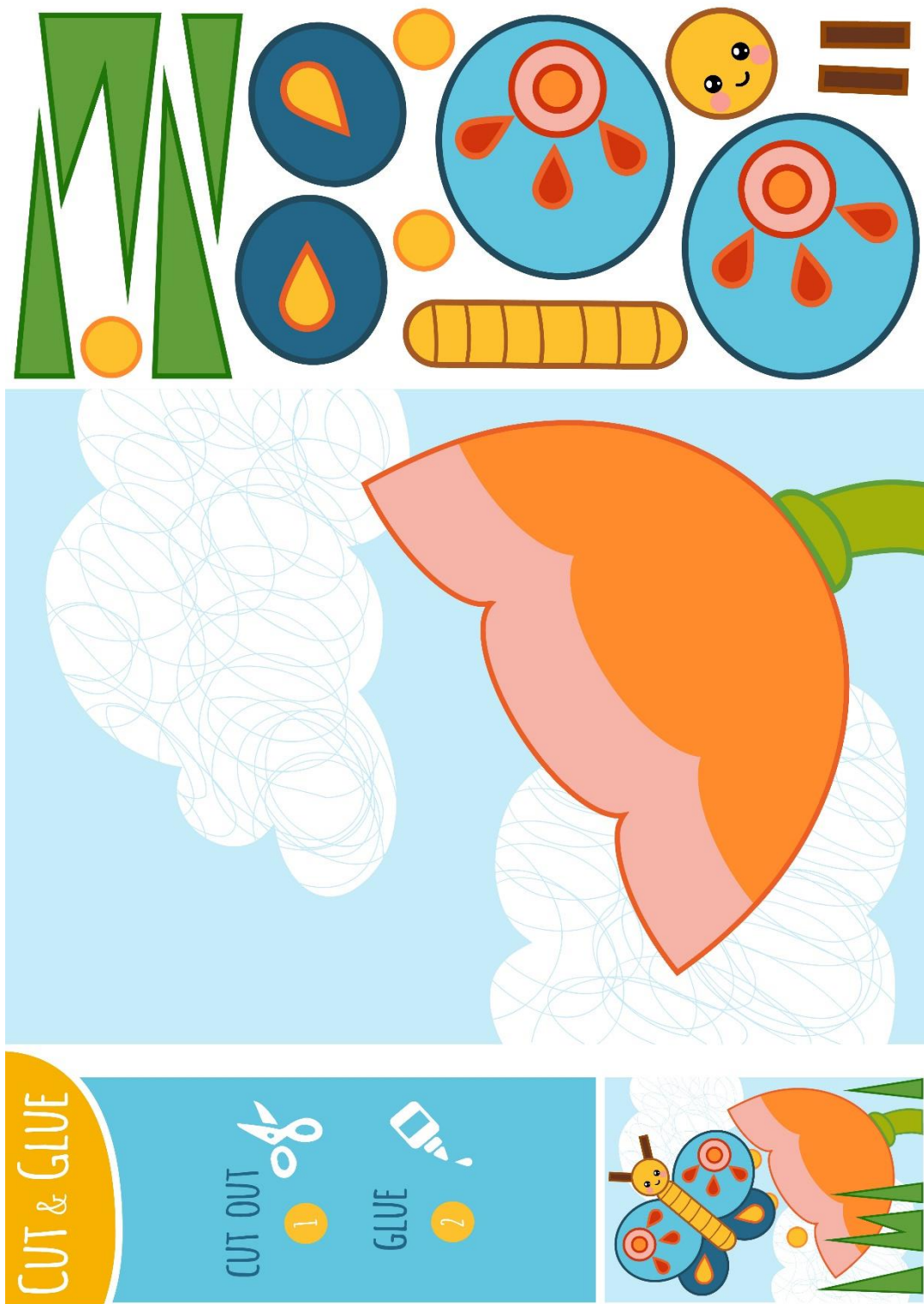


Activity 6: Connect the dots

Connect the dots



Activity 7: Cut and glue



Note about Pollination: Butterflies are great pollinators. This topic is covered in greater detail in the pollinator unit, so I am skipping that here (not because they are not important, they are! I just want to avoid duplicating materials).

Related products

	https://www.mirustoys.com/collections/birds/products/montessori-wooden-puzzle-self-correcting-bird-puzzle-bird-beak-adaptations-educational-toys-bird-lover-puzzle Bird beak adaptations self-correcting puzzle
	https://www.mirustoys.com/collections/science-nature/products/wooden-memory-puzzle-beneficial-bugs-wooden-puzzle-educational-toys-montessori This puzzle provides a starting point to start the conversation about the benefits of insects. They help us with absolute essential things to making our world more beautiful. It can be used as a memory puzzle but it can also be used as a match the benefit(s) puzzle. Some bugs have more than one benefit, learn about it, talk about it, research it, observe it...



U.S. Fish & Wildlife Service

Attracting Butterflies

Backyard Habitat for Wildlife



Creating Habitat

Creating habitat for butterflies is an exciting and rewarding endeavor. Some key components of your butterfly habitat are:

- **Sunny areas.** Plants that butterflies like require bright sunshine.
- **Splashes of color.** Butterflies are attracted to flowers by color. Groups of flowers are easier to locate than isolated plants.
- **Single flowers.** The nectar of single flowers is more accessible and easier to extract than double flowering plants.
- **Host plants.** Female butterflies lay their eggs only on certain host plants that will nourish the young caterpillars after they hatch. Grow those plants that supply food for the caterpillars.
- **Damp areas.** Butterflies cannot drink from open water. Wet sand, earth, or mud are the best watering holes.
- **Basking stones.** Butterflies often perch on stones to bask in the sun. Basking raises their body temperature so that they are able to fly and remain active.

Enjoy Watching Butterflies

You can enhance your butterfly habitat by making personal observations. Identify which butterflies occur in your community and the plants they are visiting. Butterflies are easy to identify with field guides such as:

Butterflies and Moths

by H.S. Zim, Golden Guide Series, Golden Press, New York, New York, 1987.

The Audubon Society Handbook for Butterfly Watchers by R. M. Pyle, Charles Scribners & Sons.

Host Plants for Butterflies

(Host plant—*Scientific name*
Butterfly attracted)

Butterflyweed—*Asclepius tuberosa*
Monarch Butterfly

Parsley—*Petroselinium crispum*
Black Swallowtail Butterfly

Dill—*Anethum graveolens*
Black Swallowtail Butterfly

Fennel—*Foeniculum vulgare*
Black Swallowtail Butterfly

Rue—*Ruta graveolens*
Black Swallowtail Butterfly

Passion Flower—*Passiflora incarnata*
Gulf Fritillary Butterfly

Spicebush—*Lindera benzoin*
Spicebush Swallowtail Butterfly

Tulip Tree—*Liriodendron tulipifera*
Eastern Tiger Swallowtail Butterfly

Butterfly Biology

The most successful butterfly habitat includes plants which meet the needs of butterflies during all four stages of their life cycle: egg, caterpillar, chrysalis and adult.

After mating, female butterflies search for a specific kind of “host plant” on which to lay eggs. For example, monarchs lay eggs on milkweed, black swallowtails on parsley, and tiger swallowtails on tulip tree or wild cherry. In a few days, caterpillars emerge from the eggs and begin to eat. Caterpillars only feed on specific kinds of plants.

When the caterpillars are fully grown, they shed their skin and change into chrysalises. Often chrysalises are attached to plant stems and protected by surrounding vegetation. It is inside the chrysalis that the adult butterfly is formed.

After emerging from the chrysalis, the adult butterfly soon begins to search for nectar-rich flowers to feed upon.

Plants Butterflies Like ¹

Plants selected from the following list will appeal to butterflies (common name *scientific name*):

Shrubs:

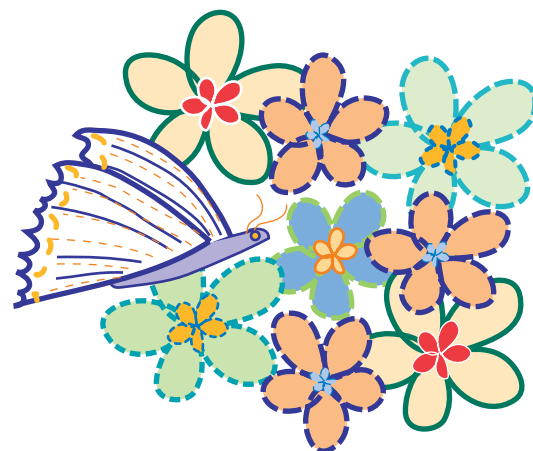
Azalea—*Rhododendron spp.*

Annuals:

Cosmos—*Cosmos sulphureus*

French Marigold—*Tagetes patula*

Heliotrope—*Heliotrope arborescens*



Impatiens—*Impatiens wallerana*

Mexican sunflower—*Tithonia rotundifolia*

Verbena—*Verbena x hybrida*

Zinnia—*Zinnia elegans*

Pentas—*Pentas lanceolata*

Perennials:

Purple coneflower—*Echinacea purpurea*

Black-eyed susan—*Rudbeckia spp.*

Butterflyweed—*Asclepias tuberosa*

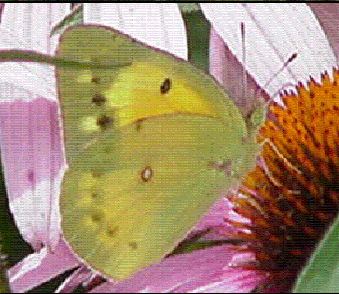
Coreopsis—*Coreopsis spp.*

Moss Verbena—*Verbena tenuisecta*

¹ Information provided by
The Butterfly Center, Callaway Gardens

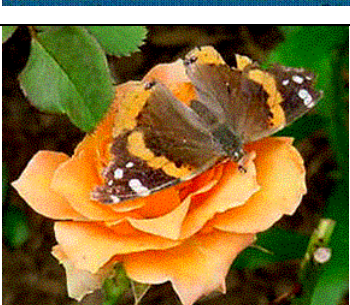
A Beginner's Guide to Butterfly Identification

	Common Name	Color(s)	Key Feature(s)	Size (inches) from one wing tip to the other	Adult Habitat	Other
	Zebra Swallowtail (SWT)	White with black stripes	Very long tails zebra striped	2½ -4	Moist woods along rivers, woods swamps, pine flatwoods	Found April through September
	Black Swallowtail	Black, yellow	Very dark black color 2 rows (bands) of spots	3-4½	Open areas - fields, gardens, waste areas, marshes; meadow/old fields	Found April through October
	Eastern Tiger Swallowtail	Yellow, black stripes; female dark form is black	Tiger-striped	3-6½	Deciduous broadleaf forests, edges, and river valleys	Found April through September
	Spicebush Swallowtail	Black, blue	Spoon-shaped tails	3-5	Broadleaf deciduous forests second growth woods, deciduous woodlands, edges, wooded swamps, pine barrens	Found April through September

	Common Name	Color(s)	Key Feature(s)	Size (inches)	Adult Habitat	Other
	Pipevine Swallowtail	black	Underside - large orange spots on iridescent blue Upper side - black with iridescent dark green	2¾ -5	glades in woods – wooded clearings	Found April through September
	Cabbage White	white	extremely common and wide-spread	1-2	open, weedy areas in urban and rural settings: gardens, power lines, marshes, road edges.	Found March through November
	Clouded (Common) Sulfur	yellow	Males have dark margins on front & hind wings	1-3	open – fields, lawns, road edges, clover fields	Found May through October. Confused with orange sulfur. No orange patch
	Orange (Alfalfa) Sulfur	yellow; some orange	Orange patches in center of forewing Dark edges on males	1-2	open – alfalfa fields, lawns, fields, road edges	Found April through November. Confused with common sulfur. Has orange patch
	American Copper	orange	Bright orange flash Forewings orange with black spots Flies close to the ground	1 – 1.5	meadow/old fields old fields, roadsides, pastures, landfills	Found April through November

	Common Name	Color(s)	Key Feature(s)	Size (inches)	Adult Habitat	Other
	Red-Banded Hairstreak	Gray-brown; red/orange stripe	Tails and red orange stripe	1 -1.25	Overgrown fields, coastal hammocks, edges	Found April through October
	Gray Hairstreak	Gray-blue; with large red spot near tail	Tails; red spot on hind wing	1-1.5	Open sites; common in disturbed, weedy areas.	Found May through September
	Eastern Tailed Blue	Light blue; orange spots on underside	Tiny orange eyespots on hindwing Two small hairs (tails) at bottom of hindwings Dark outline around wings Smaller than the common blue	<1	Meadow/old fields open, sunny, weedy	Found April through November. Often confused with common blue. ETB has orange spots and tiny tails
	Common Blue (Summer Azure)	Light blue; females have black outline	Very small Almost moth-like Often very pale blue	1	Deciduous woods and wooded edges	Found April through September. Often confused with ETB. Common blue has no spots or tails
	American Snout	Brown and orange	Snout – protrusion from head is very distinct Angular wings with dark margins Orange color on wings near the body	1.5 - 2	Forested rivers & marshes, fields, boundaries/edges	Found June through September.

	Common Name	Color(s)	Key Feature(s)	Size (inches)	Adult Habitat	Other
	Great Spangled Fritillary	Orange	Larger than Meadow Fritillary Bright orange color Silver spots	3-4	Open fields, meadows, roadsides. Prefers moist areas.	Found June through September. Similar to Meadow but has Spots on outside of hind wing
	Meadow Fritillary	Orange	Medium size Usually dull orange-brown with black dashes Similar to Great Spangled, but smaller	1.25-2	Low, moist grassy fields	Found April through October. Smaller than Great Spangled
	Variegated Fritillary	Orange	Upper side orange with thick dark veins and markings; black spots near margin. Underside of hindwing with a mottled pattern and no silver spots.	1.75-3	Open sunny areas such as fields, pastures, road edges, and landfills.	Found April through October
	Pearl Crescent	Orange	Orange-colored, with varying dark markings Brown smudge on hindwing Low flight	1.25-1.5	Meadow/old fields	Found April through November
	American Lady	Orange	Underside has a cobweb-like pattern and distinctive pink patch on forewing. Two eyespots on hind wings	1.75-2.5	Open spaces like fields and roadsides	Found May through November

	Common Name	Color(s)	Key Feature(s)	Size (inches)	Adult Habitat	Other
	Question Mark	Orange	Medium size Upper hindwings darker forewings with black speckles Frisly angular wing margins	2.25-3	Woodlands and nearby open areas.	Found March through November. Confused with Eastern Comma. Wing edges less distinct than Eastern Comma
	Eastern Comma	Orange	Wing edges cut very deep looks worn out Upper wings have dark margin	1.75-2.5	Forested rivers Marshes Swamps Damp forests	Found March through November. Confused w/ Question Mark. Upper wing has dark margin.
	Mourning Cloak	Black	Pale yellow or white margin on outside of upper wings	2-2.5	Streams, Wooded clearings, urban parks, damp woods	Found February through December
	Red Admiral	Black, red, orange	Reddish-orange bands on both forewings and hindwings Rapid flight	1.75-3	Open areas with flowers.	Found April through December

	Common Name	Color(s)	Key Feature(s)	Size (inches)	Adult Habitat	Other
	Red Spotted Purple	Greenish blue	Hindwings with black stripe lining margin Red spots towards tip of forewing	2.25-4	Broadleaf deciduous forests	Found May through September. Pipevine SWT mimic
	Common Buckeye	Brown with brightly colored spots	Eyespots on upper wings are large & brightly colored	1.5-2.25	Exposed areas: meadows, road edges	Found May through November
	Hackberry Emperor	Dark brown	Very friendly – will land right on you. Upperside of forewing dark brown with white spots	2-2.5	Forested streams and clearings Edges	Found June through September
	Tawny Emperor	Brown with colorful hindwings	Usually more colorful than Hackberry Hindwings darker than forewings	2-2.5	Heavily wooded areas near rivers, dry woods, cities	Found June through August
	Common Wood Nymph	Brown	Dark spots on underside and upperside wing margins	1.75-3	Prairies, old fields, pinewoods, bogs, open meadows	Found June through September

	Common Name	Color(s)	Key Feature(s)	Size (inches)	Adult Habitat	Other
	Little Wood Satyr	Brown	Two eye spots found on forewing and hindwing	1.5-2	Edge habitat between fields and forested areas	Found May through September
	Northern Pearly Eye	Pale grey	Pale color Row of dark spots on underside of wings	1.5-2	Damp deciduous woods near streams or marshes	Found June through August
	Monarch	Orange, black	Bright orange Black veins Glides while flying	3.5-4	Meadows Weedy fields Moist areas	Found May through November. Confused with viceroy. Does not have black line across hind wing.
	Viceroy	Orange, black	Similar to Monarch except for black line present crossing the hindwing	2.5-3.5	Moist open or shrubby areas such as lake and swamp edges, willow thickets, valley bottoms, wet meadows, and roadsides.	Found May through September
	Silver Spotted Skipper	Brown	Large silvery spot found on the hindwing	1.75-2.5	Open areas like fields and gardens as well as woodland borders	Found April through mid October

Online Sources:

<http://www.butterfliesandmoths.org/>

<http://www.virginia.edu/blandy/ClarkeCountyLandUseSurvey/ccmapping.htm>

<http://www.carolinanature.com/butterflies/>