

# Wildlife Express!

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# Let's Look at the... Western Tiger Swallowtail Butterfly



There's no doubt about it. Tiger swallowtail butterflies are big and beautiful! If you see a flash of yellow on a flower in a park or in your backyard, chances are it is a tiger swallowtail butterfly.

Their name gives you an idea of what these butterflies look like. Their wings are yellow with black stripes like a tiger, and their back wings have little "tails" on them that look like the tails on swallowtail birds.

One thing that tiger swallowtails do is something called hill topping. The males and females will fly up to the tops of mountain slopes and ridges looking for mates. The mountain may actually look like it has yellow spots because of all the butterflies. Usually it is the males that cruise around looking for the females.

Females lay single green eggs on the bottom of leaves. The female makes sure to lay her eggs on plants the caterpillars will eat. Cottonwood trees, willows, aspen trees and cherry trees are all good places. The caterpillar that emerges from the egg will go through many changes before it becomes a butterfly.

Young swallowtail caterpillars look like bird poop! A bird wouldn't want to eat another bird's dropping, so this is a good way for the young caterpillar to protect itself. As the caterpillar gets older, it changes into a bright green caterpillar with big yellow eyes with blue eye pupils! The yellow eyes aren't real eyes. They help the caterpillar look like a scary monster and help frighten away predators. If the yellow eyes don't work, the caterpillar has another trick. It stinks! Behind its head the caterpillar has a Y-shaped gland that makes an awful smell sure to slow down a predator.

After munching on plants, the caterpillar will start to pupate. It will turn into a chrysalis, but we might not see the butterfly until the following summer. The swallowtail will often stay in the chrysalis all winter long. The chrysalis is green in the summer and brown in the winter. During the winter, the chrysalis looks just like bark. What wonderful camouflage!

Most western tiger swallowtails are flying from June through July. During this time, they are drinking nectar from flowers and drinking water from mud puddles. They drink from mud puddles to get the minerals dissolved in the water.

Tiger swallowtail butterflies can have a wingspan of four inches. They are pretty big butterflies to be landing on delicate flowers, so often they continue to move their wings while sipping nectar. This helps them to balance and not make the flower tip or bend over.

Keep an eye out for western tiger swallowtails this summer. The bird poop you see on a willow might just be a caterpillar!

# What's an Insect?

They are on the ground, in trees, in soil and in your house. They make up about 80 percent of all known animal species on Earth. Insects are all around us.

Sometimes any small creepy crawly is called an insect, but to be an insect an animal must meet three important rules. They must have three main body parts – the head, **thorax** (THOR-aks) and **abdomen** (AB-do-men), six legs and two **antennae** (an-TEN-ee).

The head of an insect has the eyes, antennae and mouthparts on it. Insects have two large compound eyes. Compound eyes are **faceted** (FAS-et-ed). They have more than one lens or surface. Compound eyes look a bit like a honeycomb. Insects may also have up to three simple eyes. You have simple eyes. A simple eye has one surface or facet. Without moving their heads, many insects can see all around themselves.

The thorax, or middle part of an insect, is where the wings and legs are found. All adult insects have legs, but not all insects have wings. Butterflies have four wings.

Most insects breathe through tiny holes on their abdomens called **spiracles** (SPIR-i-kels). Insects that live in water would drown if they had spiracles, so some water insects breathe with gills just like fish. Other water insects have a sort of snorkel they stick above the water to breathe air.

Insects have an **exoskeleton** (ek-so-SKEL-et-en). An exoskeleton is a hard fingernail-like covering on the outside of the insect's body. The exoskeleton is divided into separate pieces called plates. The plates fit together like a puzzle and are held together with soft flexible membranes. The membranes work like rubber bands. They allow the insect to move its body. The exoskeleton can only flex. As insects grow, their exoskeletons become too small. Insects need to shed their exoskeletons. Just like snakes shed their skins.

Insects come in all shapes and sizes. Hairy winged beetles and fairyflies are some of the smallest insects. They can fit through the eye of a needle! The longest insect is a 13-inch long walkingstick found in Malaysia. Atlas moths in India have the largest wings at 12 inches across. Goliath beetles found in Africa are the bulkiest and heaviest. They can be as big as a baseball.

Wow, what diversity. Insects sure are amazing animals!



# Bone Free Critters



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Animals with no bones? You bet! Animals that do not have bones are called **invertebrates** (in-VERT-e-brets). There are more invertebrates living on Earth than any other animals. They make up 98 percent of all animals on Earth.

Invertebrates come in many shapes and sizes. Crabs, spiders, insects, snails, clams, worms, sea stars, mites and jellyfish are all invertebrates. Most invertebrates are small, but one invertebrate is huge. The largest invertebrate lives in the ocean. It's the giant squid. They can be over 40 feet long! The smallest invertebrate cannot be seen with human eyes. You need a microscope to see **protozoan** (prot-e-ZO-en). They are one, single cell.

Unlike people, invertebrates do not have a backbone to support their bodies. They may have a hard exoskeleton, like a beetle, or they may be covered with a soft skin. Invertebrates that are covered with a soft skin still need to protect themselves. They may hide under rocks and logs or make a hard shell to protect their bodies. Can you think of an invertebrate that does this?

Invertebrates are everywhere. Look around your house and yard. The number of invertebrates you find might surprise you.

# Backbone Connected To ♦♦♦

**Vertebrates** (VERT-e-brets) are animals that have a flexible, supporting rod running down their bodies. In most vertebrates, this rod is a backbone.

You can probably think of a vertebrate. Whales, dogs, fishes, birds, snakes, frogs, monkeys, mice and you are examples of vertebrates. Most of the world's larger animals are vertebrates.

All vertebrates that live on land have the same kind bones in their skeletons. They all have ribs and backbones. Animals with legs and arms also have bones to support them along with toe and finger bones. Each animal's bones might be a bit different to help the animal with its special way of life. The finger bones of bats are longer than most vertebrates. These long bones allow bats to use their hands like wings and fly.

Vertebrates can be found on land, in the sea and in the air. With their bodies supported by skeletons, vertebrates have no problem living in almost any habitat. Look for vertebrates around your house. It shouldn't be hard. All you need to do is look in a mirror!



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# Nature's Transformers

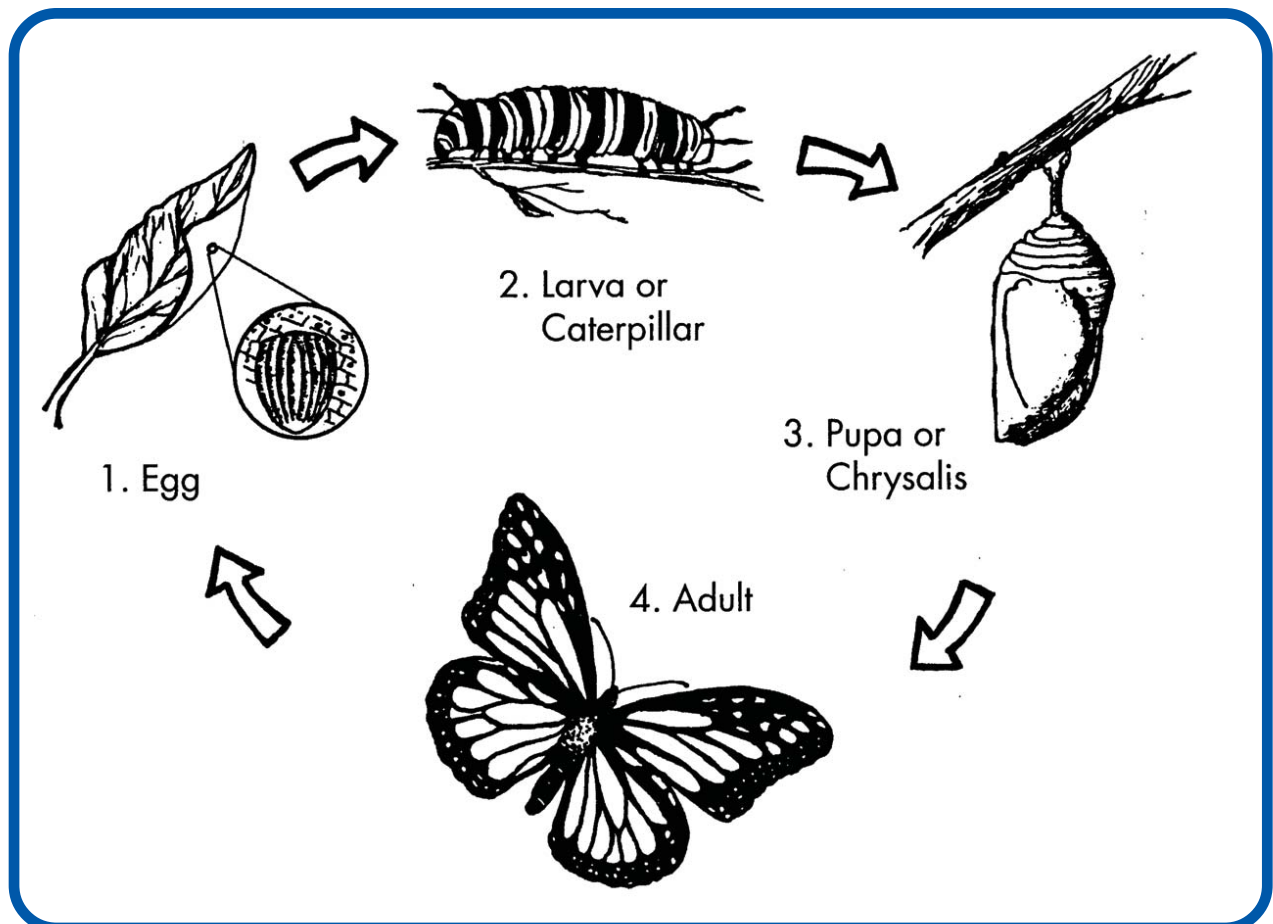
Can you think of an animal that changes the shape of its body as it grows? How about a butterfly? They change from fuzzy, crawling insects that chew their food to beautiful, flying insect that drink their food. What a change! They go through a **metamorphosis** (met-a-MOR-fo-sis).

There are many kinds of metamorphosis in the insect world. There are insects that make big changes, like the butterfly. This is called complete metamorphosis. There are other insects that don't seem to change at all. This is called simple metamorphosis.

Insects with simple metamorphosis have three life stages—egg, nymph and adult. Simple metamorphosis is broken into three kinds. The first group is insects that have no metamorphosis. They look the same when they are nymphs and adults. None of these insects have wings. The second group is incomplete metamorphosis. Dragonflies are in this group. Insects in this group lay their eggs in water. The nymphs are called naiads (NI-ads). They live in the water and breathe with gills. The adults do not live in water and do not breathe with gills. The last group with simple metamorphosis is insects with gradual metamorphosis. Grasshoppers are in this group. The nymphs and adults look pretty much the same, and they live in the same habitats.

Insects that have complete metamorphosis have four stages in their life cycle—egg, larva, pupa and adult. The young and adults live in different habitats and often feed on different food. Butterflies are in this group. Many people think that metamorphosis happens so that each life stage lives in a different habitat. That way the young insects and adult insects do not have to compete with each other for food.

Metamorphosis is amazing to see. If you find a cocoon, leave it outside, but look at it everyday. You may be able to see the insect changing and developing inside. It is fun to see what will emerge!



# Flowers: Butterfly Beacons

Butterflies drink flower nectar as adults. When they drink nectar, they pollinate flowers. Since butterflies help pollinate flowers, flowers have found ways to make butterflies see them.

Some butterflies are attracted to plants that have lots of small flowers clustered together. Clusters of flowers let the butterflies sit and move their **proboscis** (pro-BOS-kiss), or mouth, from flower to flower just like a straw. This allows the butterfly to sit and sip nectar without having to move around too much. This helps the butterfly conserve energy while it's eating.

Most butterflies and insects can see a kind of light called ultraviolet light. Ultraviolet light is something that humans can't see. If you looked at a flower under a purple light, it would look differently than it does in daylight. The purple light helps to show patterns on the flower that reflect ultraviolet light. You would see lines of white going down the flower petals. The lines lead insects to the nectar deep inside the flower. It's just like the flower turning on the lights on an airport runway.

Most butterflies can't see the color red, but they are drawn to red flowers because of the ultraviolet light the flowers reflect. Most butterflies prefer flowers that are pink, red, purple and yellow. They also like flowers that are open all day. Most moths like flowers that are pale or white and open in the evening.

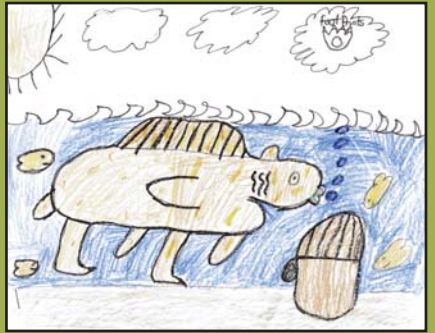
Flowers are more than just beautiful. The flowers we enjoy with our eyes and noses also look and smell good to butterflies. The flower's form, color, scent, and secret ultraviolet patterns all come into play. They are beacons, landing platforms and lunching pads for pollinators like butterflies.

Next time you see a butterfly drinking from a wildflower, think about why the butterfly chose that flower and not another one. Some things might be easy to see; others may not. The butterfly is getting a tasty treat and getting dusted with pollen. This helps the plant produce seeds. It also helps to ensure you will see wildflowers next year and the all the years to come.



# And the Winners Are...

Back in December we gave you details for our animal habitat switch contest. We had many creative entries. You are such talented kids! Our top three winners will receive a track shirt, an Audubon bird call, an Idaho Wildlife Viewing Guide, a bat poster, and bear poster. Here are our top three winners and drawings of their animals. Congratulations!!

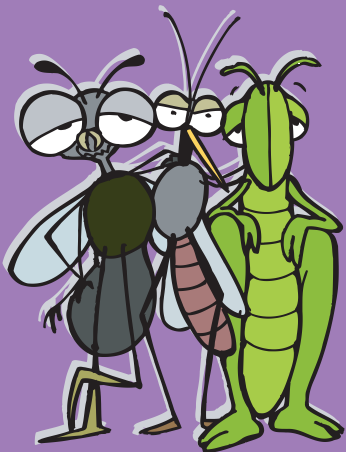


**Horses in the Ocean**  
**Hannah Jensen**  
**Boise, ID**

**Fishbear**  
**Ariel Tedrow**  
**Blackfoot, ID**

**Grassland Frog**  
**Alissa Sanders**  
**Blackfoot, ID**

## Other Creepy Crawlers



You turn over a rock in your backyard, and something darts quickly away. You see more than six legs, so it can't be an insect. What is it?

You may call the creepy crawler a bug, but most likely it is not a true bug. A bug is actually a type of insect. Bugs are insects that have four wings and sucking mouthparts. The two bottom wings are lacy, and the top wings are leathery with lacy tips. Water skippers are examples of true bugs.

The creepy crawler you saw running away was probably another type of **arthropod** (AR-thre-pod). Arthropods are animals that include insects and their relatives. All arthropods have exoskeletons and jointed legs. The word arthropod means jointed foot.

Arthropods are divided into five main groups: arachnids (e-RAK-nids) (spiders, ticks, mites, scorpions), crustaceans (krus-TA-shens) (crabs, lobsters, crayfish, shrimps, sowbugs or roly pollies), centipedes, millipedes and insects.

The chart below will help you figure out which group your creepy crawler is in.

	ARACHNIDS	CRUSTACEANS	CENTIPEDES	MILLIPEDES	INSECTS
Body Parts	2	2	Many Segments	Many Segments	3
Legs	8	Usually 10	Many, 1 Pair per Segment	Many, Usually 2 Pairs per Segment	6
Antennae	None	2 Pairs	1 Pair	1 Pair	1 Pair
Habitat	Land	Saltwater & Freshwater, Rarely Land	Land	Land	Land & Freshwater, Rarely Saltwater

# Swallowtail Puzzle

## Across

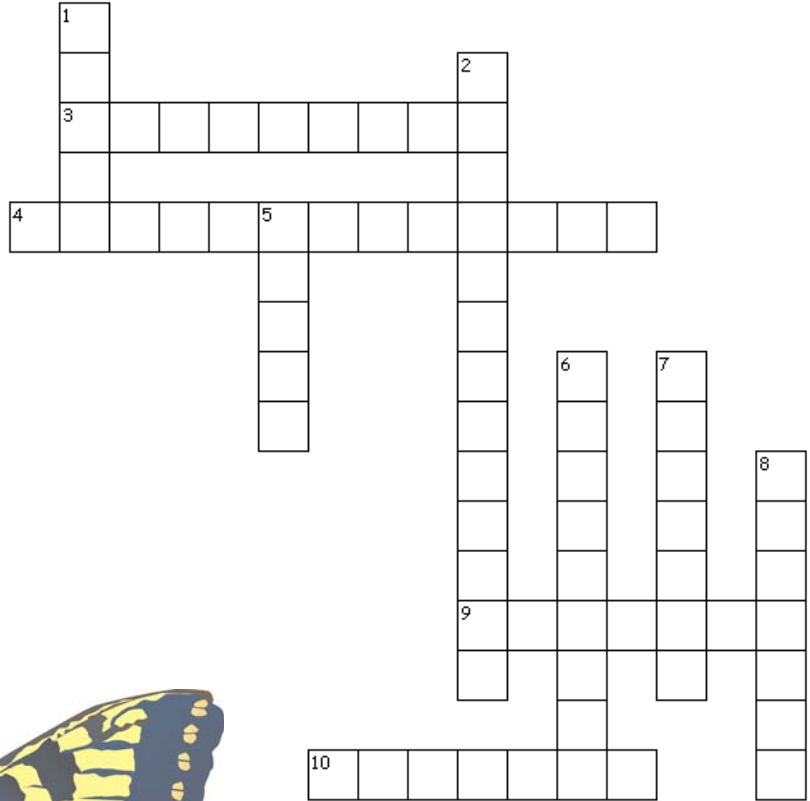
3. Butterflies help \_\_\_\_\_ flowers.
4. Butterflies are \_\_\_\_\_.
9. Eighty percent of all animal species on Earth are \_\_\_\_\_.
10. Tiger swallowtails are one of the \_\_\_\_\_ butterflies in Idaho.

## Down

1. Swallowtail caterpillars eat the leaves of \_\_\_\_\_ trees.
2. Butterflies go through a complete \_\_\_\_\_.
5. Insects have \_\_\_\_\_ main body parts.
6. The \_\_\_\_\_ is a butterfly mouth.
7. Swallowtail caterpillars \_\_\_\_\_ themselves with an awful smell.
8. The \_\_\_\_\_ of an insect is covered by an exoskeleton.

## Words

Aspen  
Biggest  
Insects  
Invertebrates  
Metamorphosis  
Outside  
Pollinate  
Proboscis  
Protect  
Three



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## WE WOULD LIKE TO HEAR FROM YOU !

If you have a letter, poem or question for *Wildlife Express*, it may be included in a future issue! Send it to the address printed above!

