Wildlife Express!

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Bees & Wasps

Photo courtesy Kent Miller

Be Outside This Summer!

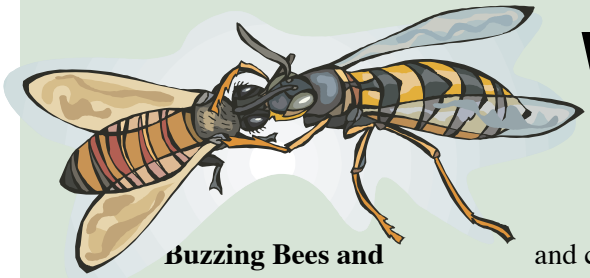
It's hard to believe that another school year is almost over! What are your plans for the summer? Whatever you do, make sure to spend a lot of your summer outside. From biking and hiking to swimming and playing tag, outside time will help you stay active and healthy. The outdoors is also a great way to relax and enjoy some downtime. Reading under the trees, lying in the grass and watching the clouds, and drawing or painting are all great ways to relax outdoors. Sit down with your family to plan some outdoor adventures. Take a look at the Be Outside, Idaho! website for outdoor events all over Idaho at www.beoutsideidaho.org.

Why not try a new outdoor activity? If you have never been fishing, check out activities in your area on Free Fishing Day, June 11. Watch for the "Take Me Fishing Trailer" at a fishing pond in your area. You can borrow equipment and get some tips on everything you want to know about fishing. The trailer schedule can be found at http://fishandgame.idaho.gov . Look under the Fishing section for the "Learn to Fish" information.

BE OUTSIDE
IDAHO CHILDREN IN NATURE

Here are some other ideas for outside activities you can enjoy with your family and friends:

GO BIRD WATCHING
GO ON A FAMILY BIKE RIDE
PLAY CATCH WITH YOUR FRIENDS
HIKE A TRAIL
BLOW BUBBLES
RUN THROUGH THE SPRINKLERS
PLANT A GARDEN
KEEP AN OUTDOOR JOURNAL
HAVE A PICNIC
PLAY "KICK-THE-CAN"
VISIT A STATE PARK
WATCH ANTS
FLY A KITE
BUILD A SANDCASTLE
CAMP IN YOUR BACKYARD
STAY UP LATE & WATCH THE STARS
GO CAMPING
CLIMB A TREE
LOOK FOR ANIMAL TRACKS IN MUD



What's the Buzz on Bees & Wasps?

Buzzing Bees and Wandering Wasps

You are sitting outside, reading a book on a warm spring day, when all of the sudden you hear an unmistakable sound - buzz - buzz. It's the sound of a bee flying near. Does the sound make you nervous or jumpy? How about thankful and happy?

The words bee, wasp, yellowjacket and hornet are all used to describe any number of yellow, orange, brown and black flying insects. How can you tell them apart? Bees are usually round and hairy. Bees eat pollen and nectar from flowers, and honey that they make from nectar. To collect pollen, bees have flat wide legs. When a bee lands on a flower, pollen sticks in its hairs. They brush the pollen off of their bodies with combs on their legs. The pollen is then collected in "baskets" on their hind legs and carried back to the hive to store. Most bees are solitary. They live alone. Only honey bees and bumble bees live together in colonies.

Wasp bodies are slender, smooth and shiny. Yellowjackets and hornets are types of wasps, but names can be confusing. People call one yellowjacket in Idaho a bald-faced hornet. However, no hornets live in Idaho. Like bees, most wasps are solitary, but some are social. Yellowjackets live in colonies. Often wasps eat different things throughout their lives. Unlike bees, most wasps are predators. During the spring and summer, yellowjackets search out caterpillars, beetle grubs, flies, and spiders. Yellowjackets kill prey by biting, not stinging. They offer this food as chewed-up goo to their larvae. The adults mainly feed on plant nectar. When insects become harder to find, yellowjackets will seek out dead animals and sugary foods. This is when they become pests at our picnics.

Bees and wasps are actually very beneficial insects. If you like to eat, you should thank a bee. Over 150 kinds of crops we eat are pollinated only or mostly by bees. You would have no strawberries for ice cream, carrots for a salad, or apples for applesauce. What about the honey that bees make? Life wouldn't be as sweet without honey. Honey bees and bumble bees are the only bees that make honey. Even wasps are beneficial. They can be a farmer's best friend. Wasps eat many of the insects that damage crops like corn.

Hopefully, next time you hear a bee or wasp outside you will feel happy and thankful. The beneficial things they do for us far outweigh the harmful. In fact, you probably couldn't live without them.

Bone Free Critters

Animals with no bones? You bet! Animals that do not have bones are called invertebrates. There are more invertebrates living on Earth than any other animal. They make up 98 percent of all animals found on our planet.

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 (pro-te-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 bee, 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.

Ouch! That Hurts!

You are at a picnic when all of the sudden you are unpleasantly surprised by a very sharp pain. You have been stung! Why did it choose you?

The only insects that sting are in a group of insects called Hymenoptera (hi-men-op-ter-a). This includes bees, wasps and ants. The stinger is actually an egg-laying device that has been changed, so only females can sting.

Most bees and wasps live alone. They are more likely to fly away from danger than to attack. Bees, wasps and ants that live together in colonies will attack to protect their nest. They have special members whose job it is to defend the nest. Members of the colony that look for food may sting if they are disturbed or injured.

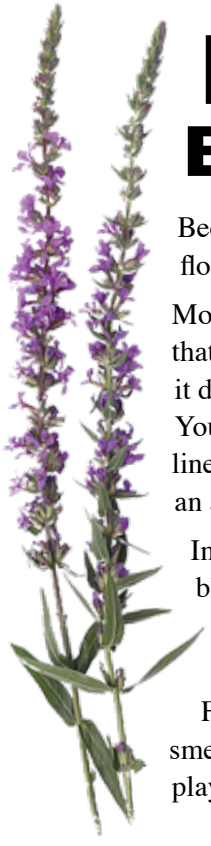
When a bee stings, it injects a type of venom into the skin. The chemical, called melittin, stimulates nerve endings and causes a sharp pain. The pain lasts a few minutes then turns into a dull ache. The area that was stung may be sensitive to touch for several days. Your body will try and flush the venom out by releasing fluid from the blood. This causes redness, swelling and itching around the sting site. Try not to rub or itch the sting; you may make the sting worse by rubbing germs into your skin.

If you see a stinger in your skin, remove it by scraping it off. Venom can continue to be injected into the skin for up to one minute. After the stinger is removed, wash the wound with soap and water. A cold pack may help take away some of the pain. Some people have severe reactions to bee stings. If you notice that your mouth or throat begins to swell, or it becomes difficult to breathe, go to a hospital immediately.

There are some things you can do to avoid being stung. Bees and wasps are attracted to odors, especially sweet odors. Perfumes and scented soaps will attract bees and wasps, so don't use perfume or scented soaps if you know you are going to be near stinging insects.

Don't swat a bee or wasp! Bees and wasps see this as a threat, and you will most likely be stung. Remain calm when a bee or wasp lands on your skin. It is most likely just smelling you or getting a drink from your sweat. It will eventually leave. If you don't want to wait for the bee to leave, gently and slowly brush it away with a piece of paper or flick it with your finger.

Remember, bees and wasps usually have a reason for stinging. They feel that they or their nest is in danger. Respect bees and wasps and you should remain sting free!



Flowers:
Beacons for Pollinators

Bees and wasps drink flower nectar as adults. When they drink nectar, they pollinate flowers. Since flowers need bees and other insects, flowers have found ways to help insects find them.

Most bees 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 going down the flower petals or a bulls-eye in the center of the flower. The lines lead insects to the nectar deep inside the flower. It's just like the flower turned on the lights to an airport runway.

Insects see colors differently than we see them. A bee looking at a red flower would see the color black. When ultraviolet light hits the red color, bees see a glowing purple. Most butterflies can't see the color red either, but they are drawn to red flowers because of the ultraviolet light the flowers reflect.

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

Is It or Isn't It?

Often nature can be deceptive. Sometimes animals, especially insects, will look or act like another insect or object to avoid beginning eaten or to sneak up on their prey. Mimicry is the word we use when animals resemble each other; camouflage is the word used when animals look like inanimate objects, like rocks or leaves.

Bee flies and robber flies are wonderful mimics of bees. These flies are similar in color and pattern to bees. Bee flies even drink nectar from flowers. Why would a fly want to pretend to be a bee? Protection! Bees can sting, so looking like a stinging insect is a great form of protection. Most animals don't want to mess with a bee. When an animal sees the colors and patterns of bees and wasps, they leave the insect alone.

Notice this imposter only have two wings

How can you tell if what you see is a real bee or wasp? The trick is to look at the wings. Bees and wasps have four wings and all flies have two wings. The fly will also be missing the stinger, but you don't want to get close enough to see if the insect has a stinger!

Next time you notice a yellow and black insect buzzing around a flower and think it is a bee, remember mimicry. The insect might be a bee, but it may also be a fly playing a trick on your eyes.

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 follow three important rules. They must have three main body parts – the head, thorax and abdomen, six legs and two antennae (an-TEN-ee).

The head of an insect has the eyes, antennae and mouthparts. Insects have two large compound eyes. Compound eyes are faceted. This means there is 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 their bodies.

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. Bees and wasps have four wings.

Most insects breathe through tiny holes on their abdomens called spiracles. Spiracles are not open all the time. If the holes were open all the time, moisture would escape causing the insects to dry out. Insects open and close their spiracles with muscles. Insects that live in water would drown if they had spiracles. Some insects that live in water breathe with gills. Other water insects have a sort of snorkel they stick above the water to breathe air.

Insects have an exoskeleton. 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 to hold the plates together. Exoskeletons can flex, but they can't stretch and expand. As insects grow, their exoskeletons become too small. Insects shed their exoskeletons as they grow 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 14-inch long walkingstick found in Borneo. 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!

Other Creepy Crawlers

You turn over a rock in your back yard, 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 (a-RAK-nids) spiders, ticks, mites, scorpions***
- ***crustaceans (krus-TA-shens) crabs, lobsters, crayfish, shrimps, sowbugs or roly-polys***
- ***centipedes***
- ***millipedes***
- ***insects***

This chart 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 and Freshwater, Rarely Land	Land	Land	Land and Freshwater, Rarely Saltwater

Nature's Transformers

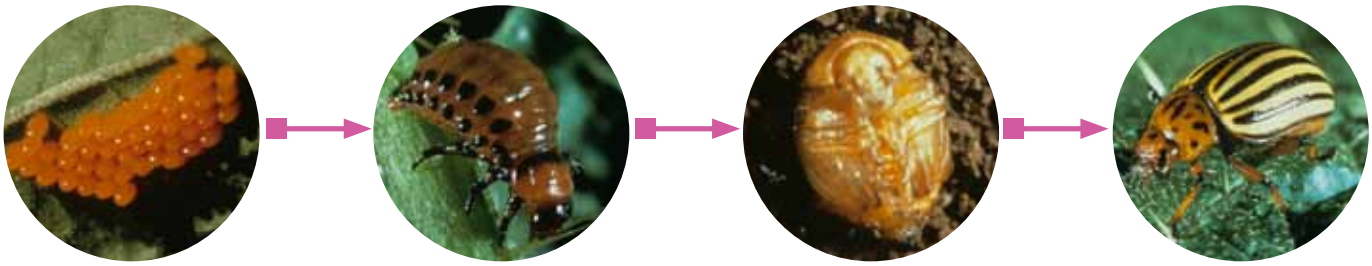


Photo courtesy
Whitney Cranshaw

Photo courtesy
John Capinera

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Whitney Cranshaw

Photo courtesy
John Capinera

Can you think of an animal that changes the shape of its body as it grows? How about a bee? Honey bees change from white, worm-like creatures into beautiful, flying insects that make honey. 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 bees and wasps. This is called complete metamorphosis. Other insects, like dragonflies, don't seem to change much or change very little. This is called simple metamorphosis.

Insects with simple metamorphosis have three life stages – egg, nymph (NIMF) and adult. There are three kinds of simple metamorphosis. The first is insects that have no metamorphosis. They look the same when they are nymphs and adults. None of these insects have wings. The second kind is incomplete metamorphosis. Dragonflies are in this group. Insects in this group lay their eggs in water. The nymphs are called naiads (NY-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 kind of 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. 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 every day. You may be able to see the insect changing and developing inside. It is fun to see what will emerge!

Bees & Wasps Word Search

X F I M W H F Z O D T J T M H
T E K C A J W O L L E Y E G O
X F T Q S R F M P O E T L N R
U O O A P A X A I N A C O I N
U M R K R N M Q O M R D I T E
H V Q Y E B Z H O B I O V S T
Q R E C D T E R L H A C A Y M
X L T N N A P T R N L A R V A
I A K B O H E O R X Z F T Y M
R W O S O M T H M E A S L V E
U S P S O A P U P T V R U U E
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J S N E L L O P N N Y K I H V
R O R M B X L M Q S P V L M T
D P L T P E Q L T D E W Z T K

ABDOMEN
BEE
HEAD
HIVE
HONEY
HORNET
INVERTEBRATE
LARVA
METAMORPHOSIS
MIMICRY
NECTAR
POLLEN
PREDATOR
PUPA
STING
THORAX
ULTRAVIOLET
VENOM
WASP

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