



The
**Insects &
 Arachnids**
 Questions & Answers
 Book



Butterflies
 & Moths



Arachnids



Beetles



Bees & Wasps



Parasites



THE GOOD AND THE BEAUTIFUL LIBRARY

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QUESTION

How are moths and butterflies different?

A: Moths and butterflies are very similar, but a few key differences help scientists distinguish between the two.

- Butterflies are usually, but not always, much more colorful than moths.
- If you look closely at moths, you will find that they typically have wider, hairier bodies than butterflies.
- Moths are usually creatures of the night, and butterflies are normally active during the day.
- The way butterflies and moths hold their wings while at rest is another difference between them. Butterflies like to keep them closed and upright above their bodies, and moths fold their wings over their backs or spread them out wide.
- Butterflies usually have slender antennae with small knobs at the tips. Many male moths have wide, feathery antennae, while females' antennae are typically thinner and have fine-pointed tips.



BUTTERFLIES VS. MOTHS

- | Butterflies | Both | Moths |
|--|---|---|
| <ul style="list-style-type: none">• Brightly colored | <ul style="list-style-type: none">• Six legs | <ul style="list-style-type: none">• Muted colors |
| <ul style="list-style-type: none">• Rest with wings closed and upright | <ul style="list-style-type: none">• Wings covered with scales | <ul style="list-style-type: none">• Rest with wings unfolded |
| <ul style="list-style-type: none">• Active during the day | <ul style="list-style-type: none">• Caterpillars with 13 segments | <ul style="list-style-type: none">• Most active at night |
| <ul style="list-style-type: none">• Thin antennae with a bulb at the end | <ul style="list-style-type: none">• Four wings | <ul style="list-style-type: none">• Feathery and pointed antennae |
| <ul style="list-style-type: none">• Long and thin bodies | <ul style="list-style-type: none">• Eat nectar from flowers | <ul style="list-style-type: none">• Wider and hairier bodies |



QUESTION

Do butterflies taste with their feet?



A: Yes, they do! Butterflies have taste sensors on their feet, so they can actually taste their food by standing on it. Butterflies don't eat food with their feet, though. Using a mouthpart called a proboscis, which is like a straw, they drink liquids like nectar, fruit juices, and sap.

QUESTION

Why do butterflies migrate?

A: Butterflies are cold-blooded. This means they get their body heat from outside their bodies. Butterflies that live in areas which are cold in the winter simply cannot stand the cold and must go somewhere warmer. They also need food! So if their food dies and is gone in the winter, they must go elsewhere.



QUESTION

Do all moths and butterflies migrate?

A: No. Some moths and butterflies never go farther away than 5 km (3 mi) from where they hatched. Other butterflies migrate thousands of miles in the winter. They know exactly where they are going, and they never get lost. Though they travel 80–160 km (about 50–100 mi) a day, it can take a butterfly up to two months to get to its destination.



Extended Q&A

QUESTION

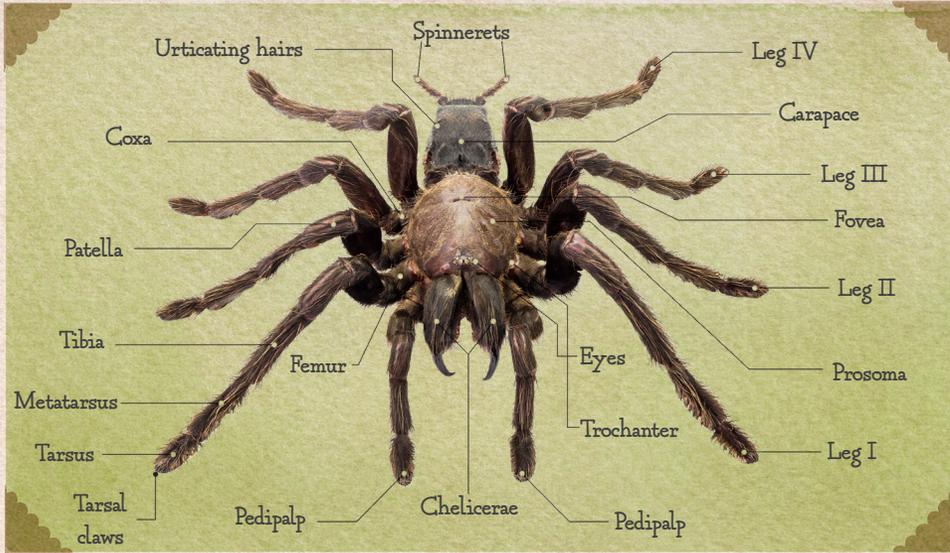
Why is the monarch butterfly migration so amazing?

A: It's hard to imagine that a small, delicate butterfly with paper-thin wings could fly upward of 4,800 km (2,983 mi) on an international journey from Canada to mountain forests in Mexico each autumn, but that is exactly what millions of monarch butterflies do each year. When spring comes, the monarchs start their epic journey back north, sipping on sweet nectar from blooming flowers and searching for tasty milkweed plants, which is their favorite snack and where they lay their eggs. Those new caterpillars will become adults and continue the migration northward, living between two and six weeks. At the end of the summer, a hardy super generation of monarchs hatches and starts the journey back to their winter



resting sites in Mexico. Scientists don't understand how these butterflies know how to get back to the same place their great-grandparents spent the last winter, a place they themselves have never seen before. They are called a super generation because they live up to eight months, start the migration back north, and do not lay their eggs until the next spring.

Anatomy



The amazing symmetry and intricate design of a spider web remind us of the wonder of God's creation. There are examples all around that tell us how fascinating arachnids are. While some arachnids may be frightening and even dangerous, you can grow to admire and respect them as you learn more about their role in nature.



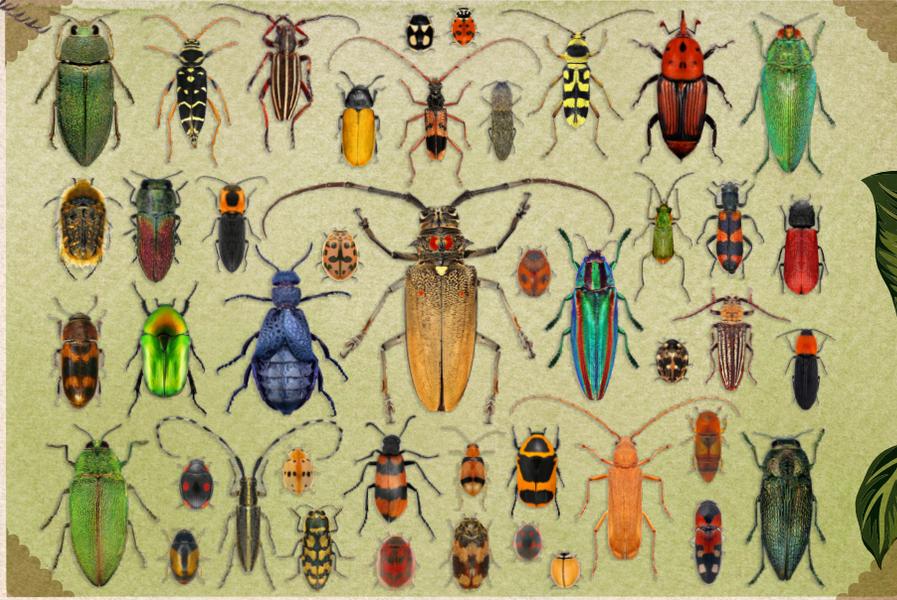
QUESTION

Why do southern grasshopper mice seek out scorpions?

A: Most small mammals steer clear of the menacing pose of a scorpion ready to strike, but not the tiny southern grasshopper mouse. Scorpions have a venomous stinging tail that they use to hunt prey and protect themselves from predators. A handful of scorpions have venom strong enough to kill humans. To the southern grasshopper mouse, scorpions make a tasty snack. This brave rodent is resistant to scorpion venom, and because of the mouse's quick reflexes, scorpions are quickly turned from predator to prey.



Beetle Diversity



It isn't very easy to choose one word to describe beetles. That's because they are the most numerous and diverse group of animals on Earth. With over 350,000 different species discovered so far, they make up around a third of all known animal species.

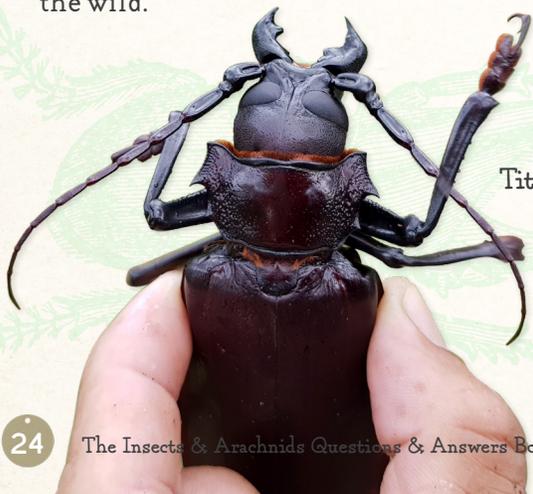


QUESTION

What kind of beetle grows larger than your hand?

A: One of the largest insects in the world is the titan beetle, which can grow up to 16.5 cm (6.5 in) long and is found deep in the rainforests of South America. That's about as long as an adult hand! They aren't aggressive toward humans, but they have mandibles so strong that they can snap a pencil in two and will hiss if they feel threatened, so it's a good idea to keep your distance if you spot one in the wild.

Titan Beetle



Hercules Beetles



QUESTION

Do some beetles know how to joust?

A: Yes, they do! With a long, pointed horn on its head, a male Hercules beetle is even longer than a titan beetle. Male Hercules beetles duel to try to impress a potential mate or protect their territory. The winner triumphs when it uses its long horn to lift the other beetle and throw its foe in the air.



Bees & Wasps



QUESTION

Do bees and wasps always live in hives?

A: No. They nest in all kinds of places, including buildings and trees, and even in the ground! Each species prefers its own kind of home.



Yellow jackets usually make a burrow in the ground and fill it with an “envelope” made of paper pulp scraped from tree bark. You may see them flying fast in and out of a hole in the ground.



Paper wasps also build nests of paper, but the nests are made in an exposed area and without a cover over the hole. Maybe you have seen one of their nests hanging from a branch.



Honeybees build their wax combs in tree cavities, hive boxes built by humans, or even in the walls of houses.



Mud daubers are solitary wasps that build tube nests out of mud.



Leafcutter bees make a wrapper—like a blanket—out of a piece of leaf for their young.



One species of mason bees nests alone inside an old snail shell!

QUESTION

Do all bees make honey?

A: No. Honey is only made by social bees, the ones that live together in colonies. The honey gives the bees something to eat over the winter when they cannot get nectar and pollen from flowers.



Most bees are solitary—meaning that they live alone. They do not make honey. Solitary bees gather nectar and pollen and mix it together. They make it into a pollen “loaf” and often seal one egg into an opening with the pollen. The bee dies over the winter, but the pollen loaf gives the new young bee something to eat when it hatches.

QUESTION

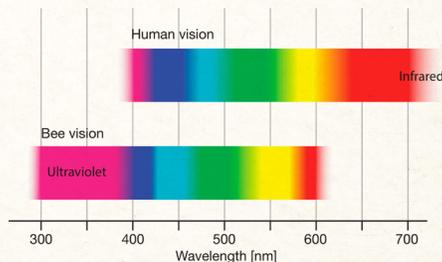
Do bees and wasps see colors?

A: Bees and wasps do not see colors the way we do. We can see the colors of the rainbow—red, orange, yellow, green, blue, indigo, and violet. Colors that are higher frequency than violet are called ultraviolet. We cannot see them, but bees and wasps certainly can!

At the other end of the color spectrum, these insects can see colors through orange, but they cannot see red.

What does this mean for bees and wasps? While we might see a flower as yellow or white, it looks different to the insect. The flower has ultraviolet colors that guide the insects to the pollen.

Bumblebees can detect colors quickly, too—three to five times faster than humans! Bees and wasps have compound eyes made up of many light-sensing cells.



Extended Q&A

QUESTION

Is it true that some wasps actually grow inside the bodies of other insects?

A: Yes! This icky-sounding but cool practice is actually helpful to humans because parasitic wasps lay their eggs inside the eggs or bodies of host insects or spiders.

Once those eggs hatch, the parasitic larvae feed on insects that can be pests to humans, such as aphids and caterpillars that harm our crops and garden plants. This gives the parasitic wasp larva plenty of protein as it grows. Some farmers and gardeners purposely release these tiny agents of death into their crops to control pests.

The adults drink nectar from flowers, as well as other plant fluids.

You have probably never seen parasitic wasps because they can be as tiny as a fleck of pepper, but they live all around us. What they lack in size, they make up for in number. There are many kinds of parasitic insects, but there are thousands of species of parasitic wasps.

Parasitic wasps are deadly to their host insects, but there is good news for us. They do not sting people!



Keeping Nature in Balance



A navel orangeworm can do serious damage to nuts, citrus, and other fruits, but the parasitic wasp called the navel orangeworm wasp can help. This wasp lays eggs on the worm. After the eggs hatch, the larvae feed on the worm, killing it.

Of all the animal species on Earth (including insects), up to 40% are parasitic insects. While parasites can seem icky, parasite-host relationships are an example of the beautiful way everything works together. Keeping nature in balance means we need parasites and predators.





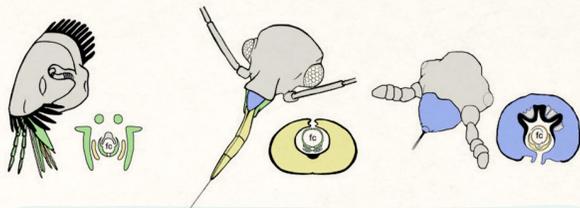
QUESTION

How far can a flea jump?

A: Fleas are wingless insects with huge back legs made especially for jumping. Some can leap more than 100 times their own length. That is like an average three-year-old child making one big leap the length of a football field!

On average, cat fleas jump 20–31 cm (8–12 in) horizontally and a little more than 13–18 cm (5–7 in) vertically—the perfect height to bite your ankles or land on your cat.

Fleas feed on blood from mammals and some birds. Their bodies are flattened like a pancake, which makes them able to travel through the hair of their hosts.



QUESTION

How do parasitic insects bite?
Do they have teeth?

A: While parasitic insects do not have pearly white chompers like you do, they do have mouthparts that can pack quite a bite!

We say insects have mouthparts, but they don't really have mouths like we do. Mouthparts are special structures that let the insects feed and process food so it can be ingested. They are similar to our jaws. Exactly how these mouthparts look depends on what the parasitic insect eats.

Parasitic insects that feed on tissue, such as skin, hair, or feathers, have chewing-type mouthparts. Those that feed on blood or other fluids have mouthparts that are good at piercing through skin and taking in the fluids.