Venom at Work

How toxins help spiders and scorpions survive

ZOO.5.5 "Describe the importance of toxins for arachnids, (i.e., spiders and scorpions)."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two places where venom helps an arachnid catch prey, circle one place where it helps with defense, and number a sentence that links venom to a food web. Use your marks to explain why toxins matter.

More Than a Sting

1. At dusk, an orb-weaver feels a moth shake its web. The sticky threads hold the moth, but the spider still needs to stop it from struggling. Through its fangs, the spider injects venom, a mixture containing toxins that can disrupt a prey animal's nerves and muscles. The moth soon moves less, making it safer for the spider to handle and eat. A web catches prey, while venom helps control it. Many spiders hunt without webs and also use venom to subdue prey. Without this chemical tool, capturing active animals could take more time and expose a spider to injury.

2. Under a rock, a scorpion grips a beetle with its pincers. If the beetle fights free, the scorpion can curve its tail and deliver venom through its stinger. The venom helps immobilize the beetle, so the scorpion can feed while facing less risk from the beetle's jaws. A scorpion may also sting an animal that threatens it, using venom for defense rather than for a meal. Making venom takes resources, and scorpions do not need to sting every prey animal they catch. Pincers alone can restrain some small prey. Venom is valuable because it can help in more than one kind of encounter.

3. Venom is not one identical chemical shared by all arachnids. Its ingredients and effects vary among species, and the danger of a sting or bite depends on the species and the amount delivered. Most spider bites and scorpion stings are not life-threatening to humans, although some species can cause serious harm. For spiders and scorpions, venom matters most in the daily work of catching prey and avoiding harm. By helping these predators survive, it also supports their place in food webs: they eat other small animals and, in turn, may become food for larger ones. Calling venom simply “deadly” misses these everyday roles.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why does the orb-weaver benefit from venom even when its web has caught the moth?

2. How can a scorpion's venom help it in two different kinds of encounters?

3. Why might a scorpion hold small prey with its pincers instead of stinging it?

4. Why does calling arachnid venom simply “deadly” leave out much of its importance?

3 YOUR TURN

Your own words

Imagine an orb-weaver's web breaks just as a moth lands nearby, while a scorpion is threatened by a lizard. In four sentences, predict how venom could help each arachnid and explain one possible effect on the food web.

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PART 1 · READ AND MARK

Underline two places where venom helps an arachnid catch prey, circle one place where it helps with defense, and number a sentence that links venom to a food web. Use your marks to explain why toxins matter. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why does the orb-weaver benefit from venom even when its web has caught the moth?	**The web holds the moth, but venom reduces its movement, making it safer for the spider to handle and eat.**
2	How can a scorpion's venom help it in two different kinds of encounters?	**It can immobilize prey for feeding and help defend the scorpion against a threatening animal.**
3	Why might a scorpion hold small prey with its pincers instead of stinging it?	**Pincers can restrain some small prey, and making venom takes resources, so a sting is not always needed.**
4	Why does calling arachnid venom simply “deadly” leave out much of its importance?	**Venom helps spiders and scorpions catch prey and avoid harm, supporting their survival and roles in food webs. Its danger to humans also varies by species and amount delivered.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

If the spider can catch the moth without its web, a venomous bite could keep the moth from escaping. If it cannot reach the moth, venom alone will not catch it. The scorpion might sting the lizard to defend itself, though the sting might not stop the lizard. If either predator survives, it can continue eating small animals and remain part of the food web.

Accept explanations that connect injected toxins to safer prey capture or defense. For the open task, look for four sentences that address both arachnids and give a plausible food-web effect without assuming venom always works.