Wild Kids

Venomous Bites and Stings

STUDENT GUIDE

All animals must find food. Some animals run fast to catch food and others have claws to dig for food. Venomous animals use venom, a special kind of poison, to catch and kill their food.

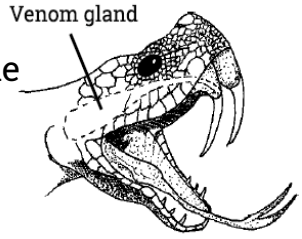
Venomous or Poisonous?

A poison is a toxic substance that is eaten or absorbed through the skin. Some frogs and toads are considered to be poisonous because they have poison in their skin. If an animal eats, or even licks, a frog or toad it can get sick from poison in the frog or toad's skin. Venom, on the other hand, is a substance that is injected by a bite or a sting. Venom is made and stored in a venom gland. Venomous animals have a stinger or fangs. The venom is injected, or pumped, through the fangs or stinger.

Venomous animals don't go around biting or stinging everything that moves. If they did they would not have enough venom for when they need it - to kill prey. However, venomous animals will bite or sting to protect themselves!

Venomous Animals of Arizona

Rattlesnakes deliver their venom through two large, hollow fangs in the upper jaw. The fangs are up to one inch long and are folded back when the snake's mouth is closed. The fangs move forward when the snake opens its mouth to strike.

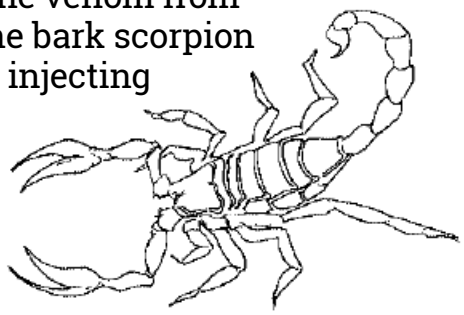


There are very few venomous lizards in the world. The Gila monster found in Arizona is one of them. (The beaded lizard, a close relative found in Mexico, is another one.) Gila monsters have a pair of venom glands in their lower jaw. As they chew their prey, venom flows up into the mouth through a venom duct and through special grooved teeth.

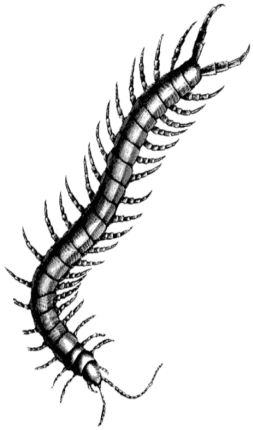
All spiders have venom, but only the black widow and Arizona brown spider (a relative of the brown recluse) have venom that is dangerous to people. The female black widow has a red hourglass shape on her underside. The Arizona brown spider is a small spider with a violin shape on the front half of its body (on the top side).

Tarantulas are the largest spiders in Arizona, but are not dangerous to people. Tarantulas have fangs, but these "gentle giants" will not bite unless harassed. If threatened, they use their back legs to brush hairs, called urticating hairs, from the abdomen. The hairs cause extreme itching in the eyes, nose, and mouth of predators.

There are over 40 different kinds of scorpions in Arizona. The venom from only one, the bark scorpion, is life-threatening to people. The bark scorpion uses its pincers to hold its prey, then paralyzes or kills it by injecting venom through its stinger.



Some caterpillars have stinging spines. If you brush up against them, venom is injected through the spines. The venom causes burning and itching, but is not dangerous to people.



Centipedes are unique creatures. They are often described as biting their prey. However, their venom is injected through a pair of modified legs located near their head. They can then hold their prey while they wait for the venom to work.

Did you know that more people die each year from bee, wasp and ant stings than from all other venomous animals? This is because people come in contact with these insects more often than they do with more venomous animals. Also, about 10% of all people become allergic to venom if stung repeatedly.

Venomous animals are usually not aggressive toward people. They will try to get away or hide before using their venom to defend themselves. The best way to avoid being bitten or stung by a venomous animal is to leave it alone.

Activity

1. Draw a picture of one of the venomous animals you have just read about or another venomous animal that lives in Arizona.
2. Draw the animal in its habitat. Include food, water, shelter and space.
3. Write a short report about the venomous animal you have drawn. Include where it lives, what it eats, how it uses its venom to find food and avoid predators, and why you think this animal is important in its habitat.
4. In your report, be sure to include a labeled drawing of the fang or stinger and how venom is delivered.

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TEACHING GUIDE

Overview

In this activity, students will read an article about venom including examples of different venomous animals found in Arizona. Then, they will do a report on one of those animals, with a focus on the venom delivery system of that particular animal.

Grade

3rd

AZ Science Standards

- 3.L1U1.5

Science and Engineering Practices

- Develop and use models

Crosscutting Concepts

- Structure and Function

Suggested Procedures

1. Print the worksheet above. If possible, print it double sided.
2. Ask students to read the entire article (both pages).
3. Ask some questions to assess student comprehension:
    - What is the difference between venom and poison?
    - What is the primary purpose of venom?
    - How is venom usually injected into the prey? Is it the same for all venomous animals?
4. Assign the activity to the students. They should focus on one animal from the reading or another animal from Arizona that they know is venomous. some other animals not included in the reading include the coral snake, blister beetle, wasps and the tarantula hawk. To address the standard, you really want the student to focus on the mechanism for delivering the venom. What body part is it? How does it work? The illustration should serve as a model for how the stinger or fang works for this specific animal.
5. Give students time in class or as homework to complete their research and illustrations.
6. Once the students have finished their reports, have each one share. They should briefly describe their animal and how the venom structure works.
7. To recap, ask the following questions:
    - What types of body parts (structures) are used to deliver venom? How are these parts different from the same structures in animals that are not venomous?
    - Are all fangs or stingers the same? If not, how are they different? Why might those differences exist?