



Student Activity

Scientific Methods & The Venom Cure **NATURE Science Education Series**

Vocabulary:

boomslang, venomous, chameleons, venom, saliva, toxic, copperhead, serpentarium, miraculous, elixir, contortrostatin, death adder, tiger snake, fierce snake, cobra, blood staunching, gila monster, Exenatide, insulin, clinical trials, cone shells, debilitating, conotoxins, siphon tube, proboscis, sciatica, harlequin frogs, virulent, California newt, tetrodotoxin, TTX, cyanide, blue-ringed octopus, docile, fugu puffer, Tectin, natural toxins, poison dart frogs, chlorotoxin, glioma, radioactive isotope, coagulants

Pre-Viewing Discussion:

Why are most people afraid of rattlesnakes? What are the effects of a rattlesnake bite?

What other predators produce deadly toxins?

What is an anti-toxin? How are anti-toxins produced?

Why would pharmaceutical companies be interested in researching the effects of toxins and anti-toxins?

Post-Viewing Discussion:

Why is the South African boomslang such a successful predator? How does snake venom cause damage in a victim?

What other successful predators produce venom that can be used to create products that alleviate pain and disease in humans?

What is Exenatide? What are some of its possible uses? What are the effects of the drug in human sufferers?

What are the possible uses of conotoxins? What animal produces these? How do scientists harvest conotoxins?

What are some of the possible uses of TTX? What animals produce TTX?

Further Activities:

Find further examples of companies that employ biologists to harvest natural products for medicinal purposes. In each case explain how company teamwork provides a model of the scientific method in action.

Find stories of chronic pain sufferers. Focus on their attempts to control their pain and live productive lives. Speculate on the type of pharmaceuticals that might help them without producing debilitating side effects.

Interview a scientist who is participating in field studies that may result in new pharmaceuticals. Provide examples of how the scientist applies the scientific method in his research.

Visit a pharmaceutical company to analyze a specific topic such as how they guarantee quality control of the products they produce.