

# TECH: Pharmacologist & Toxicologist (HS)

## Summary

Poison prevention education can save lives. Approximately 60% of all poisonings occur in children under the age of 6; however poisonings can occur at any age. Teaching poison prevention to people of all ages helps not only them, but those around them to stay safe from potential poisonings.

## Time Frame

2 class periods of 45 minutes each

## Materials

Pharmacologist & Toxicologist PowerPoint  
Poison Smart Lesson Plan - from the University of Utah Poison Control Center  
Poison Adventure video (available at UPCC or on the UPCC website: [www.poisoncontrol.org](http://www.poisoncontrol.org))  
Poison Scenarios - from the University of Utah Poison Control Center  
Be Poison Smart word search - from the University of Utah Poison Control Center  
Be Poison Smart word search KEY  
Poison Ladders - from the University of Utah Poison Control Center  
Cleaning & Food products to be brought  
o Bottle of blue Gatorade (or other look-a-like non-poison)  
o Bottle of Windex  
o Comet  
o Parmesan Cheese  
o Grape Cough Syrup  
o Grape Juice  
o Cherry Cough Syrup  
o Fruit Punch  
o Pine Sol  
o Apple Juice  
o Bleach Bottle  
o Milk in a gallon jug  
o Mustard bottle  
o Motor oil in a yellow bottle  
o Alka Seltzer  
o Orange or red aspergum  
o Green Drixoryl pill  
o Red Sudafed pill  
o Flavored tums  
o Orange Motrin  
o White Necco wafer  
o M&M candies (all colors)  
o Orange or red Chicklets  
o Red Hot candy  
o Sweetart candy  
o Skittles (all colors)

## Background for Teachers

Review all information and materials prior to class discussion. Pharmacologists are research scientists who develop, identify, and test drugs to cure, treat, and prevent disease. They also test substances, such as gases, dusts, or food colorings, to determine if they are harmful. They often study the effects of drugs and other substances on laboratory animals, such as guinea pigs and monkeys. Toxicologists develop new and better ways to determine the potential harmful effects of chemical and physical agents and the amount (dosage) that will cause these effects. They design and carry out carefully controlled studies of specific chemicals of social and economic importance to determine the conditions under which they can be used safely. They assess the probability, or likelihood that particular chemicals, processes or situations present a significant risk to human health and/or the environment, and assist in the establishment of rules and regulations aimed at protecting and preserving human health and the environment. Pharmacologists will most likely work in a research laboratory of a hospital, business, university, pharmaceutical company or other health-related organization. Pharmacologists may give certain drugs to laboratory animals to study the animals' responses to the drugs and try to determine whether the drugs may help to prevent or remedy certain health conditions. They will revise the drug by adding or subtracting ingredients, and then they will perform more tests until they are satisfied with the results. Once they are happy with the formula of a new drug, they will submit it along with the results of their tests to gain approval from the US Food and Drug Administration. 9,000 Toxicologists are employed in North America. They will work in education, government, consulting, research foundations, and industries (including pharmaceutical, chemical, and consumer products). Toxicologists will work with chemical, pharmaceutical and many other industries to test and ensure that their products and workplaces are safe, and to evaluate research data. They will work for local and federal governments to develop and enforce laws to ensure that chemicals are produced, used and disposed of safely. They will also work in academic institutions to teach others about the safe use of chemicals and to train future

toxicologists. Pharmacologists must have a Bachelor's degree with courses in science and mathematics. They have to go to Graduate school and complete a doctorate and medical degree to conduct clinical testing on humans. Toxicologists require at least a Bachelor's degree, but that may not be enough. Most have PhD's and some have Master's degrees. Average salary for Pharmacologists is \$91,407 to \$118,828 per year. Average salary for Toxicologists is \$35,000 to \$100,000 per year. Job outlook for Pharmacologists and Toxicologists are both excellent based on scientific advances that make more drug products available and require more testing.

### Instructional Procedures

Step 1: Review the background material for teachers. Step 2: Go through the PowerPoint with your students. Step 3: Go through the Poison Smart Lesson Plan - from the University of Utah Poison Control Center Step 4: If time available or you would like to show it - show the Poison Adventure Video from the Utah Poison Control Center Step 5: Go through the Poison Scenarios with the students - discuss them with the class. Step 6: If time available give the students the Poison Ladders activity and the Be Poison Smart word search.

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