Forensic Toxicology PowerPoint Study Worksheet

Directions: Complete this worksheet using the PowerPoint lecture entitled “Forensic Toxicology.”

1. Define the word toxin.

2. What is the job of a toxicologist?

3. Name three places a toxicologist can work and what their responsibilities are at each location.

4. List 4 properties that may affect the toxicity of a poison.

5. Define the following words.
   a. Chronic exposure
   b. Acute toxicity
   c. Lethal dose

6. Describe why most lethal dose measurements cannot be tested on humans. Where can scientists make these measurements?

7. List the symptoms that occur from poisoning by the following substances.
   a. Carbon Monoxide
   b. Nitric Acid
   c. Wood Alcohol

8. Name three government agencies that are in charge of regulating toxins in the United States. Include the acronym if available and what the agency regulates.

9. List the LD₅₀ doses for each of the following substances. Be sure to include units.
   a. Arsenic metal
   b. Ricin
   c. Vitamin C
10. How many milligrams of each poison from question 7 would it take to kill a human? Follow the example below to make the conversions.

   Example: LD$_{50}$ in rats for caffeine = 192 mg/kg
   1. Convert pounds to kilograms (2.2 pounds = 1 kilogram)
      160 pounds / 2.2 lbs = 72.73 kg
   2. Multiply the LD$_{50}$ for rats by the weight of the person in kilograms.
      192 mg/kg $\times$ 72.73 kg = 13,964.16 mg of caffeine

   a. How much arsenic trioxide would it take to kill a 125 pound woman?

   b. How much ricin would it take to kill a 250 pound man?

   c. How much Vitamin C would it take to kill a 15 pound baby?

11. Why is chronic exposure to lead a health problem?

12. Where can you find lead-based products? Name three places.

13. How does carbon monoxide (CO) poisoning lead to death?

14. What percent saturation of the blood is considered fatal for middle-aged people?

15. How can people increase their risk of CO poisoning?