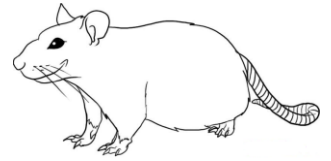


Lethal Dose- How Much is too much?

Purpose: In this activity you will compare the toxicity of various substances.



I. Background information: (READ article "Questions from the Classroom"... Most Deadly Poison")

1. a. What does **Lethal Dose** ₅₀ (**LD₅₀**) mean? b. How is **LD₅₀** determined?

2. In what units are **Lethal Doses** (or **LD₅₀**) expressed?

3. What are some of the ethical concerns regarding research for lethal doses?

4. According to the article, what is the mostly deadly poison in the world? Explain your answer.

II. Determining Lethal Doses:

To use **LD₅₀**, you will need to convert measurements of body weight from **pounds → kilograms**

(1 kg = 2.2 lbs) do the following calculations:

1. How many kg does a 132-lbs human weigh? 2. How many kg does a 22-lb child weigh?

	The LD ₅₀ for acetaminophen (Tylenol)= 2402 mg/kg (rat, oral).	The LD ₅₀ for aspirin = 200mg/kg (rat, oral).
1. How many mg of "medicine" would be lethal to a 132-lb adult?		
2. How many 500mg tablets of "medicine" would be lethal for an adult?		
3. How many mg of "medicine" would be lethal to a 22-lb child?		
4. How many 500mg tablets would be lethal for a child?		

Acetaminophen vs. aspirin:

5. a. Which is more toxic, acetaminophen or aspirin? b. How great is the difference in their toxicities? Explain.

Part II: Comparing Lethal Doses (Use Table of Lethal Doses).

1. What substance in the table is the most toxic when ingested? Explain.
2. Using the lethal dose table, rank the top 3 most lethal substances.
3. Are any substances in the lethal dose table that are good and necessary for you? Explain.
4. Do you think there any substances in the world that are non-toxic? Explain.

Part III: Summarizing

1. Vitamin A can be good for you or it can be toxic. Explain why.
2. How many Flintstone vitamin tables would be a lethal dose of vitamin A for a 10 Kg (22 Lb) child?
Vitamin A- LD₅₀ 2000 mg/ kg & each Flintstone vitamin tablet contains 0.9 mg of vitamin A. (show work)
3. Besides dosage, what other factors should be considered when determining the toxicity of a substance on a person?

Part IV: At Home

1. Find at least 3 products at home with labels that warn of toxicity. For each product give the following:

Product Name	Active Ingredient & % comp.	How does the label advise you to avoid harmful exposure to the product?	What does the label tell you to do if a dangerous exposure does occur?

2. Put this phone number in your home in a location everyone in your family can quickly & easily find (if it's not already there). **Poison Control phone number: 1-800-222-1222**
Parent Signature that this number is posted: