LD-50 Lab Introduction

SCRIPPS CLASSROOM CONNECTION
RANDIE BUNDY AND JENNIFER OGO
“Everything is poisonous yet nothing is poisonous.”

Paracelsus
Everything can be beneficial up to a certain point, and then might be harmful.
Example: Watching TV

Max Benefit

Increasing Hours

Harmful to Life

Beneficial to Life

Increasing Hours

0.5 1 2 3 4 5 6 7
Dose Response Curves

- Different responses to different “doses”
  - Must use indicators

- Important dose “indicator”
  - **LD$_{50}$** - lethal dose, where 50% of the population dies
A Closer Look: LD 50 Examples

Dose of toxicant

Percentage Showing A Response

Toxic Substance A

Toxic Substance B
Threshold Effects

- **Threshold**: below this dose level, some effects are seen to occur in response to the dose

Which substance, A or B has a higher threshold for toxicity?
What do you do with the LD50 values?
Risk Assessments

- Determining potential adverse environmental health effects on people exposed to pollutants
  - LD50 and threshold effects
  - Includes many steps and processing
  - Eventually incorporated into regulations