WORKSHEET A: MATHEMATICS OF PACKAGING

A. Materials and Impact on Landfills

Facts:
- Coffee is kept freshest if packed either in steel cans or in vacuum brick packs.
- Steel is 45% recyclable (meaning 55% of it winds up in landfills and 45% can be re-used for other products.)
- Vacuum brick packs can not be recycled.

Options:
Packaging 65 pounds of coffee requires either 20 pounds of steel, or 3 pounds of vacuum brick pack material.

Problems:
1) What is the amount (weight) of material that will wind up in the landfill for each packaging choice.

2) What does the % recyclability of the steel need to be to produce the same amount of waste as the vacuum brick packs?

B. Buying in Bulk

Facts:
- A 33-ounce box measures 6 inches high by 6.5 inches wide by 3 inches deep.
- A 132-ounce box measures 9 inches high by 9 inches wide by 5 inches deep.

Problems:
1) How many square inches of material is required if you purchase 264 ounces of detergent in the small, easy to manage 33 ounce packages?

2) How many square inches of material is required if you purchase 264 ounces of detergent in the large, bulk size 132-ounce packages?