

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?