Name: _____ **Date:** _____

It's All in the Packaging Activity – It Doesn't Add Up Worksheet

Section I

One of many things to consider when buying environmentally friendly products is how much material is devoted to packaging. The table below lists packaging materials for drinks and the percent of the total weight of the drink due to the can, bottle or box.

The second column of the table lists what kind of drink may go into each container.

Container	Common Use	Percent of Total Weight	Packaging Weight out of 100 pounds	Total Pounds of Juice
Aseptic Package	Juice, etc	4%		
Aluminum Can	Soda, etc	5%		
Paperboard Cans	Milk, etc	6%		
Plastic Bottle	Water, etc	7%		
Steel Can	Soup, etc	16%		
Glass Bottle	Wine, etc	37%		

Assume that the school needs to buy a 100-pound container of juice for the cafeteria. In the fourth column of the table below determine how much of the total weight is due to packaging. For example, an aseptic package is 4% of the total weight. Remember that "percent" means "per one hundred," so 4% of 100 pounds would be 4 pounds.

Questions

a) How much juice you would actually have in the 100-pount container? Put answers in the fourth column of the table above. (Remember, it is a 100-pound container of juice, ***minus*** the amount of the packaging.)

b) A Glass bottle takes up 37% of the total weight of a product. That's over nine times more than what an aseptic package weights, and more than seven times the weight of an aluminum can. Why do you think manufactures package anything in glass?

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More Than Juice

Section II

Packaging a new pair of sneakers in an aluminum can may not be such a good idea. Items besides juice and soda, such as CDs, clothes, food, etc, often come in different types of packaging. The table below lists some of the more common materials and the percent that they are used.

Material	Percent	Student Ranking (1-6)
Aluminum	3%	
Glass	17%	
Paper & Paperboard	50%	
Plastics	12%	
Steel	4%	
Wood	13%	

Questions

a) Rank the materials from ***most common*** to ***least common*** in the column labeled Student Ranking. Rank the material from 1-6. Each number can appear only once.

b) Using graph paper, make a bar graph listing the materials and their percents.

c) Add up the percents for each material. Total _____

d) Does it add up to 100%? Yes or No (circle correct answer)

e) Why or why not? _____

_____

_____

_____

_____

_____

_____

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What a Waste!

Section III

On average, different countries produce different amounts of waste. The table below lists seven countries and the amount of waste (in pounds) that one person generates in one day.

Country	Pounds of Waste Per Person Per Day
Canada	3.7
France	2.1
Germany	2.0
Japan	2.8
Netherlands	3.0
United Kingdom	2.8
United States	4.4

a) Which country produces the most waste per person?_____

b) Which country produces the least waste per person? _____

c) Which amount of waste is produced the most often? _____
(The value that occurs the most often is called the **mode**)

Which country(ies) produce it? _____

d) Which amount of waste occurs in the middle? _____
(This is called the median.) HINT: To find the middle value, rewrite the numbers from greatest to smallest. Now pick the one in the middle

And which country(ies) produce it? _____ .

e) What is the average amount of waste produced per person in the table? _____
(This is called the mean) HINT: To find the average add up the total amount and divide by the number of countries.

The Energy Information Administration does a lot of research on recycling and waste (see http://www.eia.doe.gov/kids/recycling/solidwaste/sourcereduction.html for more information).