

Evergreen Packaging in Raleigh makes cartons for school milk. They have just been told by the milk distributor that they want to change the volume of milk that is in each carton from 8 oz to 10 oz. This will require a new carton to hold the extra 2 oz.

They want to take this opportunity to try a new shape for their cartons to try and bring attention to their product. You are tasked with designing a new carton for the milk.

**Your carton must be made from one cut of paper and then folded into the carton. You will have to provide the following specifications with your carton design:**

1) The design of the net (the unfolded shape) of your carton

2) The layout of the stamp that will cut the shapes out of the paper (remember, you want to minimize waste!)

See this video for an example of what this means: <https://www.youtube.com/watch?v=FWzNaU8UvPs>

3) An account of how much waste will be produced per roll of paper (120 inches wide by 20 feet long).

4) A finished, professional prototype of what the carton will look like folded and finished (with printed design).

5) A description of dimensions proving the volume of the carton will hold the 10 oz of milk with minimal wasted space (air) in the carton.

**You will be presenting this information and your prototype carton while sharing your reasoning and throught process to the class. The presentation should be no longer than 5 minutes.**

**Important Dates:**

\_\_\_\_\_\_\_\_\_\_\_ Group Contract Due: Day 3 of Unit (beginning of class)

\_\_\_\_\_\_\_\_\_\_\_ Checkpoint 1: Group Project Document 1; Day 4 (beginning of class)

\_\_\_\_\_\_\_\_\_\_\_ Checkpoint 2: Group Project Document 2; Day 5 (end of class)

\_\_\_\_\_\_\_\_\_\_\_ Test: Day 6

\_\_\_\_\_\_\_\_\_\_\_ Project Due/Presentations: Day 7

**Got Milk? Group Project Document 1**

Each member of the group will need to ***individually*** complete the document 1 sheet by the first checkpoint. This will be used as a rough draft for your final product.

1. Design a carton. You will need to create a net for the carton that can be folded into the carton. Don’t forget to include tabs on the sides that need to be glued/sealed together. (Tabs should be trapezoids that are the entire length of the side.)
2. Once you have your net design you need to label with measurements and dimensions. Don’t forget to include units of measure.
3. Once you have measurements, you will need to find the surface area and volume for your carton. Remember, you want your carton to hold 10 oz of milk with little wasted space as well as minimal surface area (less paper needed).

**Got Milk? Project Document 2**

As a group, complete the document 2 sheet by the second checkpoint.

1. At checkpoint 2, you will all need to compare your designs and decide as a group which design you like best. You will want to consider all factors such as best volume, least paper used, overall aesthetic and marketability.
2. Once you choose a design, you need to **design the cutter** that will stamp the shapes out of the sections of paper at the plant. Remember, you want to get as many of the nets as possible while wasting as little paper as possible. You will then need to **find out how much waste** (unused paper) you expect from each roll of paper at the plant.

**You will need to complete all of these tasks as a group to prepare for your final product.**

1. You will need to design what the **images on the sides of your carton** will look like. Be careful with colors. When printing, each different color has to be printed separately and therefore each separate color costs more money. Get creative! Include proper label information such as nutrition facts and ensure proper spelling!
2. You need to **make a prototype** of your carton that is folded, glued, and has the design printed on it. A final product. This should be neat, solid, and finished so that no milk will be able to escape from your carton.
3. You need to be prepared to present your final protopye to the class. *Explain why yours is the best. Be creative and enthusiastic!!!*
4. You will need to turn in a product portfolio that contains the following pages. **All lines must be straight and work must be neat and organized. I**nclude the following:

Page 1: Finalized image of your net including all dimensions

Page 2: **Calculations** (SHOW WORK) of Volume, Surface Area, and Total Surface Area (including tabs)

Page 3: Image of your cutter including all dimensions and numbers of nets in the cutter

Page 4: **Calculations** (SHOW WORK) of the number of times the cutter is stamped, as well as the amount

of paper being used and wasted.