Measurement Unit Project

Background: After countless complaints of leaky butter bags, Cineplex Odeon Theatres is changing from paper popcorn bags to thin cardboard containers*. The company wants to save as much money as possible on their new popcorn containers. In order to do this, the company wants to have a high volume of popcorn in each container, but a low surface area to avoid wasting money on the cardboard packaging.

Your Task: You and your partner must design a popcorn container that will hold 8750cm^3. The container may be either cylindrical or prism-shaped in design.

You must meet the following expectations:

- ☐ Demonstrate at least three different designs of the popcorn container showing all measurements, ensuring that it will hold 8750cm^3 of popcorn (draw the 3-D view of the polyhedron – you may use isometric dot paper to guide you).
- ☐ Determine the cost of each of your popcorn containers if the cardboard costs $0.003 per square centimeter.
- ☐ Draw a scale version of a net, including measurements, for your chosen design.
- ☐ Choose the design that best meets the criteria for your company and construct/decorate the popcorn container to make it attractive to the consumer. .

Criteria	**4** (Meets all expectations)	**3** (Developing to meet expectations	**2** (Beginning to meet expectations	**1** (Incomplete)
able to determine the dimensions of regular prisms and cylinders that will hold a particular volume	uses understanding of volume to determine three different possible dimensions for a particular volume	uses understanding of volume to determine two different possible dimensions for a particular volume	uses understanding of volume to determine one possible dimension for a particular volume	does not determine a possible dimension for a particular volume
demonstrates an understanding of surface area of a regular prisms and cylinders	includes clear step-by-step procedures for calculating the surface area of each container	includes most steps for calculating the surface area. Only 2 containers are measured accurately.	includes few steps for calculating the surface area. Only 1 container is measured accurately	includes no steps for calculating the surface area of a rectangular prism
demonstrates how to solve problems involving surface area	demonstrates a comprehensive understanding of problem solving involving surface area by including clear step-by- step procedures for calculating the cost of materials	demonstrates an understanding of problem solving involving surface area by including the cost of materials using surface area	demonstrates minimal understanding of problem solving involving surface area when attempting to include the cost of materials using surface area	does not attempt to show an understanding of solving problems involving surface area
demonstrates an understanding of a net	accurately draws and labels a net of a 3-D object that represents the final product	draws and labels a net of a 3-D object that may or may not represent the final product	draws and labels a net of a 3-D object but it does not represent the final product	does not draw or label a net of a 3-D object
Quality of work	All work is well organized and decorated. Pride in work is apparent	Most work is organized and decorated	Some work is organized in a clear way	Work is disorganized and quality does not reflect student pride.

Total Marks: /20

* Cineplex is not actually changing their containers nor can I speak to any complaints… This is all make believe ;)