**Lesson Plan Template**

**Name: \_\_204\_\_\_\_\_\_ Course: Math 8\_\_\_\_\_\_\_\_ Grade: \_\_\_\_\_8\_\_\_\_\_**

**Unit: \_”Packaging Unit”\_\_\_\_\_\_**

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| **Big Idea:** | Relating the measures of length and width to the perimeter and area of the surface area of a prism. |

**Subconcept: \_1.\_Relationship of length and width to perimeter and area**

**Literacy Strategy(s): \_Frayer Model**

**Lesson: \_Relating perimeter and area to surface area for the construction of a rectangular prism**

**Date Taught: October 14-19,2008\_\_\_**

**Learning Objective(s):**

* Conceptualize surface area as a measure of wrapping an object.
* Discover the strategies for finding surface area of a rectangular prism.
* Determine which rectangular prism has the least (greatest) surface area for a fixed volume.

**Idaho Standards (or National Standards if no Idaho Standards exist):**

* IMS: 8.M.2.1.6 Solve problems involving the perimeter and area of rectangles.
* IMS: 8.M.4.1.6 Explain the concept of surface area

**Detailed Description of Lesson:**

Describe the sequence of activities in the lesson. Include the instructions that students are given for activities. Remember that these lessons will be shared with other teachers. Please provide enough detail so that other teachers could replicate the lesson.

**Day 1 and 2**

Block objects:

* Students were given 36 centimeter blocks and had to make at least five different rectangular prisms using all the blocks.
* Students must calculate the length and width and height of each prism then calculate the area of each face and the volume of the prism.

**Day 3-6**

Students were given a choice of an object and then had to complete the following requirements:

*The Worldwide Moving Company wants packages for new products. You will select a product, measure, draw a scale model, and construct a box for you product. There are two requirements for the package:*

* *The sales manager wants the packages to stack easily.*
* *The board of directors wants a drawing for the design before final approval can be given.*
* *Submit a model of the package.*

**Handouts:**

Include any handouts that students were given.

# Problem 1

Day 1 and 2

The Ace Block Company is planning to market a set of blocks to be used in art projects. Each block is a cube with 1-centimeter edges, so each block has a volume of 1 cubic centimeter ( 1 x 1 x 1).

The company wants to arrange the 36 blocks in the shape of a rectangular prism.

1. Find 5 ways36 cubes can be arranged into a rectangular prism. Make a sketch of each arrangement you find and give its dimensions, volume and surface area.

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| **Box #**  **Sketch** | **Length**  l x | **Width**  w x | **Height**  h = | **Volume**  v | **Surface area**  **Side**  **A x 2 +** | **Surface area**  **Side**  **B x 2 +** | **Surface area**  **Side**  **C x 2 =** | **Total**  **= Surface area** |
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1. **Which of your arrangements would you recommend to the Ace Block Company and why?**