Box Project - Integrated Mathematics I

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SUBMIT THIS SHEET WITH YOUR PROJECT

Name: _____ Per: ____

STEP # 1. Registration and Approval

Choose a box in the shape of a rectangular prism that has a volume less than 1000 cm3. All sides must be enclosed and it must have lettering or logos on at least one side. You must get your box approved before you begin your project. When you register your box, you will also select a scale factor by rolling a die. If you roll a 1, you must roll again. If your original box is less than 100cm3 in volume, roll 2 die (dice). This scale factor will be used to build a similar model. You must have accurate dimensions of your box (in cm) when you register it.

STEP # 1 DUE DATE: _____

Scale Factor _____ BOX _____ 5 points _____

STEP # 2. Blueprints

Draw a two dimensional "blueprint" for both the original box and the model. The original must be drawn the actual dimensions and the model must be drawn to scale. This will be on two different sheets of paper. Drawings must be done with a straight edge and accurately labeled.

		Original	Model
· Blueprints			
Grid Lines		_____/2	_____/2
Quality, Neatness		_____/3	_____/3
Scaling is Accurate		_____/5	_____/20

· Calculations for surface area, volume and ratios

*Show formulas and all work.

**See Table on the back of this sheet for the format of the calculations.

***This Table will be attached to the back of the Final Box.

Scale Factor (SF)	(SF) _____/1		
Length/Width/Height		_____/3	_____/3
Surface Area	Formula _____/3	_____/4	_____/4
Volume	Formula _____/3	_____/4	_____/4

Ratios

(a) Ratio of Original/Model for side Lengths _____/2

(b) Ratio of the calculations of the Surface Areas of the original to the model _____/2

(c) Ratio of the calculations of the Volumes of the original to the model _____/2

STEP # 2. DUE DATE: _____ 70 points _____

STEP # 3. Final Construction

Construct/Build a scale model of your object using your scale factor. You should pay attention not only to the size, but shape, colors, textures, materials, package labels, etc. Use materials that will result in a model that is sturdy when finished. Any lettering and/or logos are to be scaled proportionally. At least one face of the original must be transferred to the model that you build.

· Grids on Both Boxes _____/6
· Scaling of Model is Accurate _____/9
· Sturdy Model _____/5
· Neat and Creative (Color) _____/5

STEP # 3. DUE DATE: _____ 25 points _____

FINAL PROJECT GRADE 100 points _____

Example: Table for Calculations

Student Name:	Period:	Date:
Type of Box:	Scale Factor: (1pt)	
Formula/Measurement	**Original**	**Model**
Length Width Height/Depth	(Length) (Width) (Height) (3pts)	(Length) (Width) (Height) (3pts)
Ratio of Lengths	Original/Model (2)	
Surface Area (Insert Formula) (3pts)	(Calculations) (4pts)	(Calculations) (4pts)
Ratio of Surface Areas	Original/Model (2pts)	
Volume (Insert Formula) (3pts)	(Calculations) (4pts)	(Calculations) (4pts)
Ratio of Volumes	Original/Model (2pts)	

From Eric Harding and Ryan Martine