SCALE FACTOR GROWTH MODEL

Name:_____

Part 1: Collect Information About the ORIGINAL

Due by: _____

Early submissions are appreciated.

The shape of my original is (choose one):

- ☐ rectangular prism – not a cube (6 rectangular faces)
- ☐ cylinder (2 circular bases, 1 rectangular face)
- ☐ triangular prism (2 triangular bases, 3 rectangular faces)
- ☐ other/combo (you must get approval for this) *approved by:* _____

	Points Possible	Requirements – Complete A, B and C on graph paper	Points Earned
A.	4	Sketch a 3-dimentional drawing of the **original**. Neatness counts. Proportionality counts. Label all dimensions in CENTIMETERS.	
B.	5	Draw each face separately using the **original** measurements. Neatness counts. Proportionality counts. Label all dimensions in CENTIMETERS.	
C.	6	Add the artwork for the front face, in its **original** size, to part B. Draw the letters and artwork as accurately as possible using a ruler to measure each shape, letter, etc. Match colors as closely as possible. ***NOTE: Absolutely no photocopying is allowed!***	
D.	8	Calculate the volume and surface area of the **original**. Show all work and label your answers with the correct units. VOLUME SURFACE AREA	
G.	2	Pair Check: Have a classmate or parent check your work and calculations to make sure Part 1 is complete and accurate. The person who checks your work must write one **constructive comment** and sign below. Make sure to fix your work if necessary. Check and sign: ☐ "I have checked these drawings and calculations for accuracy." **Constructive comment/suggestion for improvement:** Print name:_____ Sign:_____	
		TOTAL: 25 points possible	

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Part 2: Collect Information About the MODEL

Due by: _____

Early submissions are appreciated.

The scale factor for my project is (circle one): 5 4 3 2 $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$

	Points Possible	Requirements – Complete B and C on graph paper	Points Earned
A.	4	List the original measurements and new measurements for the scale factor model. (*Prism* – Length, Width, Height; *Cylinder* – Radius, Height) ORIGINAL NEW MODEL	
B.	5	Draw each face separately using the **model** measurements. Neatness counts. Proportionality counts. Label all dimensions in CENTIMETERS.	
C.	8	Design the artwork for the front face, in its **new model** size. Draw the letters and artwork as accurately as possible using a ruler to measure each shape, letter, etc. Fine details not necessary. Color not necessary. ***NOTE: Absolutely no photocopying is allowed!***	
D.	4	Calculate the volume and surface area of the **model** *using the new measurements* AND *volume and surface area formulas.* Show all work and label your answers with the correct units. VOLUME SURFACE AREA	
E.	4	Calculate the volume and surface area of the **model** *using the scale factor equations*. Show all work and label your answers with the correct units. VOLUME SURFACE AREA	
		TOTAL: 25 points possible	

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Name:_____

Part 3: Make the Scale Factor Model

Due by: _____

Early submissions are appreciated.

	Points Possible	Requirements	Points Earned
A.	6	Scale Factor model is **constructed with correct dimensions**.	
B.	10	**Front face** is complete. All artwork and lettering is present. **Artwork** and **lettering** on front face is original and drawn to scale. Neatness counts! ***NOTE: Absolutely no photocopying is allowed!***	
C.	3	**2nd Face** is complete. **Artwork** and **lettering** on 2nd face is original and drawn to scale. Neatness counts! ***NOTE: Absolutely no photocopying is allowed!***	
D.	3	**3rd Face** is complete. **Artwork** and **lettering** on 3rd face is original and drawn to scale. Neatness counts! ***NOTE: Absolutely no photocopying is allowed!***	
E.	3	**Colors** are matched well.	
F.	5	**Overall Effort**	
G.	up to 5 points	**Extra Credit opportunities** for functionality, completing fine print, more details in addition to the three required faces, etc.	
		TOTAL: 30 points possible	

Comments:

SCALE FACTOR GROWTH MODEL Name:_____

Part 4: Project Presentation **Be prepared to present on:_____**

	Points Possible	Requirements	Points Earned
A.	2	**Non-verbal Skills –** poise, eye-contact, etc. Use the model as a visual aid. Look at the audience, not at the teacher!	
B.	2	**Verbal Skills** – speak slowly; use a clear voice with appropriate volume and enthusiasm.	
C.	4	**Explanation of Scale Factor Growth –** Clearly present the major concept of how scale factor affects 1-dimensional, 2-dimensional, and 3-dimensional growth. How did you find the new lengths, areas, and volume for your model?	
D.	1	How many of your originals would fit inside of your model? _____	
E.	6	**Two Fun Facts –** Fun facts are creative, accurate, and thoroughly explained (show how you calculated the fact). Fun Facts are written on a 3x5 index card and presented under the doc-cam during presentation. *Some sample Fun Fact questions to ask & answer are listed below.*	
F.	5	**Overall Effort**	
		TOTAL: 20 points possible	

Comments:

Fun Fact Ideas:

The bar of soap in the original box took ___ days to dissolve. The scale factor 4 version of the soap would take____ days to dissolve.

The original can of soda has ___ calories. The SF 3 version would have ___ calories. This is enough energy to run for ___ minutes.

If a SF 4 human was holding this scale factor 4 pack of gum, they would be ___ feet tall. That's as tall as ___ !