

B3.4 Investigating Surface Area and Volume under Dilations

1. Using 1" cubes, create figures as shown in the table below. Once you have the figure, determine the surface area (in square inches) and the volume (in cubic inches) of the prism formed. The first one is done for you.

Scale Factor	Dimensions (in inches)	Surface area (in square inches)	Volume (in cubic inches)
1	1" x 2" x 3"	22 sq inches	6 cubic inches
2			
3			
5			
$\frac{1}{2}$			
$1\frac{1}{2}$			
n			

2. Conjecture a rule showing how area and volume change when each dimension is changed by a scale factor.
3. Some of the scale factors are not whole numbers. Does your rule work if we shrink the figure? Why or why not?
4. Complete the following statement: *When each side length is multiplied by a factor of n then the area is multiplied by a factor of _____ and the volume is multiplied by a factor of _____.*