Surface Area & Volume Exploration Questions

Base Depth	Base Width	Prism Height	Volume	Surface area

1. Use the applet to fill in the chart using different base depth, base width, and prism height for a rectangular prism. Is there a pattern? Can you write a formula for volume and surface area for a rectangular prism in terms of its base depth, base width, and prism height? If so, write it.

a) What differences do you see in the relationship between the figure's surface area and volume as the figure gets larger.

b) Which dimensions give the rectangular prism the largest volume to surface area ratio?

c) Which dimensions give the rectangular prism the smallest volume to surface area ratio?

d) Graph the surface area of each of the cubes you can form using the applet. Then on the same graph, graph the volume of each of the cubes you can form using the applet. At what point on the graph does the volume grow to be greater than the surface area? Why do you think the volume grows greater than the surface area?

Base Depth	Base Width	Prism Height	Volume	Surface area

2. Use the applet to fill in the chart using different base depth, base width, and prism height for a triangular prism. Is there a pattern? Can you write a formula for volume and surface area for a triangular prism in terms of its base depth, base width, and prism height? If so, write it.

a) What differences do you see in the relationship between the figure's surface area and volume as the figure gets larger.

b) Which dimensions give the triangular prism the largest volume to surface area ratio?

c) Which dimensions give the triangular prism the smallest volume to surface area ratio?