SURFACE AREA VERSUS VOLUME OF SOME LIVING ORGANISMS

	Horse	Puppy	Bumble Bee	Tick	Bacterium
Radius (cm)*	100	10	1	0.1	0.0001
Surface area (cm^2)*	1.3×10^{4}	1300	13	0.13	1.3×10^{-7}
Volume (cm^3)*	4.2×10^{6}	4200	4.2	0.0042	4.2×10^{-12}
Ratio of Surface area to Volume (SA÷V)	**0.003**	**0.30**	**3.0**	**30**	**30 000**

But, what about particles at the ***nanoscale*?**

For a **buckyball** with a radius of **1 nm** (that's 1×10^{-7} cm):

The volume = 4.2×10^{-21} cm^3 and surface area = 1.3×10^{-13} cm^2

That gives a **SURFACE AREA to VOLUME ratio** of **3×10^6**; That's ***30 000 000* !!**

Note* Organisms are treated as if they are more or less spherical in shape; (all dimensions are approximate).

David Sederberg *dsederbe@purdue.edu*