Important Question: Should Pop Cans be a Different Size?

If you went back in time and were able to design the first 12 oz pop can, what would be important to keep in mind as you design the shape and size?

1…

2…

3…

Now, measure a can (make all measurements to the nearest 0.1 cm)

Can	Diameter	Radius	Height
Original 12 oz			

After measuring, calculate the *Volume*, *Surface Area*, and $\frac{Volume}{Surface\ Area}$

Can	Volume	Surface Area	$\frac{Volume}{Surface\ Area}$
Original 12 oz			

What is the importance of the value of $\frac{Volume}{Surface\ Area}$? Would you want the value of $\frac{Volume}{Surface\ Area}$ to be higher or lower if you were making the cans?

Now, modify the __radius__ of the pop can (but use the __original height__). Pick a few values that are higher & lower than the original. Re-calculate the *Volume, Surface Area*, and $\frac{Volume}{Surface\ Area}$

Can	New Radius	Height	Volume	Surface Area	$\frac{Volume}{Surface\ Area}$
Original Can					
Prototype 1					
Prototype 2					
Prototype 3					
Prototype 4					

Which worked better…higher or lower or the same radius?

Now, modify the <u>height</u> of the pop can (but use the <u>original radius</u>). Pick a few values that are higher & lower than the original. Re-calculate the *Volume, Surface Area*, and $\frac{Volume}{Surface\ Area}$

Can	Radius	New Height	Volume	Surface Area	$\frac{Volume}{Surface\ Area}$
Original Can					
Prototype 5					
Prototype 6					
Prototype 7					
Prototype 8					

Which worked better…higher or lower or the same height?

Now, modify both the height & radius of the pop can…Pick new values based on what you learned in the previous prototypes. Re-calculate the *Volume, Surface Area*, and $\frac{Volume}{Surface\ Area}$

Can	New Radius	New Height	Volume	Surface Area	$\frac{Volume}{Surface\ Area}$
Original Can					
Prototype 9					
Prototype 10					

Which Prototype can size that you designed was best?

There are many reasons why pop can size should not be changed. List a few

1…

2…

3…

1934-1963+	1962-1965	1965-1975	1975-2015