**Skittles and Volume**

* **GOAL:** Students will learn to determine the optimum volume and percent error
* **OBJECTIVE:**
	+ Students will determine the measurements of a cylindrical object
	+ Students will calculate the volume of a cylindrical object
	+ Students will analyze and evaluate the volumes calculated
* **MATERIALS:**

|  |  |
| --- | --- |
| Cylinder object: Cup | * Formulas
* Calculator
* Ruler
* Pencil/Pen
* SKITTLES!
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**REVIEW:**Definition of VOLUME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Definition of a DIAMETER:

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Definition of a RADIUS:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Useful Equations

**Volume of a cylinder: V= 𝝅r2h**

**Estimation of Volume:** (Space between the skittles)

= Amount of Skittles x Volume of one skittle

**Percent Error =** $\frac{Actual-Estimated}{Actual}$

**PROCEDURE:**

* FIND THE DIMENSIONS OF YOUR MUG
* PLUG DIMENSIONS INTO THE FORMULA FO THE VOLUME OF A CYLINDER
* FIND THE VOLUME AND LABEL APPROPRIATELY
* FILL THE CYLINDER(MUG) WITH SKITTLES
* COUNT THE SKITTLES AND RECORD YOUR FINAL ANSWER
	+ WE WILL BE SHARING ANSWERS WITH CLASS
* THINK ABOUT THE RELATIONSHIP BETWEEN THE VOLUME AND NUMBER OF SKITTLES

Practice Question:

A soup can have a diameter of 10 cm and a height of 15 cm.  What is the volume of the soup in the can if 0.5 cm of space is left at the top of the can?

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Diameter= 10cm

Radius= 5cm

Height= 15cm

**V= 𝝅r2h**

**V= 𝝅(5)2(14.5)**

**V=1138.8cm**3

**What is the height and radius of your cup?**

Height=12.5cm

Diameter=8.5cm

Radius=4.25cm

**Find the volume using the calculations above:**

V=709.3cm3

**What is the estimated amount of space between each skittle? 20.15cm3**

**Now calculate the percent error:**

Percent error= .9719= 97.19%