Lesson Title/Focus	Calculating Density & Volume when given Mass and a Graduated Cylinder	**Date**	December 3/25
Grade Level/Subject	Grade 5 Science	**Time Duration**	50 mins
Unit	Matter	**Teacher**	Miss H

OUTCOMES FROM ALBERTA PROGRAM OF STUDIES	
Organizing Idea:	**Matter:** Understandings of the physical world are deepened by investigating matter and energy.
Guiding Question:	How can states of matter and other physical properties be explained using the particle model of matter?
Learning Outcome:	Students investigate the particle model of matter in relation to the physical properties of solids, liquids, and gases.

Students will know…		*Students will be able to…*
Knowledge	**Understanding**	**Skills & Procedures**
• Volume is the amount of space a solid, liquid, or gas takes up. • SI units of volume of a liquid include millilitres and litres. SI units are abbreviated for convenience, including • g: grams • kg: kilograms • mL: millilitres • L: litres	• The movement and arrangement of particles affect the physical properties of matter.	• Measure the volume of liquids, using appropriate instruments and SI units.

LEARNING OBJECTIVES

Students will be able to:
1) Determine volume of an object when shown a graduated cylinder
2) Calculate the density of an object, when given Mass and Volume
3) Define mass, volume, and density in relation to each other

ASSESSMENTS

Products/Performances:	- Class discussion - Whiteboard work - Worksheet with activity

LEARNING RESOURCES CONSULTED	**MATERIALS AND EQUIPMENT**
	• Presentation slides • Worksheet / wordsearch

PROCEDURE

Introduction		**Time**
Attention Grabber	- 2 minutes hydraulic press to get settled (this class comes from Art class - dysregulated upon entry)	15 mins

	- Remember when we talked about density… and how that had to do with both mass and volume? We are going to look at this a little bit closer at calculating density when we know our mass and volume!	

Transition to Body	- Reminder of Star student expectations!
	  - Respecting their classmates, respecting themselves, respecting the teacher.
	  - Listening when someone else is speaking
		1 min

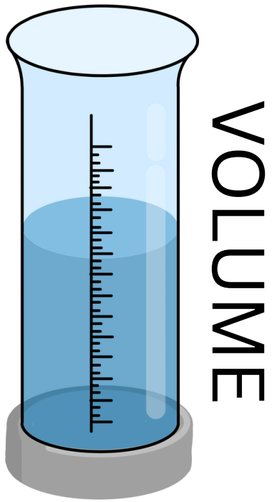
Body		**Time**
Learning Activity #1	- Reminder of what mass, density and volume are (sides of the room activity) - Reminder of the characteristics of these physical properties - Mass, Volume, Density Song	10 mins
Transition to Learning Activity #2	I do, We do, You do of calculating density when given the volume and when given the graduated cylinder 1. Demonstrate full process (2 questions) 2. Have students give next step (2 questions) 3. They lead	10 mins
Learning Activity #2	Introduce the learning activity - 3 questions on density and a wordsearch on the back - Set 10 minute timer for the students	11 mins
Transition to Closure	Wordsearch work time - this class loves puzzles *keep in mind*	~~~~
Closure		**Time**
Wrap up the Lesson	Once the timer has gone off, hand in your papers to me and then head down on your desk to be dismissed to music	2-3 mins

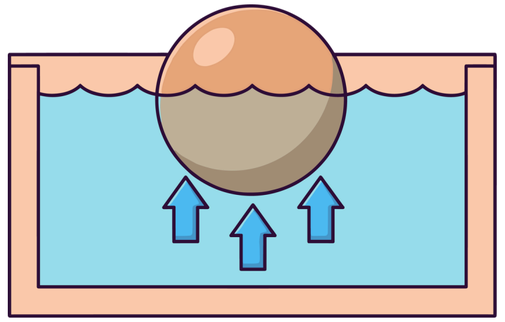
Sponge Activities	1-22 counting game

Lesson Reflections	The worksheet was done more-so as the “we do” portion of the class due to late start time. Adjust lesson tomorrow to include more independent work and exploration.

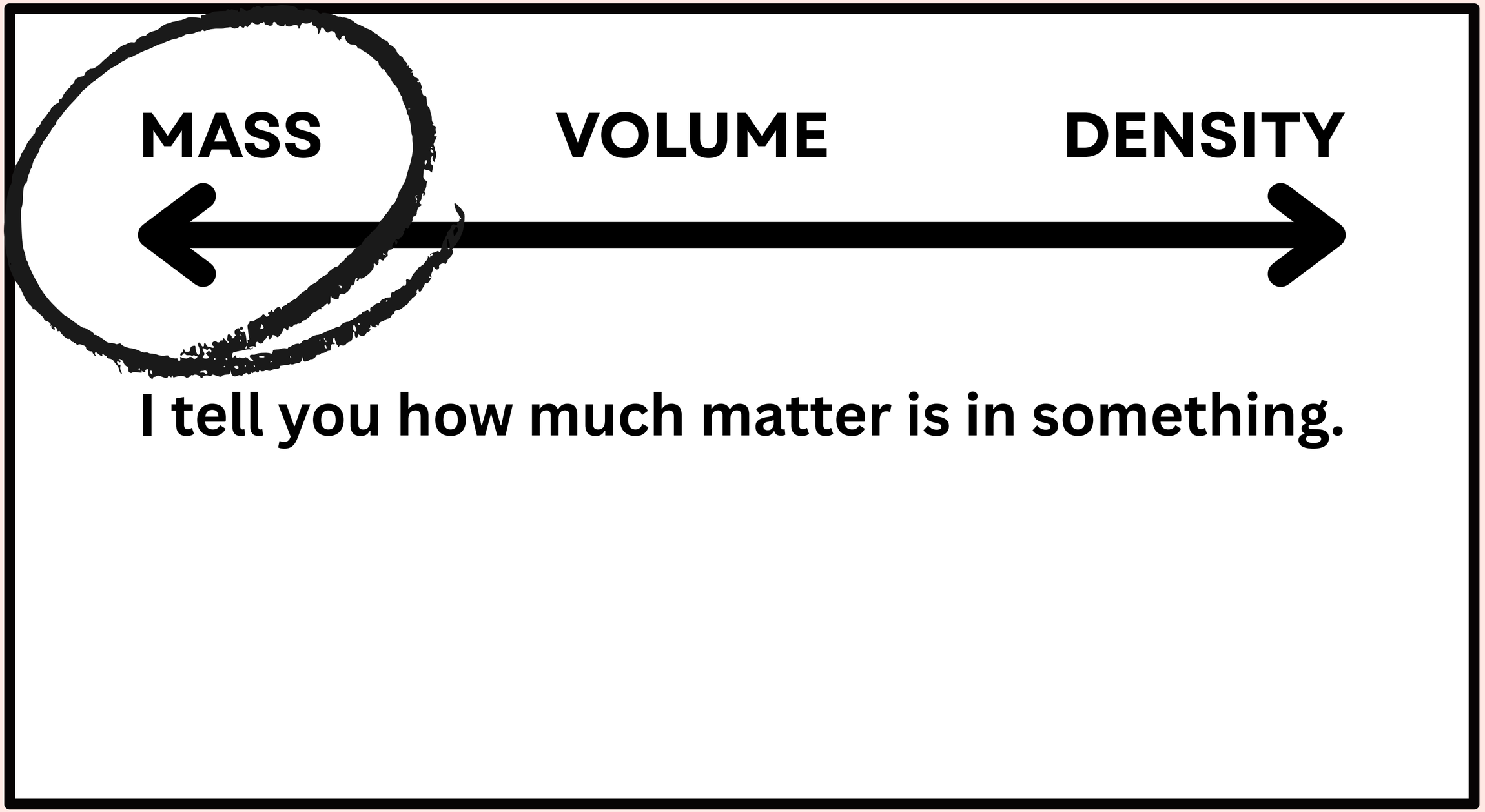
Yesterday we did an **overflow** experiment, what did we learn?

We have talked a lot about physical properties of states of matter, which 3 have we talked about?





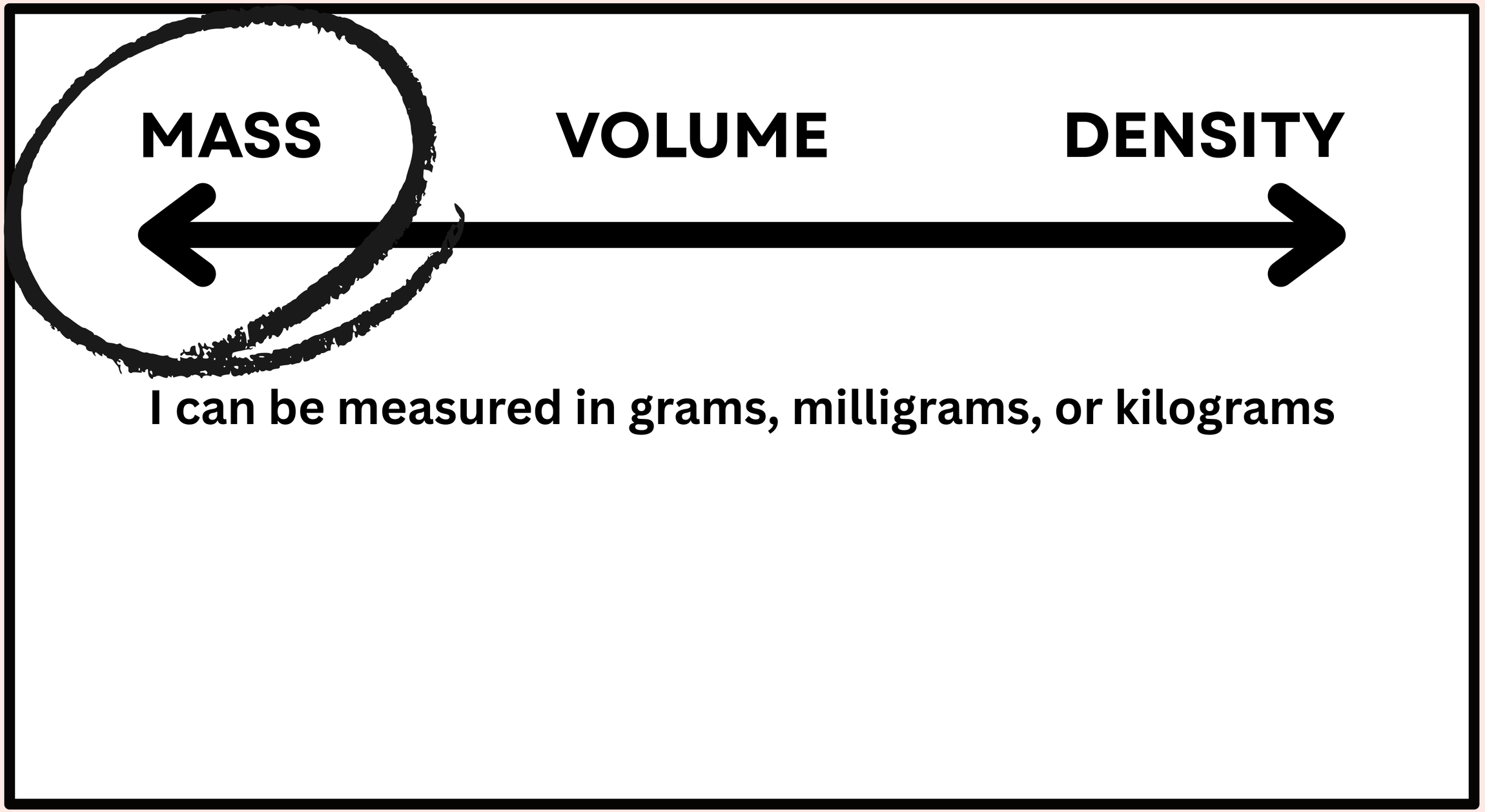
DENSITY



I tell you how much matter is in something.

I measure how much space something takes up.

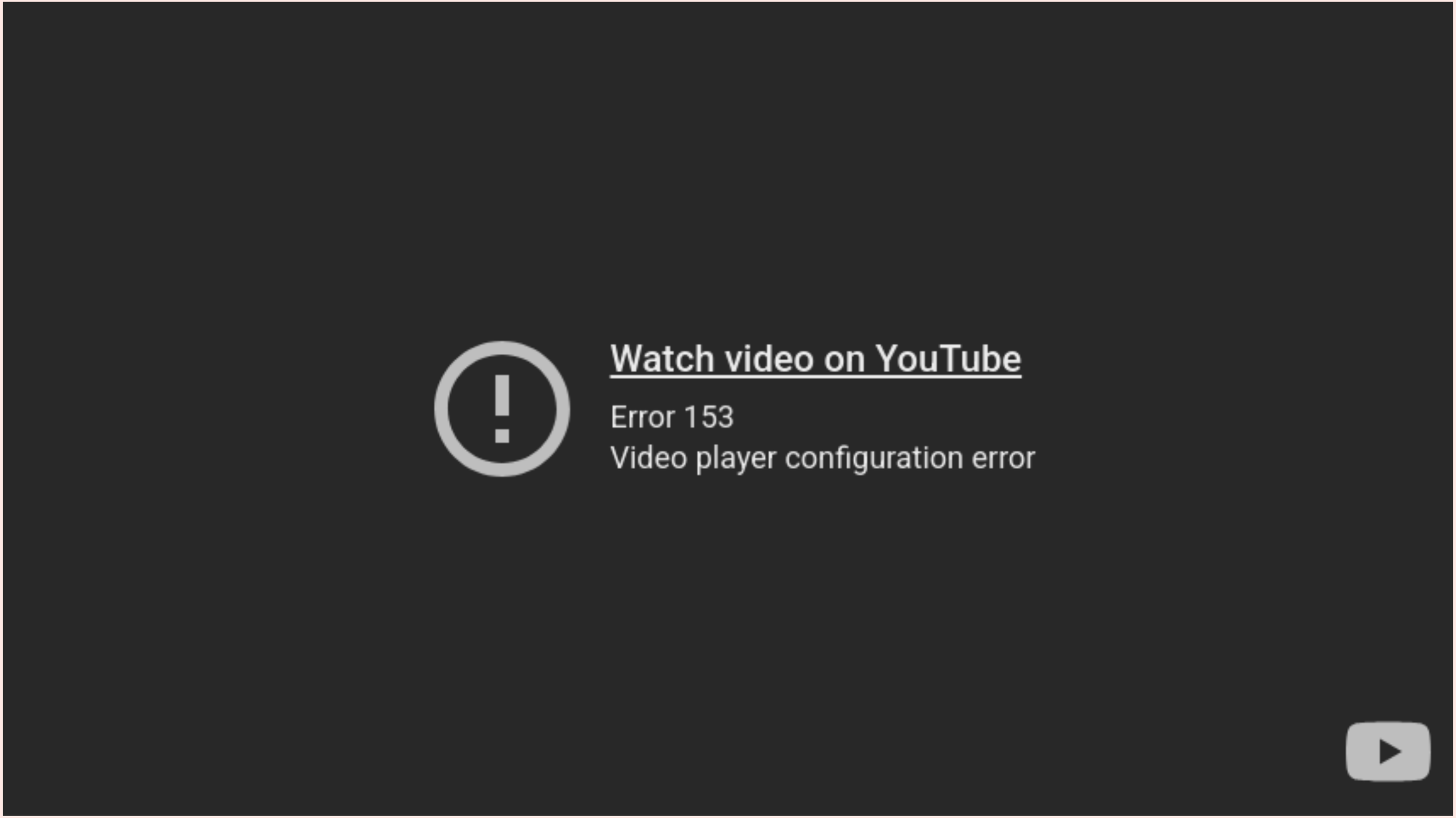
I decide if something sinks or floats.



I can be measured in grams, milligrams, or kilograms

MASS VOLUME DENSITY

I tell how tightly packed something’s particles are.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$$\text{Density} = \frac{\boxed{\text{Mass}}}{\boxed{\text{Volume}}}$$

What unit would density be measured by?

Example: A rock with a mass of 10 grams is dropped into a graduated cylinder and determined a volume of 2 cm^3 , what is the density of the rock?

1. put a BOX around the MASS
2. CIRCLE the VOLUME

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

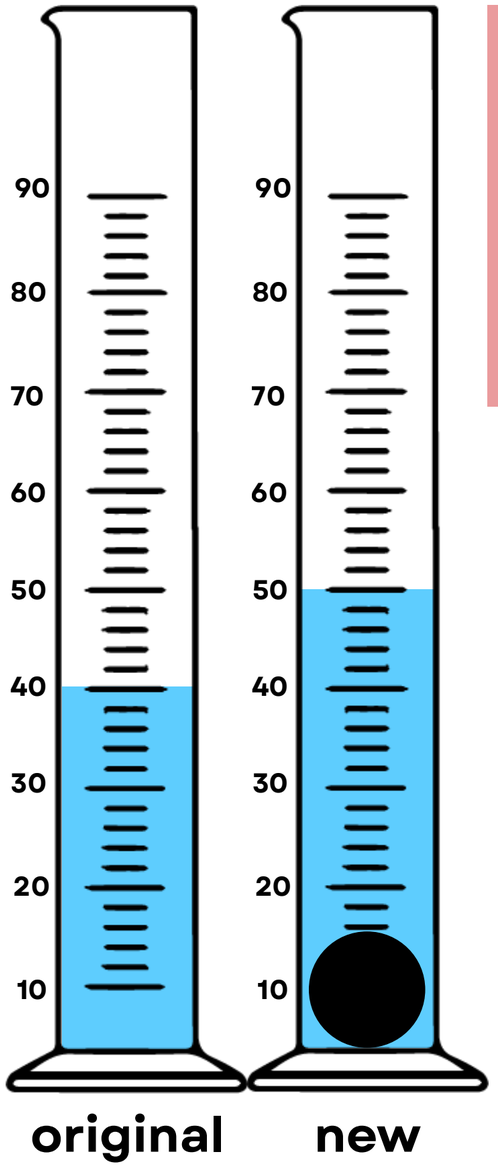
A marble with a mass of 12 grams is dropped into a graduated cylinder and determined a volume of 6 cm^3, what is the density of the marble?

1. put a BOX around the MASS
2. CIRCLE the VOLUME

$$\text{Density} = \frac{\boxed{\text{Mass}}}{\boxed{\text{Volume}}}$$

A bowling ball with a mass of 30 grams is dropped into a graduated cylinder and determined a volume of 3 cm^3, what is the density of the bowling ball?

1. put a BOX around the MASS
2. CIRCLE the VOLUME



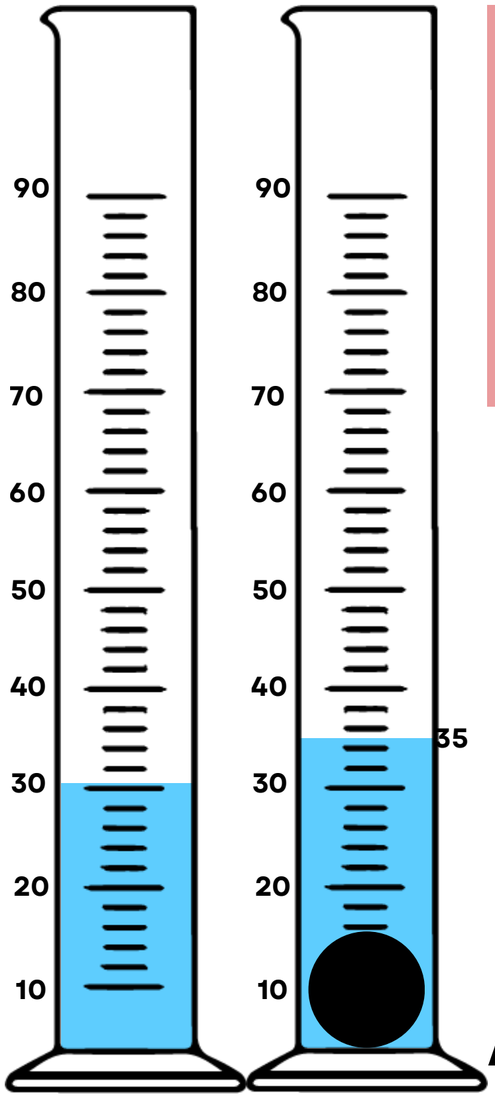
1. put a BOX around the MASS
2. find the VOLUME
3. CIRCLE the VOLUME
4. Use the density formula

Volume = new mL - original mL

1 mL = 1 cm^3

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

A marble with a mass of 10 grams is dropped into this graduated cylinder, what is the density of the marble?



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1 mL = 1 cm^3

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

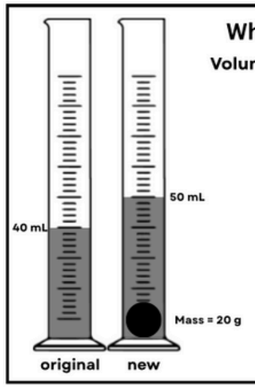
A ball of lead with a mass of 10 grams is dropped into this graduated cylinder, what is the density of the marble?

Name: _____

Mass, Volume, Density

What is the VOLUME?

Volume = new mL - original mL
1 mL = 1 cm³



What is the DENSITY?

1. put a BOX around the MASS
2. find the VOLUME
3. CIRCLE the VOLUME
4. Use the density formula

Density = Mass / Volume

What is the VOLUME?

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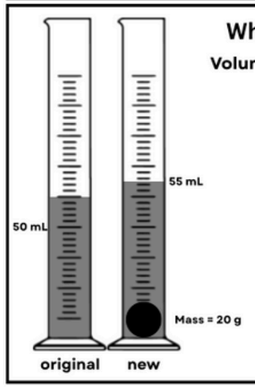

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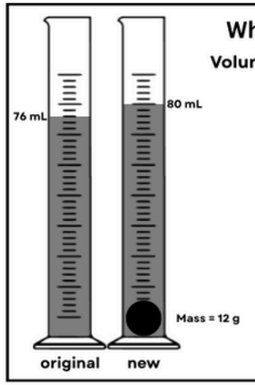

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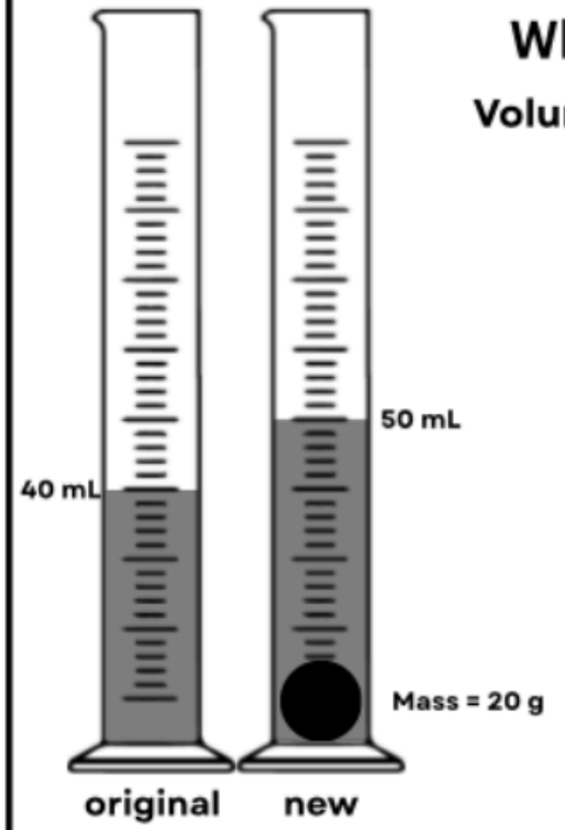
Density = Mass / Volume

Mass, Volume, Density

M J K L Q Z X M P Y K N H O X P S W X V X M T U S
A Q E P G G H N H O P I Q W D X H O T U K J C V T
S F K P P M X C O W H V L V O O K A S O L I D P A
S D U G Q Z P M X V A T H O J A L I Q U I D O P S
P E P F O G U K Y O E K W D G R E O H T K Q R D N
N M N V N G G M G M K R Y R T R N T M C P K S T Y
H V C O X R M X A U C C F L B H A B I K Z E Y R R
F H X L Z A A Y K V D U T L G J T M G M K A J N E
V Q O E P D Q S E W C B M M O Z D P S I P G D H S
P Y I P G U W F A X V I O R O W H T K L C R Y X L
Y G S L Y A H M C K I C C L O Z X L F I J S A N U
P C L A V T S Q A M S C O Q K A V O L U M E B R Q
H U G B M E G U J J Y E V O M K L W W D Y Q D L M
I Z V E D D A Z W X X N C A L I L M B X S C E O I
A B P G Z C S J Q X E T P V Z E L W R Z N C N C L
I B G F J Y F H T M P I X M Q G L L Q R H C S R L
S B D H P L H V K E A M Y Y A J W E I R B V I B I
G F O B L I L T F E R E Q M S T Z F R L G J T T G
X W X I E N L J R O T T L E K L E L U B I B Y Z R
Z Q M J X D R G P F I R Y A A J G O Z A M T O E A
B S K F L E T R E S C E S S F V K Z B E B D R O M
F T Y C B R D P Q T L S Q U N R H Q O U E M P E S
J W V O B R V S Q I E V K R Y O H W S K H C L V S
I P B Q P L M L O R S Q S E F S B Y R A S E G M P
Q D A Y D Z O T C V G R A M S J R O D N J Z F U U

Mass
Volume
Density
Grams
Milligrams
Kilograms
Millilitres
Letres
Graduated Cylinder
Measure
Overflow
Particles
Solid
Liquid
Gas
Cubic Centimetres



What is the VOLUME?

Volume = new mL - original mL

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What is the DENSITY?

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$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Please take out a pencil!

Do the front of the worksheet alone or with partner

Then go onto the word search OR you can continue your dots game from yesterday