



Science Virtual Learning

# Middle School NES Science

April 13, 2020



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Lesson: April 13, 2020

**Objective/Learning Target:**

Students will explain the relationship between mass, volume, and density; and explore the density of various substances.

Quick Review

**What are the three most common states of matter on Earth?**

?

?

?

# Next, we will learn about **mass**, **volume**, and **density**.

Click on the picture, and read pages 12-15.

Read in English

**Measuring Properties**  
Some properties of matter can be measured. Mass is a property of matter. Mass is the amount of matter in something. Mass can be measured. Mass is measured in units called grams.

**gram** – a unit of mass



**What Is Volume?**  
Volume is another property that can be measured. Volume is the amount of space something takes up. A beaker is a tool that measures a liquid's volume. Volume can be measured in units called liters.

**liter** – a unit of volume

▲ A beaker is a tool that measures volume.

▼ This scale measures the mass of the candy.

▲ A beaker measures the volume of this liquid.



Read in Spanish

**Medición de propiedades**  
Algunas propiedades de la materia se pueden medir. La masa es una propiedad de la materia. La masa es la cantidad de materia de algo. La masa se puede medir. La masa se mide en unidades llamadas gramos.

**gramo** – unidad de masa



**¿Qué es el volumen?**  
El volumen es otra propiedad que se puede medir. El volumen es la cantidad de espacio que algo ocupa. Un vaso de precipitación es un instrumento que sirve para medir el volumen de un líquido. El volumen se puede medir en unidades llamadas litros.

**litro** – unidad de volumen

▲ Un vaso de precipitación mide el volumen.

▼ Este balanza mide la masa de los caramelos.

▲ Un vaso de precipitación mide el volumen de este líquido.



## What are mass, volume, and density? - Add to Notes

mass - the amount of matter in something

volume - the amount of space something takes up

density - the mass per unit volume of an object or substance

What **units** do we use to measure mass, volume, and density? - Add to Notes

**Mass** is measured in grams.

**Volume** can be measured in liters.

**Density** is measured in grams per liter.

To calculate density, divide mass by volume.

Complete the [Density Activity](#). Observe each substance, and then copy and complete the table below. The first one is done for you.

<b>Object</b>	<b>Mass (g)</b>	<b>Volume (mL)</b>	<b>Density (g/mL)</b>	<b>Sink or float?</b>
wood	13.30	15.6	0.85	float
aluminum				
plastic				
lead				
cork				
steel				
clay				
rubber				
candle				

**Observe the data in the table, and answer the following questions.**

Which object has the highest density?

What happens to objects with higher density?

Which object has the lowest density?

What happens to objects with lower density?



# Density Activity - Answers

Object	Mass (g)	Volume (mL)	Density (g/mL)	Sink or float?
wood	13.3	15.6	0.85	float
aluminum	5.60	1.1	5.09	sink
plastic	4.00	4.1	0.98	float
lead	20.00	1.8	11.11	sink
cork	4.00	8.1	0.49	float
steel	8.30	1.6	5.19	sink
clay	15.60	8.5	1.84	sink
rubber	5.90	4.9	1.20	sink
candle	10.40	10.5	0.99	float

**Observe the data in the table, and answer the following questions.**

Which object has the highest density?

**Lead has the highest density.**

What happens to objects with higher density?

**Objects with density greater than 1 sink in the water.**

Which object has the lowest density?

**Cork has the lowest density.**

What happens to objects with lower density?

**Objects with density less than 1 float in the water.**

More Practice

Density Lab