

Name: _____ Date: _____ Hour: _____

Essential Question: What are properties of matter? (CHAPTER I)

Questions/Main ideas

1.1: What Is Matter?

- **Matter** is anything that has _____ and takes up _____.
- **Matter and Volume:** The amount of _____ taken up, or _____, by an object is known as the object's _____.
 - **Quick Lab: Space Case #5:** How do the results show that air has volume? Explain:

 - **Liquid Volume:** The water in Lake Erie could fill more than _____ 2-liter bottles.
_____ and _____ are the units used most often to express the volume of a liquid.
 - **Measuring the Volume of Liquids:**
_____ are used to measure the liquid volume when accuracy is important. The curve at the surface of a liquid is called a _____. You must look at the _____ of the meniscus to measure accurately.
 - **Volume of a Regularly Shaped Solid Object:** The volume of solid objects is expressed in _____ Cubic _____ and cubic _____ are the most common units.
For solid figures:
volume = _____ x _____ x _____
 - **Volume of an Irregularly Shaped Solid Object** You can measure the volume of a solid object by measuring the _____ of _____ the object _____.

Name: _____ Date: _____ Hour: _____

- **Matter and Mass:** Mass is the amount of _____ in an object. The mass of an object is the _____ no matter where in the _____ an object is _____.
- **The Difference Between Mass and Weight:** Mass & weight are _____ the _____. _____ is a measure of the _____ force exerted on an object. _____ is always constant. _____ changes depending on where the object is in relation to Earth.
- **Measuring Mass and Weight:** Mass is often expressed in _____, _____, or _____. Weight is expressed in the SI unit of force, the _____.
- **Inertia:** is the tendency of an object to _____ a change in motion.
 - **Mass: The Measure of Inertia:** An object that has a _____ mass is harder to get moving and harder to stop moving than an object that has _____ mass.

Summary:

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1.2: Physical Properties

- Physical Properties: A physical property of matter can be _____ or _____ without changing the matter's identity. Examples of physical properties:
 - _____
 - _____
 - _____
 - _____
- Identifying Matter:
 - _____: Are your socks clean or dirty?
 - _____: Will your books fit in your backpack?
 - _____: Does your shirt match your pants?
- Density is a physical property that describes the relationship between _____ and _____.
 Example: Golf ball & ping pong ball. They have similar _____, but different _____.
 The _____ has a greater density.
- Liquid Layers:



- Density of Solids: Would you rather carry around 1Kg of lead, or 1KG of feathers? _____.

Name: _____ Date: _____ Hour: _____

1Kg of lead & 1 Kg of feathers have

_____, but

_____.

Knowing density of a substance helps us to decide if it will _____ or _____.

Objects sink when their density is _____ than water.

Objects float when their density is _____ than water.

- Solving for Density:

Density = _____ \div _____.

- Using Density to Identify Substances: Each substance has a _____ that is _____ than other substances (see table 1 on pg. 13).

- Physical Changes Do Not Form New Substances: a

_____ is a change that affects one or more physical properties of a substance. Example: a chunk of silver being shaped into a heart shaped pendant.

- Examples of Physical Changes:

- _____
- _____
- _____

- Matter and Physical Changes: Physical changes DO NOT change the _____ of the matter involved.

Examples:

- _____
- _____

Summary:

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1.3 Chemical Properties

- Chemical Properties describe matter based on its ability to change into new _____ with different _____
 - _____
 - Flammability-the ability of a substance to _____
 - Reactivity-the ability of two or more substances to _____ and form a new _____
- Comparing Physical and Chemical Properties: Physical properties can be _____ without changing the identity of the substance.
 - Example: _____ and _____ of wood.

Chemical properties-not easy to _____

 - You can only see _____ when wood is actually _____
- Characteristic Properties-most useful in identifying substances. Always the same no matter the _____ of a sample.
 - Physical examples: _____ & _____
 - Chemical examples: _____ & _____
- Chemical Changes-when one or more _____ are changed into new _____ with new/different _____.
 - What Happens During a Chemical Change? When baking a cake you combine all of the _____. The heat of the oven and the mixture of the ingredients cause a _____ change. A cake has very different _____ than cake batter.
 - Signs of Chemical Changes
 - change in _____
 - change in _____
 - change in _____
 - change in _____
 - Matter and Chemical Changes: Chemical changes are hard to _____. Some can be reversed through more _____.

Name: _____ Date: _____ Hour: _____

- Physical Versus Chemical Changes-did the _____ change?
Composition-the type of _____ that makes up an object and the way the matter is _____.
- A change in Composition
 - Physical changes _____ change composition.
 - Chemical changes _____ change the composition.
- Reversing Changes
 - Physical changes _____ usually be reversed. (example: ice melting and refreezing)
 - Chemical changes _____ usually be reversed.

Summary: