

Chapter 1

The Properties of Matter

Section 1: What is matter?

Matter

Define Matter:

Provide 3 examples of matter and explain why you chose them.

Matter and Volume

All matter takes up space. The amount of space taken up, or occupied by an object is known as the object's volume.

Provide 3 examples of different volumes. Include items that contain a small volume to something that has a large volume.

Liquid Volume

What units do you use to express volumes of liquids?

Provide 3 different examples and the units you would use to describe their volume.

Measuring the Volume of Liquids



Describe the correct procedure for measuring liquid volume using a graduated cylinder.

Volume of a Regularly Shaped Solid Object

Give an example of a regularly shaped object and explain how to find its volume. Include a picture if possible.

Volume of an Irregularly Shaped Solid Object

Give an example of an irregularly shaped object and explain how to find its volume. Include a picture if possible.

Matter and Mass

The Difference Between Mass and Weight

All matter has mass. **Mass** is the amount of matter in an object.

Describe some of the differences between mass and weight in the chart below.

Mass	Weight

Measuring Mass and Weight

List the different units used when measuring mass.

Give 3 different sized (small ,medium, and large) objects and their estimated masses.

What tool would you use to measure weight?

What tool would you use to measure mass?

Section 2: Physical Properties

Physical Properties

A **physical property** of matter can be observed or measured/tested without changing the matter's identity.

Identifying Matter

List the six physical properties located in the book.

Density

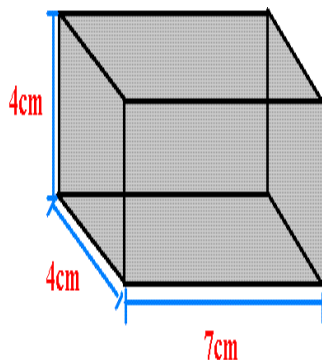
Density is a physical property that describes the relationship between mass and volume.

Define Density:

Make a density comparison between two items of similar size. Include pictures if possible.

Solving for Density

Provide the equation for solving for density.



The picture above shows an aluminum block and its dimensions in centimeters. Assume the block has a mass of 896 grams. What is the density of the block? Make sure to show your work and provide correct labels.

Now that you have solved my example, it is time for you to provide your own example to show your understanding. Try to find a picture that gives you a volume or gives you dimensions that allow you to solve for the volume.

Physical Changes Do Not Form New Substances

A **physical change** is a change that affects one or more physical properties of a substance.

Examples of Physical Changes

Provide a before and after example (pictures) of a physical change.

Matter and Physical Changes

Physical changes do not change the identity of the matter involved. Provide an example of this and include pictures if possible.

Section 3: Chemical Properties

Chemical Properties

Chemical properties describe matter based on its ability to change into new matter that has different properties.

List 2 examples from the book of chemical properties and provide an image/picture of each.

Chemical Changes and New Substances

A **chemical change** happens when one or more substances are changed into new substances that have new and different properties.

Chemical changes and chemical properties are not the same.

Chemical properties of a substance describe which chemical changes will occur and which

chemical changes will not occur.

Chemical changes are the process by which substances actually change into new substances. Provide an example of this and include pictures if possible.

Signs of Chemical Changes

List and provide examples/pictures that show 4 different signs that a chemical change has occurred.

Physical vs Chemical Changes

The most important question to ask when trying to decide if a physical or chemical change has happened is, did the composition change? The *composition* of an object is the type of matter that makes up the object and the way that the matter is arranged in the object. Provide an example of this comparison and include pictures if possible.

A Change in Composition

Physical changes do not change the composition of a substance. Provide an example of this and include pictures if possible.

Reversing Changes

Many physical changes are easily reversed.

Most chemical changes are not easily reversed.

Provide an example of these changes and include pictures if possible.