

Matter and Kitchen Chemistry Unit Schedule

Jan. 17

Topic:

What is Matter? Matter's Three States

Homework due today:

Read and complete "Why Does Matter Matter?"

In Class Work:

Experiments with the three states of matter

Jan. 24

Topic:

Properties Of Matter

Homework due today:

Complete "Properties of Matter Scavenger Hunt"

In Class Work:

Discovering the many properties of matter

Jan. 31

Topic:

Atoms and Molecules

Homework due today:

Read and complete "Elements and Atoms"

In Class Work:

Let's build an atom!

Feb. 7

Topic:

Chemistry in Bread baking!

No Homework for today's class.

In Class Work:

A visit from Mrs. Hellerman, owner of Goodwin Creek Bakery!

Website suggestions for this unit:

<https://www.chessienews.com/Website%20suggestions.pdf>

Name: _____

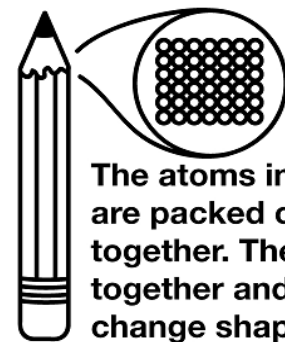
Why Does Matter Matter?

by Kelly Hashway

What do trees, air, and water have in common? They all have matter. That means they take up space. You might be wondering why these things look so different if they all have matter. Everything found on Earth can be grouped into one of three states of matter: solid, liquid, or gas. In order to figure out which state of matter an object fits in, we have to examine its properties. The properties we look at are shape, mass, and volume. Mass is the amount of matter an object has, and volume is the amount of space the matter takes up.

Solids are easy to recognize. They have definite shape, mass, and volume. Trees are solids. They are made up of tiny particles called atoms. These atoms are packed closely together, and they hold the solid in a definite shape that does not change. If you look around your house, you will see lots of solids. Televisions, beds, tables, chairs, and even the food you eat.

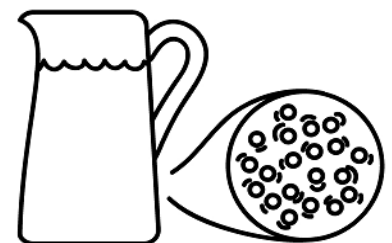
Solid



The atoms in a solid are packed closely together. They bond together and do not change shape.

Liquids do not have definite shape, but they do have definite mass and volume. Liquids are similar to solids because their atoms are close together, but what makes a liquid different is that those atoms can move around. Liquids can change shape by flowing. If you've ever spilled a glass of milk, then you know it spreads out across the floor. It does this because the milk is taking the shape of the floor. Since liquids do not have a definite shape of their own, they will take the shape of their containers. This is why the same amount of milk can look different in a tall glass, a wide mug, or spread out on your kitchen floor.

Liquid

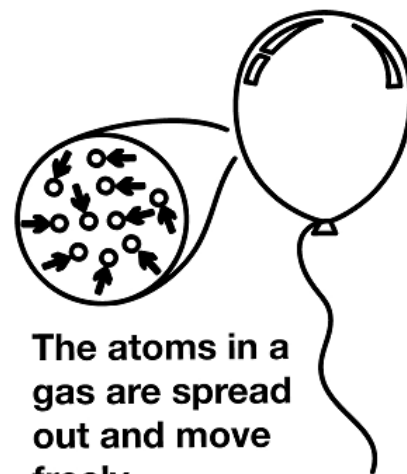


The atoms in a liquid are close together. They slide around.

Gases do not have definite shape or volume. Like liquids, gasses will take the shape of their containers. If a gas is not in a container, it will spread out indefinitely. This is because the atoms in a gas are spaced farther apart than in a solid or a liquid. And being spread out like this allows them to move around freely. Think about the air you breathe everyday. That air is spread across the empty space around the earth. You've probably also noticed that you usually cannot see the air. This is another property of gases. Even though we cannot see them, you come in contact with them everyday. There's air in the tires of your family car and your bicycle. There are many different types of gas in the earth's atmosphere, such as oxygen, carbon dioxide, nitrogen, water vapor, and helium.

When trying to remember the three states of matter, think about water. If it freezes into a solid, it becomes ice. Its atoms are packed together keeping its shape. Of course, we know water can also be a liquid. It flows in rivers or it can be poured from a glass. When water evaporates it becomes water vapor, a type of gas in the air. Try a little experiment of your own by placing an ice cube in a covered glass or container. You will be able to observe the ice first in its solid form and then watch as it melts into a liquid to become water. Eventually the water will turn to water vapor and your glass or container will be filled with this gas.

Gas



The atoms in a gas are spread out and move freely.



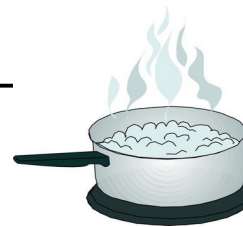
You can see three different states of matter in this picture. The pot is made of solid matter. The water inside the pot is liquid. When the liquid is heated it becomes water vapor, which is a gas.

Matter is everywhere! Can you find a solid, a liquid, and a gas around you right now?

Name: _____

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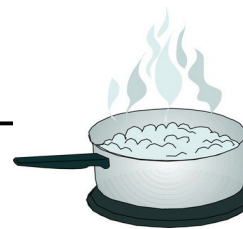


solids	volume	container	matter	ice	juice
gases	mass	atoms	chair	oxygen	melting
liquids	shape	space	milk	helium	

Choose a word from the box to complete each sentence.

1. The three basic properties of matter are _____,
_____, and _____.
2. All matter is made up of tiny particles called _____.
3. Volume is the amount of _____ that matter takes up.
4. Mass is the amount of _____ an object has.
5. Liquids take the shape of their _____.
6. _____ do not have a definite shape or volume.
7. _____ do not have a definite shape, but they do have a definite volume.
8. _____ have a definite shape and volume.
9. A _____ and _____ are examples of solids.
10. _____ and _____ are examples of liquids.
11. _____ and _____ are examples of gas.
12. Solid ice is _____ when it is changing into a liquid.

ANSWER KEY



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solids	volume	container	matter	ice	juice
gases	mass	atoms	chair	oxygen	melting
liquids	shape	space	milk	helium	

Choose a word from the box to complete each sentence.

1. The three basic properties of matter are **volume**, **mass**, and **shape**.
2. All matter is made up of tiny particles called **atoms**.
3. Volume is the amount of **space** that matter takes up.
4. Mass is the amount of **matter** an object has.
5. Liquids take the shape of their **container**.
6. **Gases** do not have a definite shape, mass, or volume.
7. **Liquids** do not have a definite shape, but they do have a definite volume.
8. **Solids** have a definite shape and volume.
9. A **chair** and **ice** are examples of solids.
10. **Milk** and **juice** are examples of liquids.
11. **Oxygen** and **helium** are examples of gases.
12. Solid ice is **melting** when it is changing into a liquid.

Drawing Solids, Liquids, & Gases

Draw some examples of solids, liquids, and gases. Write down the name next to the picture.



A large, empty rectangular box with rounded corners and a red border, intended for drawing examples of solids.



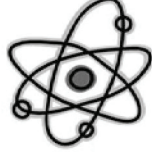
A large, empty rectangular box with rounded corners and a blue border, intended for drawing examples of liquids.



A large, empty rectangular box with rounded corners and a purple border, intended for drawing examples of gases.

Elements & Atoms

Cross-Curricular Focus: Physical Science



Everything around you is made of matter. Matter is made of at least one **element**. An element is made of **atoms** that are all the same kind. It is a pure form of matter. Elements join together with other elements to make the different materials that we see and use every day.

Some common elements that you might have heard about are oxygen, carbon, helium, gold and silver. If you have a lump of silver, all of the atoms that make up that lump of silver are the same. We know there are more than 100 different elements.

The list of elements is arranged on a scientific chart. The chart is called the periodic table. Each element is grouped with other similar elements. Elements can be metals, nonmetals, or semimetals. Semimetals have some of the characteristics of metals, and some of the characteristics of nonmetals. Metals, nonmetals, and semimetals each have their own section on the table. Each group is coded with different colors.

Each element has its own box on the chart. The box shows the element's name, symbol and atomic number. The atomic number tells us how many positively charged protons are in each atom of the element. It also shows their properties. Properties are how an element looks and acts in different situations.

Name: _____

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) Which is larger, an atom or an element? Explain.

2) What is the purpose of the periodic table?

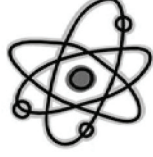
3) How many different elements do we know about?

4) What is included in the box for each element?

5) What is a semimetal like?

Elements & Atoms

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Name: **Key**

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

Actual wording of answers may vary.

- 1) Which is larger, an atom or an element? Explain.
An element is larger because it is made up of atoms.

- 2) What is the purpose of the periodic table?

to list the elements

- 3) How many different elements do we know about?
over 100

- 4) What is included in the box for each element?

its name, symbol and atomic number

- 5) What is a semimetal like?

It has characteristics of both metals and nonmetals.

Name _____

Date _____

Properties of Matter Scavenger Hunt

Directions: Look around your room. Find two items that fit into each category.
Draw or write each item.

Matter that is <u>rough</u>	Matter that is <u>fuzzy</u>
Matter that can <u>bend</u>	Matter that is <u>hard</u>
Matter that is <u>heavy</u>	Matter that is <u>light</u>
Matter that is <u>hot</u>	Matter that is <u>cold</u>
Matter that is <u>square</u>	Matter that is <u>pointed</u>