

CLASSROOM CHEMISTRY STUDY GUIDE

Dear Parent,

Our Classroom Chemistry Unit exam is on December 20th. Please use this package as a guide for studying. Students should also read over the notes in their workbook and review the experiments that we performed in class.

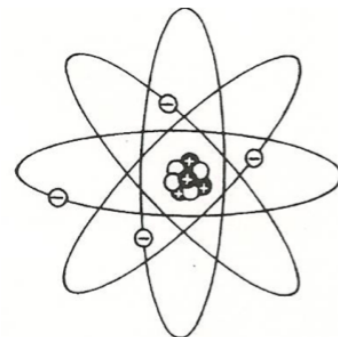
Thanks,

Mr. O

Chemistry is the study of **matter** and its **changes**. What is matter? Matter is all around you. It is anything that has **mass** and takes up **space**.

There are **three** forms of matter. They are **solids, liquids and gases**.

Some changes to matter are **reversible**. When water boils away, the water has not been destroyed; it has changed form into water vapour and may once again become water and possibly turn into a solid in the form of ice.



Some changes to matter, however, are **not reversible**. Burning wood and turning it into ash and smoke is not a reversible process. Other forms of matter that are involved in chemical reactions such as burning or reacting with acids are changed forever and cannot revert (change) back to their original form.

pure substance – a pure substance is something that has not been mixed with any other substance. All of the atoms or molecules (the really little pieces that make up things) are the same.

mixture – a mixture is when you mix particles from different substances **solids** (things) together.

In class we mixed different. Then we tried 4 techniques to separate them.

- sieves
- magnets
- air
- water

We also mixed different liquids together, and liquids with solids. Here are some important definitions to know for this section of study:

solute – a substance that is dissolved in a solution.

solvent – the substance that does the dissolving.

solution – a solution is a mixture in which the solute is evenly distributed through the solvent.

That means that a solution is a mixture where the solute (the thing you are mixing into the water) dissolves completely.

suspension – a mixture in which very small particles of a solid remain suspended without dissolving.

That means that a suspension is a mixture where the solute (the thing you are mixing into the water) doesn't dissolve completely. Salad dressing is a good example of a suspension.

To separate a solute from a solution we first mixed baking powder, corn starch, salt, and sugar with water. Once the solute was dissolved in the water we tried these techniques to remove it.

- **decanting** – pouring the water out, trying to leave the solute behind.
- **filtering** – pouring the solution through a filter, trying to catch the solute in the filter.
- **evaporating** – allowing the water to evaporate, leaving the solute behind.

surface tension – The ability of water to hold together with an “invisible skin”.

cohesion – The force of attraction between the particles of a substance. The water particles are attracted to each other. (They sort of stick together.)

chemical reaction – a chemical reaction has occurred when a substance changes color, odor, temperature or produces a gas. In a chemical reaction, a new substance is created.

The experiment we did in class to show this was “Gas in a Bag”.

When vinegar and baking soda mix, a chemical reaction takes place and a gas, carbon dioxide (CO₂) is produced.

Carbon dioxide is odorless, tasteless, colorless, is heavier than air and does not burn. It is used to put out certain types of fires and is also used in carbonated drinks (pop).

The last thing we learned about in this unit was acids, bases, and neutrals.

Acids, bases, and neutrals are three kinds of chemicals.

Acids are usually sour and react with many metals. Some are poisonous and can burn. Acids turn litmus paper red. Acids are important components of fertilizers, polishes, soft drinks, and batteries.

Most **bases** are bitter, feel slippery, and can dissolve fat and oil. They turn litmus paper blue. Bases are found in some household cleaners, detergents, antacids, plasters, cements, and medicines.

Some substances, like water, are neither acids nor bases. They are considered **neutral**. An acid solution will become neutral if you add a certain amount of base. A base solution will become neutral if you add a certain amount of acid. Neutral substances **do not** change the color of litmus paper.