Bare Bones

Chemistry

The Quick and Condensed System of Study
That Shows You
What You Need to Know
In Order to Think Critically
About Chemistry

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Introduction:

This may sound a bit old-fashioned, but there is a simple fact about the learning process.

Vocabulary needs to be memorized before content can be discussed intelligently!

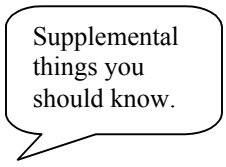
This document has been produced to aid you in identifying the *Minimum Memory Material* that needs to be learned as you continue the exciting journey of studying chemistry.

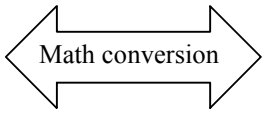
We won't kid you. It's not necessarily easy, and it will also take some committed time and energy.

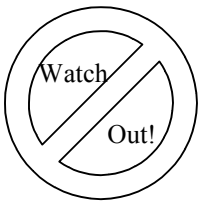
Here are some hints that might help you be efficient in your study.

- Do something towards this project every day, even if it's only five or ten minutes.
- Find your own private, comfortable place of study when the time comes for intense work. Starbucks?
- Start…start…start. Do your procrastination later.
- Discover your best method of study; writing, talking out loud, moving around, note cards, etc. Whatever works best for you.

There are some important symbols we will use to draw attention to something special about a given term or topic.







We will also give some sample problems or questions at the end of each section to help you determine if you have memorized the vocabulary well enough to begin the thinking concepts.

BAREBONES CHEMISTRY
Introductory Ideas and Concepts

Solids have a definite shape and a definite volume

Forms of energy, such as light and heat are NOT examples of matter

Physical changes do NOT change what the substance is. For instance, "bending" is a physical change. On the other hand, when a metal RUSTS, that forms a new substance, thus causing a CHEMICAL change.

When two or more elements combine chemically a COMPOUND is formed

Changes like rusting, burning, souring and corrosion are chemical changes.

Changes in PHASE, such as boiling water, are physical changes

When chemical reactions occur the mass of all the substances that react is exactly equal to the mass of the products produced.

Individual atoms in a chemical reaction can neither be created or destroyed, but can be rearranged

Chemicals that join together or break apart in a reaction are called the reactants. Those that are produced are called products

A precipitate is a solid that is formed in a liquid when a chemical reaction occurs

A chemical symbol for an element can be a single capitol letter or two letters, the first one being a capitol and the second being a lower case letter. For instance, Ni is the symbol for the element nickel, but NO is the formula for the compound formed between Nitrogen and Oxygen

A SUBSTANCE can be any form such as an element, compound or mixture

Elements cannot be broken down into other substances by ordinary chemical means

The law of conservation of matter says that mass is neither created nor destroyed during a physical or chemical change

A solution is called a homogeneous mixture and will not settle out nor can it be separated by filtration

Chemical changes result in the formation of new substances.

Sand from a beach is a compound called silicon dioxide

The word heterogeneous means something with a NONUNIFORM composition. For instance, cereal with raisins in it would be considered heterogeneous

If iron and oxygen combine to form iron oxide the iron and oxygen are called reactants and the iron oxide would be the product

Chemical properties always involve forming a new substance. For instance, when iron and oxygen combine that would be a chemical property or change.

Substances that are normally a liquid are called vapors when they are in the gas phase. If something is normally a gas at room temperature, then it is called a gas

Things like freezing, crushing, compressing and dissolving are physical changes. Something like rusting or decomposing illustrate chemical changes

You should know the symbols for mercury, hydrogen and gold

In conclusion, here are some really important terms.

Filtration	element	chemical reaction	heterogeneous mixture
Compound	precipitate	chemical symbol	homogeneous mixture

You should know which of the diagrams at the right represent solids, liquids and gases.