

## Development of Chemistry

### Metallurgy and Pottery

Metallurgy: Mixing of Metals to form an

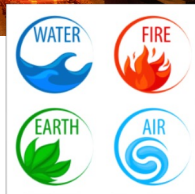
*Alloy*, two metals combined

Pottery: Mixing of natural *clays*

### Alchemy

The process of using basic elements to change matter into new forms of matter (*mainly silver, Ag, and gold, Au*)

- Elements: Fire, Air, Water, Earth -



2

## Development of Chemistry

### Modernization of Science

Scientists began experimenting with basic forms of matter to understand nature and the reactions of matter.

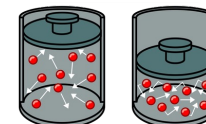
Boyle – Gas studies, Pressure related to volume

Hook – Combination of gases in air with oxygen

Mayow – Respiration in animals

*Lavoisier* came later and put together the many independent discoveries to create the first textbook of chemistry in 1700's

Boyle's law in respiration:  
Pressure increases when  
volume decreases

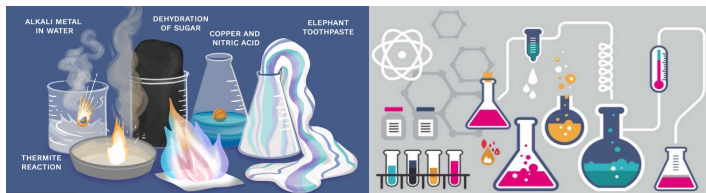


3

## Development of Chemistry

### Modern Chemistry

Chemistry is the study of the composition (*make up*) of the atoms, compounds, molecules, and macro substances (*states of matter interactions*) that work in nature.



4

## Scientific Process in Chemistry

### Scientific Method

The general process scientists use to solve problems in science both for pure and applied research

General Parts of the Scientific Method

Observation: See something you want to study

Hypothesis: Educated guess based on observations

Experiment: Testing Hypothesis (*using Lab*)

Results: Final evidence from experiment

Theory/Law: Result of many experiments providing a final explanation of process

**OBSERVE**  
Make observations

**QUESTION**  
Ask a question or identify a problem

**RESEARCH**  
Search for existing answers or solutions

**HYPOTHESIZE**  
Formulate Hypothesis

**EXPERIMENT**  
Design and perform an experiment

**TEST HYPOTHESIS**  
Accept or reject hypothesis

**DRAW CONCLUSIONS**  
Make conclusions based on hypothesis

**REPORT**  
Share your results

5

## Scientific Process in Chemistry

### Laboratory Experiments

Labs are done as part of the class to accomplish the following

- Part of the scientific method
- Learn a Lab technique or process
- Verify or provide evidence in the process of learning a new topic or concept
- Allow the practice of both a new topic while using laboratory techniques



Labs are very important for both teaching skills both in and out of the classroom but to also analyze information and draw conclusions