



Summer Vacations Home Work

Class 7th

Subject: Science

The Most Famous Chemists In The world And A Bit about Them

Over the last two thousand years, we have come a long way in science.

Chemistry is the science that deals with determining the composition, structure, properties of matter, and classifying substance into elements, compounds or mixtures.

Famous Chemist in History

Creating a complete review of the famous chemist of history would be an extensive task; however some scientists stand out for the great importance of their discoveries which contribute to the development of chemistry today. Some of these scientists are:

- Antoine Lavoiser
- John Dalton
- Abu Musa Jabir Ibn Hayyan

Antoine Lavoiser (1743-1794)



Antoine Lavoisier, one of the most famous chemists to have ever lived.

Antoine- Laurent de Lavoiser was a French chemist and the “Father of Chemistry”. His most famous discovery was the law of conservation of mass, which states that whilst substances may change their states or form, they retain the same mass. This was important because it allows other scientists to think about the differences between substances in terms other than differences in qualitative properties.

He was the first person to identify oxygen and hydrogen in combustion- something that is fundamental to understanding almost all chemical reactions.

John Dalton (1766-1844)



Working on the basis of Lavoisier's theory John Dalton is these days remembered for proposing his atomic theory, literally the basis of chemistry today. He was the "Father of Chemistry".

This theory suggests that every substance is made up of atoms and the atoms of each element are identical. Dalton's atomic theory also held that chemical compounds are the combination of atoms of different elements and that, in chemical reactions, these atoms are rearranged and combined.

In his laboratory experiment, he also studied and ultimately formulated a theory of atomic weight. From this notion, we reached our realization of different molecular structures of different substances.

Abu Musa Jabir Ibn



For this chemist, we go back to the first millennium in the Middle East. Abu Musa Jabir ibn Hayyan (died c. 806-816), also known as Gebr, was born in Persia in 721.

He is widely regarded as the first practical chemist and among the most famous chemists in history not from the west. In addition, he was also a pharmacist, astronomer, and physician.

Jabir Ibn Hayyan spent a major part of his life in Kufa, where he perfected the theories of:

- Crystallization
- Oxidation
- Filtration
- Evaporation
- Sublimation

Moreover, he noticed how chemicals could combine to form an amalgamation of elements that were not detectable by the naked eye. On top of that, he is credited with discovering sulfuric and nitric acids, without which the study of chemistry is incomplete today. In doing so, he also vastly increased the scope of chemical experiments.

Lastly, he also devised a scale that used minuscule measurement units to denote the weight of items almost 6000 times smaller than the kilogram. Perhaps he is best remembered for working on the constitution of metals, their oxidation, and reactions – a standard through history.

The below experiments are designed based on the work of afore mentioned scientist. Their pioneer work paved the way for many scientific breakthroughs. Our work is debt to their hard work and dedication.

Note: Question 1 and 2 are taken from chapter 9 (Acids and Alkalis), while Question 3 is taken from chapter 2 (Plants and their Systems).

Q-1: Read the label of various drinks (like mongo juice, mineral water, etc.). Ph value of the drinks is often written on the on its label. Note down its ph value and write whether it is more acidic or least acidic. Make a table of at least 6 drinks like the following:

Drink	pH	Least Acidic/More Acidic

i. Is a mango juice more acidic than soft drink? Explain your answer.

.....

ii. Why do you think sparkling mineral water (water having CO₂) has a lower pH than still mineral water (water having no CO₂).

.....

Q -2: Investigate if you can make indicators from some plant materials such as red cabbage, red grape skin, beetroot or from flower petals.

Steps:

- Choose one plant material and cut it up into very small pieces.
- Boil the pieces in water a little for about five minutes.
- Allow to coal
- Filter the juice (using strainer).
- See if the juice works as an indicator on some acid, alkali and pure water.
Alkali = Half teaspoon baking soda mixed with 1 liter water
Acid= Vinegar

- (vi) Repeat again with other plant material.
- (vii) Put your results in a table like this:

	Plant Material	Color in Acid	Color in Water	Color in Alkali
1	Red cabbage			
2	Red grapes skin			
3	Beet root			
4	Hibiscus flowers			

Q-3: Take two identical raw potato pieces and measure them. Put one piece into a beaker of water and the other piece in a beaker of strong sugar solution.

After one hour, remove the potatoes from the beakers and measure again. Show the results in a table like below:

	Length of piece at start	Length of piece after one hour
Potato piece in water		
Potato piece in sugar solution		

- i. Describe what has happened to the potato piece in:
 - a. water

.....

- b. sugar solution.

.....

- ii. What makes water move in and out of cells?

.....

- iii. Explain why the potato piece in water is firm and rigid but the potato piece in the sugar solution is floppy ?

.....

- iv. A plant that has plenty of water is upright and well supported. A plant that is short of water starts to wilt. Suggest a reason for this.

.....
