Annual plan for the academic year2018-19

Group- Subject- Chemistry

1. To acquire knowledge of scientific terms, facts, concepts and natural phenomena etc.

2. To understand scientific concepts, processes etc and their use in technology.

3. To apply the knowledge and understanding of science for reasoning.

4. To develop measuring and drawing skills.

5. To develop interest in the field of science and technology.

6. To develop scientific attitude towards science and technology.

7. To appreciate the contribution of science and technology for the benefit of the mankind.

8. To develop skills in handling apparatus.

9. To apply the knowledge and understanding of science to solve unknown or challenging problems.

* Month- June

Fundamentals of chemistry

Atom and its constituents

Molecules, elements

Compounds, symbols and formulae

Atomic model,

Atomic number and mass number,

Valence shell, ions, valency and radicals

Balancing of chemical reactions

Combining of atoms

Students should know the following as learning objectives

Students will be able to

1. Know living organisms and most materials are composed of just a few elements.
2. Know the structure of the atom and is composed of protons, neutrons, and electrons.
3. Know that compounds are formed by combining two or more different elements and that compounds have properties that are different from their constituent elements.
4. Know the states of matter (solid, liquid, gas) depend on molecular motion. All atoms, and subsequently all molecules, are in constant motion.
5. Explain the characteristics of different states of matter.
6. Understand the meaning of mixtures, radicals, valency,
7. Understand law of conservation of energy.
8. Explain Dalton’s atomic model.
9. Know the reason behind combination of atoms which leads to different types of chemical reactions.

Month- July

Continuation of fundamentals of chemistry

Combining of atoms,

Electronic configuration

Transformation of substances

Physical and chemical changes

Periodic table, Need for periodic table

Students should know the following as learning objectives

Students will be able to

1. Know the reason behind combination of atoms.
2. Understand the laws which should be known to understand electronic configuration(Hund’s rule, Aufbau principle)
3. Understand why substances has to be transformed.
4. Differentiate between physical and chemical changes.
5. Know the importance of periodic table.
6. Understand the pattern in which elements are arranged in periodic table.

+ August

Continuation of periodic table,

\* Classification and arrangement of elements

\* Relation between electronic configuration and periodic table

\* Types of periodic table used earlier and Modern periodic table

Students should know the following as learning objectives

Students will be able to

* Know the arrangement of elements in as groups and periods.
* Understand the relation between electronic configuration and elements arranged accordingly.
* Know the different types of periodic table briefly and in detail modern periodic table.

Chemical bonding

* Ionic bonding, covalent bonding and metallic bonding
* Applications

Students should know the following as learning objectives

Students will be able to

* Understand why when elements combine it has to attain noble gas configuration.
* Understand how different types of bonding are formed.
* Understand that the nature of compounds vary with respect to the type of the bonding.

+ September

Continuation of chemical bonding

* Understand the applications of different types of bonding.
* Importance of compounds for the benefit of mankind..

Exams

October

Types of chemical reactions

Electrolysis and applications

* Know different types of chemical reactions.
* Identify different types of chemical reactions.
* Understand the formation of different types of chemical reactions.
* Understand the process of electrolysis.
* Know the importance of electrolysis.

November

Metals and non metals

Physical and chemical properties of metals and non metals,Important metals and non metals and alloys.

Students should know the following as learning objectives

Students will be able to

* Understand the physical and chemical properties of metals and non metals.
* Understand the reaction of metals with acids.
* Know the metals and non metals needed by human body.
* Understand alloys, their constituent elements, their properties and uses.

December

Synthetic fibres and plastics

Students should know the following as learning objectives

Students will be able to

* Understand the difference between natural fibres and synthetic fibres.
* Understand about regenerated synthetic fibre and the true synthetic fibres.
* Understand the process of manufacturing of synthetic fibres.
* Reason out the uses of different synthetic fibres depending on the properties of the fibres.
* Explain the two types of plastic thermosets and thermoplastics with examples.

January

Carbon- Occurrence of carbon in nature

Physical properties of crystalline carbon

Chemical properties of carbon

Coal and petroleum

Students should know the following as learning objectives

Students will be able to

* Know the different natural resources.
* Understand the difference between renewable and non renewable resources.
* Understand about different fossil fuels- Coal, petroleum and natural gas.

+ February

Continuation of Coal and petroleum

* Explain the pollution caused by burning fossil fuels.
* Realize the consequences of over-extraction of coal and petroleum.
* Combustion and Flame

Students should know the following as learning objectives

Students will be able to

* Know the conditions necessary for combustion.
* Understand and relate the different ways to extinguish fire.
* Understand the different zones of the flame.
* Explain the different types of fuels.
* Understand and relate combustion and air pollution.

March

Revision

Exams