

1. Applied Biology

Heredity and Evolution

Heredity –Variations-Evolution-Human evolution-Evolution tree-Genetic engineering-Bio technology and cloning-Stem cell-Organ culture-Microbial production-Biosensor – Bio chips-Science today – Gene therapy.

2. Health and Hygiene

Immune System

Health and its significance-Diseases and causes-Diseases caused by microbes and prevention-Modes of transmission-Immunization-Treatment and prevention-Biotechnology in Medicine-HIV and Prevention.

3. My Body

Structure & Function of the Human Body

Organ System-Nervous system-Endocrine system-Cell division-Stages of Meiosis.

4. World of Plants

Reproduction in Plants

Modes of reproduction - vegetative, asexual and sexual reproduction in plants-Pollination-Fertilization-Fruits and seeds formation-Seed dispersal

5. World of Animals

A Representative Study of Mammals

Morphology-Habitats-Adaptations-Basic physiological functions.-Circulatory system in man-Excretory system in man.-Relationship of structure to functions-Animal behaviour - Behaviour (social, reproductive, parental care)-Some case studies from researchers (animal behavior).

6. Life Process

Life Processes

Definition-Types of nutrition and human digestive system-Respiration -Transportation in plants-water and minerals and animals - blood circulation-Excretion in plants and animals-Nervous system-Coordination in plants-Movement due to growth.

7. Environmental Science – Ecology**Conservation of Environment**

Bio-degradable and non-biodegradable wastes-Water management-Wild life sanctuaries-Balance in ecosystem-Coal and petroleum-Green chemistry-Science today – Towards a global village.

8. Environmental Science – Resource Use and Management**Waste Water Management**

Journey of water-Sewage -Treatment -Domestic practices -Sanitation and diseases- Alternate arrangement for sewage disposal -Sanitation in public places-Energy management-Energy audit (home, school)- Renewable sources (solar, hydrogen, wind)- Non-renewable sources(coal, petroleum, natural gas)- Biofuels-generation & use- Energy conservation & how we can help.

9. Matter**Solutions**

Solute and Solvent-Types of solutions-Solubility-Factors affecting solubility-Problems.

10. Atomic Structure**Atoms and Molecules**

Modern atomic theory- Avogadro Hypothesis- Atomicity-Relation between vapour density and molecular mass of a gas- Difference between-atom and Molecules-Relative atomic mass- Relative molecular mass-Mole concepts- Mole- definition-Problems based on mole concept.

11. Exploring Chemical Changes and Formulation**Chemical Reactions**

Types of chemical reactions -Rate of chemical reaction-Factors influencing the rate of the chemical reaction-Acids- Classification of acids- Chemical properties of acids-Uses of acids-Bases-Classification of bases-Chemical properties of bases- Uses of bases- Identification of acids and bases-pH scale-pH paper-Importance of pH in everyday life- Salts- Classification of salts-Uses of salts.

12.Exploring Chemical Families**Periodic Classification of Elements**

Modern periodic law-Modern periodic table-Characteristics of modern periodic table-Metallurgy –Introduction-Terminologies in metallurgy-Differences between minerals and ores-Occurrence of metals- Metallurgy of Al, Cu and Fe- Metallurgy of Aluminium- Metallurgy of Copper- Metallurgy of Iron- Alloys- Methods of making alloys-Copper Aluminium and Iron alloys-Corrosion -Methods of preventing corrosion

13.Exploring the World**Carbon and its Compounds**

Introduction-Compounds of carbon-Modern definition of organic chemistry-Bonding in carbon and its compound-Allotropy- Physical nature of carbon and its compounds- Chemical properties of carbon compounds-Homologous series-Hydrocarbons and their types -Functional groups- Classification of organic compound based on functional group-Ethanol-Ethanoic acid

14.Matter and Measurement**Measuring Instruments**

Screw Gauge-Measuring long distances –Astronomical distance, light year

15.Forces and Movement**Laws of Motion and Gravitation**

Balanced and imbalanced forces-First law of motion-Inertia and mass-Momentum-Second law of motion- $F=ma$ -Third law of motion-Conservation of momentum and proof-Moment of force and couple-Gravitation Newton's law of gravitation –Mass-Weight-Acceleration due to gravity-Mass of Earth-Science Today- Chandrayaan, Cryogenic techniques and Manned space station

16.Exploring Energy**Electricity and Energy**

Electric current and circuit-Electric potential and potential difference-Circuit diagram-Ohm's law-Resistance of a conductor-System of resistors -Heating effect of electric current-Joules law of heating-Role of fuse-Domestic electric circuits-Electric power-Chemical effect of electric current-Electrolysis electro chemical cells-Primary and Secondary cells-Sources of Energy-Conventional sources of energy-Non-conventional source of energy- Nuclear energy-Radioactivity- Nuclear fission and nuclear fusion-Nuclear reactivity advantages- Hazards of nuclear energy-Science today – Energy from seas.

17.Exploring Phenomena**Magnetic Effect of Electric Current and Light**

Magnetic field and magnetic lines of force-Magnetic field due to current carrying conductor-Magnetic field due to current carrying Straight conductor- Magnetic field due to current carrying Circular loop-Force on a current carrying conductor in a magnetic field-Fleming left hand rule -Electric motor-Electromagnetic induction-Faraday's experiments-Electric generator –Light-Reflection of light by spherical mirrors – Image formation and mirror formula - Refraction – Laws of refraction - Refractive index-Refraction by spherical lenses- Image formation by lenses-Lens formula and magnification-Power of lens-Refraction of light through a prism-Dispersion by a glass prism-Atmospheric refraction- Human eye –Defects and rectification-Science today – Hubble space telescope

SCIENCE PRACTICALS Part - 1**BIOLOGY****BIO-BOTANY**

1. Dissect and display the floral parts like Calyx, Corolla, Androecium and Gynoecium of a flower.
2. Identify the given slide with help of microscope.
3. Fermentation experiment (Anaerobic Respiration)

BIO-ZOOLOGY

4. Test for Starch (Iodine test)
5. Identify the given slide, draw a neatly labelled diagram and write a note on it.
6. Calculate the Body Mass Index (BMI) of a person, by using the BMI formula and comparing the value with BMI chart.

CHEMISTRY

7. You are provided with a solid sample. Prepare a solution and identify the type of solution based on filtration.
8. Prepare a solution from the given salt and identify whether it is an unsaturated solution or saturated solution.
9. Identify the carboxylic or alcoholic functional group present in the given organic compound by performing the following test 1) Blue litmus paper 2) Sodium carbonate 3) Acidified potassium dichromate.

PHYSICS

10. Screw Gauge
11. Ohm's Law Verification
12. Resistors in Series

SCIENCE PRACTICALS Part - 2**BIOLOGY****BIO-BOTANY**

1. Identify the given seed and classify whether it is a dicot or a monocot seed.
2. Classify the given fruit and give reasons with diagram.
3. Test tube and funnel experiment.

BIO-ZOOLOGY

4. Test for lipids (Saponification Test).
5. Identification of given models.
6. Identify the flagged endocrine gland and write its location, the hormones secreted and any two of its functions.

CHEMISTRY

7. You are provided with a sample solution. Perform the following tests and identify whether the given sample is an acid or a base.
8. You are provided with samples A&B. Identify if the samples are acids/bases/neutral by using pH paper.
9. Identify the basic radical presence in the given salt using sodium hydroxide solution.

PHYSICS

10. Focal length of convex lens
11. Glass prism
12. Mapping of magnetic field