

Class 9 Mathematics

Number System

Polynomials

Coordinate Geometry

Linear Equations in Two Variables

Introduction to Euclid's Geometry

Lines and Angles

Triangles

Quadrilaterals

Areas of Parallelograms and Triangles

Circles

Constructions

Heron's Formula

Surface Areas and Volumes

Statistics

Probability

Unit (I) - Arithmetic

1. Indices -

- Introduction

- Laws of indices

- Square and square root

- Cube and cube root

2. Ratio and Proportion -

- Introduction : Ratio

- Properties of ratios

- Theorems on equal ratios

- Proportion

Unit(II) - Commercial mathematics

3. Profit and Loss -

- Introduction to profit and loss.

- Percentage Profit

- Percentage Loss

4. Interest, Banking and Currency -

- Simple interest

- Compound interest

- Growth and decay

- Banking and Currency exchange

Unit (III) - Algebra

5. Algebraic expression

- Identities

- algebraic expression

- Operations on algebraic expressions

- Polynomials, Factors of quadratic polynomial

6. Linear equations in one variable - Introduction

- Solutions of the equations

- Word Problems

Part-II

Unit (IV) - Geometry

1. Lines, Angles and Plane -

- Axioms

- Parallel lines, perpendicular lines, Coplanar lines, Transversal

- Properties of parallel lines

- Angle, Types of angles

- Pair of angles

2. Triangles -

- Types of triangles

- Medians, altitudes, angle bisectors, Perpendicular bisectors of sides of triangles

- Congruence of triangles

- Properties of triangles

3. Quadrilaterals

- Types of quadrilaterals

- Properties of particular quadrilateral

Unit (V) - Construction

4. Geometric Constructions

- Basic constructions
- Construction of triangle
- Construction of quadrilateral
- Constructions to the design related

Unit (VI) - Mensuration

5. Measurement and Area

- Measurement of the length, weight and capacity
- Perimeter and Areas
- Area of circle and circumference

Unit (VII)th - Statistics

6. Statistics

- Collection of data
- Types of data
- Classification of data
- Representation of data
- Solutions of the equations
- Word Problems

Part-II

Unit (IV) - Geometry

1. Lines, Angles and Plane -

- Axioms
- Parallel lines, perpendicular lines, Coplanar lines, Transversal
- Properties of parallel lines
- Angle, Types of angles
- Pair of angles

2. Triangles -

- Types of triangles
- Medians, altitudes, angle bisectors, Perpendicular bisectors of sides of triangles

- Congruence of triangles

- Properties of triangles

3. Quadrilaterals

- Types of quadrilaterals

- Properties of particular quadrilateral

Unit (V) - Construction

4. Geometric Constructions

- Basic constructions

- Construction of triangle

- Construction of quadrilateral

- Constructions to the design related

Unit (VI) - Mensuration

5. Measurement and Area

- Measurement of the length, weight and capacity

- Perimeter and Areas

- Area of circle and circumference

Unit (VII)th - Statistics

6. Statistics

- Collection of data

- Types of data

- Classification of data

- Representation of data

Science - 9

Matter in Our Surroundings

Is Matter Around Us Pure

Atoms and Molecules

Structure of the Atom

The Fundamental Unit of Life

Tissues

Diversity in Living Organisms

Motion

Force and Laws of Motion

Gravitation

Work and Energy

Sound

Why Do We Fall Ill?

Natural Resources

Improvement in Food Resources

History -9

Ancient and Medieval Civilizations a) Greek b) Indian c) Arabian

Renaissance and Feudalism a) Feudalism in Medieval Age, Decline, Crusades, b) Reformation, c) Renaissance

Age of Revolutions a) Industrial Revolution b) American war of Independence c) French Revolution

Concept of Region

1.1 Concept of Region

1.2 Identification of a region

Unit 2: Natural resources

2.1 Land

2.2 Water

2.3 Soil

2.4 Forests

2.5 Minerals

3.1 Classification of occupations

4.1 Types of agriculture

4.2 Major crops

5.1 Agro-based industries

5.2 Other industries

6.1 Types of transportation

6.2 Means of Communication

6.3 Tourism

7.1 Growth of population

7.2 Structure of population

8.1 Human development Index

8.2 Regional development in Maharashtra

1. INTROCUCTION OF ECONOMICS

1.1 Introduction

1.2 Concept of Economics, Meaning & Definition

1.3 Importance of Economics

2.1 Human wants & classification of wants

2.2 Commodity - Economic goods & Free goods.

2.3 Resources & Scarcity of resources.

2.4 Utility, value & Price.

2.5 Demand & Supply.

3. SOURCES OF INCOME

3.1 Personal Income - Agriculture, Industry, Trade, Agro allied Industry- Allutedar, Balutedar, Small Scale & Cottage Industry.

3.2 Modern Sources of Income Income from Service Sector- Transport, Communication, Doctor, Lawyer, Chartered Accountant, Cyber Café.

4.1 Income & Expenditure, Explanation with the help of Examples.

4.2 Project on Income & Expenditure of family (local level)

1.1. Plant and animal breeding and selection for quality improvement.

1.2. Use of fertilizers, manures.

1.3. Protection from pests and diseases; organic farming.

2.1 Matter: All things occupy space, possess mass. Definition of matter, characteristics of solids, liquids and gases e.g. shape, volume, density.

Change of state: freezing, melting, evaporation, condensation, sublimation.

Cooling by evaporation. Absorption of heat.

2.2 Elements, mixtures and Compounds: elements, compounds and mixtures as types of chemical substances.

Types of mixtures; Heterogeneous, homogeneous, colloids, suspensions.

2.3 Combination of substances: Law of constant proportion, atomic and molecular masses. Particle nature, basic units: Atoms and Molecules.

2.4 Mole Concept: Relationship of mole to mass of the particles and numbers.

Valency. Chemical formulae of common compounds.

2.5 Atomic Structure: Electrons, protons and neutrons. Atomic number and atomic mass number. Isotopes and Isobars.

3.1 Biological Diversity Diversity of plants and animals: Basic issues in scientific naming. Basis of classification, Hierarchy of categories/groups.

Plant classification: Major Plant groups (salient features): Bacteria, Thallophyta, Bryophyta, Pteridophyta, gymnosperms and Angiosperms.

Animal Classification : Major groups of animals (salient features): NonChordates up to phyla and non chordates up to classes.

3.2 Smallest living unit of Life, Cell : Cell as a basic unit of life prokaryotic and eukaryotic cells, multicellular organisms; cell membrane and cell wall, cell organelles, chloroplast, mitochondria, vacuoles, ER, Golgi apparatus. Nucleus, chromosomes, basic structure, number. Tissues, organs, organ system, organism Structure and functions of animal and plant tissues. (four types in animals; meristematic and permanent tissues in plants).

3.3. Health

1. Failure of health leading to disease.
2. Disease and its causes.
3. Diseases caused by microbes and their prevention: Typhoid, diarrhoea, malaria, hepatitis, rabies, AIDS, TB, Polio
4. Pulse Polio program.

3.4. Exchange of substances by living organisms with the external world: Diffusion/exchange of substances between cells and their environment and between the cell themselves in the living system; role in nutrition, water and food transport, excretion, gaseous exchange.

4. Moving Things. People and ideas. Motion.

4.1 Motion: displacement, velocity, Uniform and non-uniform motion along a straight line, acceleration, distance-time and velocity-time graphs for motion and uniformly accelerated motion. Equations of motion by graphical method .

Elementary idea of uniform circular motion.

4.2. Force and Newton's Laws : Force and

Motion; Newton's Laws of Motion. Inertia of a. body, inertia and mass, momentum, force and acceleration.

Elementary idea of conservation of momentum, action and reaction forces.

4.3. Gravitation: gravitation, universal law of gravitation, force of gravitation of the earth (earth's gravity), acceleration due to gravity, mass and weight, free fall .

4.4. Work, Energy and Power: work done by a force, energy, power. Kinetic and Potential energy, Law of conservation of energy.

4.5 Floating Bodies: Thrust and Pressure, Archimedes' Principle, Buoyancy. Idea of relative density.

4.6. Sound; Nature of sound and its propagation through different media, speed of sound, range of hearing in humans; ultrasound; reflection of sound;

echo and SONAR Structure of the Human Ear. (Auditory aspect).

5. Natural Resources – Understanding Ecosystem -

5.1 Types of ecosystem - forest, grassland, desert, aquatic, costal, marine

5.2 Interaction between biotic and abiotic factors in an eco-system

5.3 Energy flow and its importance. Cycles of nutrients in terrestrial and aquatic (fresh water and marine) ecosystems, nature's mechanism in maintaining balance.

6. Waste Generation and Management

6.1 Sources of waste - domestic, industrial, agricultural and commercial

6.2 Classification of waste : biodegradable non biodegradable, toxic, non- toxic biomedical.

6.3 Impact of waste accumulation - Spoilage of landscape, pollution, health hazards, effect on terrestrial and aquatic (fresh water and marine) life.

6.4 Need for management of waste.

6.5 Methods of safe disposal of waste segregation, dumping, composting, drainage, treatment of effluents before discharge, incineration, use of scrubbers and electrostatic precipitators.

6.6 Need for reducing, reusing and recycling waste.

6.7 Legal provisions for handling and management of waste