

Ramagya Institute

<u>Grade 9 Physics</u>	
S.No.	Topics
Unit I	
	<u>Prerequisite</u>
	Vector, Trigonometry, Basic Algebra
	<u>Mechanics</u>
	<u>Motion</u>
1.	<u>Simple Kinematics</u>
1.1	Distance and displacement, velocity; uniform and non-uniform motion along a straight line; acceleration
1.2	Distance-time and velocity-time graphs for uniform motion and uniformly accelerated motion, equations of motion by graphical method; elementary idea of uniform circular motion.
2.	Relative Velocity
3.	Projectile Motion
4.	<u>Force and Laws of Motion</u>
4.1	Force and motion, Newton's laws of motion, inertia of a body, inertia and mass, momentum, force and acceleration.
4.2	Elementary idea of conservation of momentum, action and reaction forces.
5.	Friction
6.	<u>Gravitation</u>
6.1	Gravitation; universal law of gravitation, force of gravitation of the earth (gravity), acceleration due to gravity; mass and weight; free fall.
	<u>Floatation</u>
7.	Floatation
7.1	Threst and Pressure
7.2	Buoyancy
7.3	Archimedes' Principle
7.4	Relative Density
Unit II	
8.	<u>Work, Power and Energy</u>
8.1	Work done by a force, energy, power, kinetic and potential energy, law of conservation of energy
9.	Circular Motion

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	Momentum and the Motion of Systems
10.	Center of Mass, Collision, Rocket Motion
	Waves and Oscillation
11.	Simple Harmonic Motion
12.	Sound
12.1	Nature of sound and its propagation in various media, speed of sound, range of hearing in humans; ultrasound; reflection of sound; echo and SNAR
12.2	Structure of the human ear (auditory aspect only)

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<u>Grade 9 Mathematics</u>	
S.No.	Topics
Unit I	
1.	<u>Number Systems</u>
1.1	Introduction
1.2	Irrational Numbers
1.3	Real Numbers and their Decimal Expansions
1.4	Representing Real Numbers on the Number Line
1.5	Operations on Real Numbers
1.6	Laws of Exponents for Real Numbers
1.7	Summary
2.	<u>Algebra</u>
	<u>Polynomials</u>
2.1	Introduction
2.2	Polynomials in One Variable
2.3	Zerues of a Polynomial
2.4	Remainder Theorem
2.5	Factorisation of Polynomials
2.6	Algebraic Identities
2.7	Summary
3.	<u>Coordinate Geometry</u>
3.1	Introduction
3.2	Cartesian System
3.3	Plotting a Point in the Plane if its Coordinates are given
3.4	Summary
4.	Geometry
	<u>Introduction to Euclid's Geometry</u>
4.1	Introduction
4.2	Euclid's Definitions, Axioms and Postulates
4.3	Equivalent Versions of Euclid's Fifth Postulate
4.4	Summary

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5.	<u>Lines and Angle</u>
5.1	Introduction
5.2	Basic Terms and Definitions
5.3	Intersecting Lines and Non-intersecting Lines
5.4	Pairs of Angles
5.5	Parallel Lines and A transversal
5.6	Lines Parallel to the same Line
5.7	Angle Sum Property of a Triangle
5.8	Summary
6.	<u>Triangles</u>
6.1	Introduction
6.2	Congruence of Triangles
6.3	Criteria for Congruence of Triangles
6.4	Some Properties of a Triangle
6.5	Some More Criteria for Congruence of Triangles
6.6	Inequalities in a Triangle
6.7	Summary
7.	<u>Statistics</u>
7.1	Introduction
7.2	Collection of Date
7.3	Presentation of Data
7.4	Graphical Representation of Data
7.5	Measures of Central Tendency
7.6	Summary
Unit II	
8.	<u>Linear Equations in Two Variables</u>
8.1	Introduction
8.2	Linear Equations
8.3	Solution of a Linear Equation
8.4	Graph of a Linear Equation in Two Variables
8.5	Equations of Lines Parallel to x-axis and y-axis
8.6	Summary
9.	<u>Quadrilaterals</u>
9.1	Introduction
9.2	Angle Sum Property of a Quadrilateral

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9.3	Types of Quadrilaterals
9.4	Properties of a Parallelogram
9.5	Another condition for a Quadrilateral to be a Parallelogram
9.6	The Mid-point Theorem
9.7	Summary
10.	<u>Area of Parallelograms and Triangles</u>
10.1	Introduction
10.2	Figures on the same Base and Between the same Parallels
10.3	Parallelograms on the same Base and between the same Parallels
10.4	Triangles on the same Base and between the same Parallels
10.5	Summary
11.	<u>Circles</u>
11.1	Introduction
11.2	Circles and its Related Terms : A Review
11.3	Angle Subtended by a Chord at a Point
11.4	Perpendicular from the Centre to a Chord
11.5	Circle through Three Point
11.6	Equal chords and their Distances from the Centre
11.7	Angle Subtended by an Arc of a Circle
11.8	Cyclic Quadrilaterals
11.9	Summary
12.	<u>Constructions</u>
12.1	Introduction
12.2	Basic Constructions
12.3	Some Constructions of Triangles
12.4	Summary
13.	<u>Mensuration</u>
	<u>Heron's Formula</u>
13.1	Introduction
13.2	Area of a Triangle – by Heron's Formula
13.3	Application of Heron's Formula in finding Areas of Quadrilaterals
13.4	Summary
14.	<u>Surface Areas and Volumes</u>
14.1	Introduction
14.2	Surface Area of a Cuboid and a Cube
14.3	Surface Area of a Right Circular Cylinder
14.4	Surface Area of a Right Circular Cone
14.5	Surface Area of a sphere

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14.6	Volume of a Cuboid
14.7	Volume of a Cylinder
14.8	Volume of a Right Circular cone
14.9	Volume of a Sphere
14.10	Summary
15.	<u>Probability</u>
15.1	Introduction
15.2	Probability – an Experimental Approach
15.3	Summary
-	<u>Appendix</u>
App. 1	<u>Proofs in Mathematics</u>
A1.1	Introduction
A1.2	Mathematically Acceptable Statements
A1.3	Deductive Reasoning
A1.4	Theorems, Conjectures and Axioms
A1.5	What is a Mathematical Proof ?
A1.6	Summary
App. 2	<u>Introduction to Mathematical Modeling</u>
A2.1	Introduction
A2.2	Review of Word Problems
A2.3	Some Mathematical Models
A2.4	The Process of Modeling its Advantages and Limitations
A2.5	Summary

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<u>Grade 9 Chemistry</u>	
S.No.	Topics
Unit I	
1.	Matter in Our Surroundings
2.	Is Matter Around Us Pure
Unit II	
3.	Atoms and Molecules
4.	Structure of The Atom

<u>Grade 9 Biology</u>	
Topics	
Unit I	
<ul style="list-style-type: none">• The Fundamental Unit of Life• Tissues• Diversity in Living Organisms	
Unit II	
<ul style="list-style-type: none">• Why Do We Fall Ill?• Natural Resources• Improvement in Food Resources	