

**WEST BENGAL BOARD (WBBSE) · CLASS 10**

Physical Science & Environment

Official WBBSE Madhyamik curriculum spanning environmental science, gas laws, stoichiometric calculations, thermal physics, ray optics, circuit electricity, nuclear physics, periodic table, chemical bonding, metallurgy, and organic chemistry.

Board: West Bengal Board of Secondary Education (Madhyamik Pariksha)**Theory:** 90 Marks**Internal/Practical:** 10 Marks (Project)**Exam Duration:** 3 Hours 15 Mins

UNIT-WISE SYLLABUS & MARKS BREAKDOWN

UNIT	CHAPTERS & PRESCRIBED TOPICS	MARKS
Common Area	Environment, Gas Laws & Calculations Concerns About Our Environment: Structure of atmosphere, ozone layer depletion, greenhouse effect, renewable energy; Behaviour of Gases: Boyle's Law, Charles' Law, absolute zero, Kelvin scale, Combined gas equation, Avogadro's Hypothesis, ideal gas equation $PV = nRT$, kinetic theory of gases; Chemical Calculations: Conservation of mass, stoichiometric problems based on chemical equations	16
Physics Area	Thermal Phenomena & Light Thermal Phenomena: Thermal expansion of solids (linear, superficial, cubical), anomalous expansion of water, thermal conductivity; Light: Reflection at spherical mirrors (concave and convex, mirror formula), refraction of light, Snell's law, refraction through prism, thin lenses (convex and concave, ray diagrams, magnification), dispersion of light, pure & impure spectrum, electromagnetic spectrum (gamma, X-rays, UV, IR, radio waves)	29
Physics Area	Current Electricity & Nuclear Physics Current Electricity: Electric potential and potential difference, electromotive force (EMF), Ohm's law, resistance and resistivity, combination of resistors (series and parallel), Joule's laws of heating, electric power and energy (B.O.T unit), household wiring safety (fuse, earthing, three-pin plug); Atomic Nucleus: Radioactivity, nature of alpha, beta and gamma rays, radioactive decay, nuclear fission and fusion, mass-energy equivalence ($E = mc^2$)	19
Chemistry Area	Periodic Table, Bonding & Electrolysis Periodic Table: Mendeleev's periodic law, modern periodic law, periodic trends in groups and periods (atomic radius, ionisation energy, electronegativity); Chemical Bonding: Ionic and covalent bonding (Lewis dot structure: NaCl, CaO, H ₂ , O ₂ , N ₂ , HCl, H ₂ O, CH ₄); Electricity and Chemical Reactions: Electrolysis of molten NaCl, acidified water, aqueous CuSO ₄ with copper electrodes; Electroplating and refining	16
Chemistry Area	Inorganic, Metallurgy & Organic Chemistry Inorganic Chemistry in the Laboratory: Nitrogen, Ammonia (Haber's process), Hydrogen Sulphide, Hydrogen Chloride, Nitric Acid, Sulphuric Acid (Contact process); Metallurgy: Occurrence of metals, minerals vs ores, extraction of Iron, Aluminium, Copper, Zinc, alloys and corrosion; Organic Chemistry: Catenation property, saturated and unsaturated hydrocarbons (Alkanes, Alkenes, Alkynes), functional groups, IUPAC	10

UNIT	CHAPTERS & PRESCRIBED TOPICS	MARKS
	naming, preparation and properties of Methane, Ethylene, Acetylene, Polymers (Polythene, Teflon, PVC)	

INTERNAL / PRACTICAL ASSESSMENT SCHEME (10 MARKS (PROJECT))

EVALUATION COMPONENT	MARKS WEIGHTAGE
Internal Formative Evaluation (IFE) Scientific experiments, project report, model making, viva voce	10 Marks

RECOMMENDED REFERENCE LITERATURE

Prescribed Textbooks: WBBSE Bhouto Bigyan o Poribesh Class X, Chhaya Prakashani, Excellence Madhyamik Reaction Sheets

The Excellence Tuition Edge

Every unit in this curriculum is taught with structured conceptual lectures, followed by weekly speed-testing, detailed mistake analysis, and dedicated 1:1 doubt-clearing sessions to build board exam confidence.