Class 8
PHYSICS

MT1
1. MATTER
2. PHYSICAL QUANTITY AND MEASUREMENT

HALF YEARLY
1. MATTER
2. PHYSICAL QUANTITY AND MEASUREMENT
3. FORCE AND PRESURE
4. ENERGY

MT2
4. ENERGY
5. LIGHT

FINAL TERM
1. MATTER
2. PHYSICAL QUANTITY AND MEASUREMENT
3. FORCE AND PRESURE
4. ENERGY
5. LIGHT
6. HEAT
7. SOUND
8. ELECTRICITY

CLASS 8 – PHYSICS (NEP 2020 ALIGNED SCOPE)

MID-TERM 1

1. MATTER

Concepts

- Definition and classification of matter (solid, liquid, gas)
- Properties of states of matter
- Interconversion of states (melting, freezing, evaporation, condensation and the reverses)
- Molecular theory of matter
- Diffusion and Brownian motion

Learning Objectives (LOs)

Learners will be able to:

- Define matter and classify it based on physical states
- Differentiate between solids, liquids, and gases using properties
- Explain interconversion of states using particle theory
- Interpret diffusion in daily life situations
- Relate molecular motion to temperature
- Analyze simple experiments demonstrating particle nature
- Diagramatic and tabular representations/analysis

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2. PHYSICAL QUANTITY AND MEASUREMENT

Concepts

- Physical quantities: fundamental and derived
- Units: SI system
- Measurement of length, mass, time
- hence , density, RD, area, volume
- Least count and accuracy
- Measuring instruments (ruler, measuring cylinder, balance, eureka can, thermometer)
- Floatation and sinking (density) - its practical implications
- Errors in measurement

Learning Objectives (LOs)

Learners will be able to:

- Distinguish between fundamental and derived quantities
- Use SI units appropriately
- Measure physical quantities with suitable instruments
- Calculate least count of measuring devices
- Record observations with accuracy and precision
- Identify sources of measurement error and minimize them

HALF-YEARLY EXAMINATION

1. MATTER *(Revision + Reinforcement + Application)*

Concepts

- Advanced applications of particle theory
- Latent heat (introductory)
- Changes of state in real-life contexts

Learning Objectives

- Apply particle theory to explain natural phenomena (e.g., evaporation cooling)
- Analyze state changes using temperature-energy relation
- Solve numerical/basic conceptual problems on changes of state

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2. PHYSICAL QUANTITY AND MEASUREMENT *(Revision + Reinforcement)*

Concepts

- Derived quantities (density, speed)
- Flotation and application
- Graphical representation of measurements
- Unit conversions

Learning Objectives

- Calculate derived quantities like density
- Convert units across SI multiples
- Represent data graphically
- Interpret measurement-based data

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3. FORCE AND PRESSURE

Concepts

- Definition and effects of force
- Types of forces (contact and non-contact)
- Balanced and unbalanced forces, Moments of force

- Pressure: definition and formula
- Pressure in liquids and gases
- Atmospheric pressure

Learning Objectives

Learners will be able to:

- Define force and identify its effects
- Classify forces with examples
- Differentiate balanced and unbalanced forces
- Calculate pressure using formula
- Explain pressure variation with depth
- Relate atmospheric pressure to daily phenomena

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4. ENERGY

Concepts

- Work - unit and numerical values
- Forms of energy (kinetic, potential, heat, light, sound)
- Kinetic energy, potential energy (and gravitational PE)
- Transformation of energy
- Law of conservation of energy
- Energy and Power
- Renewable and non-renewable energy sources

Learning Objectives

Learners will be able to:

- Identify different forms of energy
- Explain energy transformation with examples
- State and apply the law of conservation of energy
- Classify energy sources
- Evaluate sustainable energy practices

MID-TERM 2

4. ENERGY *(Revision + Advanced Understanding)*

Concepts

- Mechanical energy (kinetic and potential)
- Factors affecting kinetic and potential energy
- Work-energy relationship, Power

Learning Objectives

Learners will be able to:

- Differentiate kinetic and potential energy
- Analyze factors affecting energy forms
- Apply concepts to real-life systems (machines, motion)
- Solve simple numerical problems

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5. LIGHT

Concepts

- Nature of light
- Refraction, phenomenon and examples.
- Rectilinear propagation
- Spherical mirrors, specific terms and its definitions (with diagramatic identification)
- Reflection of light
- Laws of reflection
- Spherical mirror and image formation , Ray diagrams, Real/virtual images and its characteristics
- Dispersion through prism - component colours

Learning Objectives

Learners will be able to:

- Describe properties of light
- Explain reflection using laws
- Draw ray diagrams for plane mirror
- Predict image characteristics
- Analyze applications of reflection (periscope, mirrors)

FINAL TERM

1. MATTER (Revision)

Concepts

- Comprehensive revision with application-based contexts
- Real-life phenomena involving states of matter

Learning Objectives

- Integrate concepts of matter in problem-solving
- Analyze real-world scenarios using particle theory

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2. PHYSICAL QUANTITY AND MEASUREMENT (Revision)

Concepts

- Accuracy, precision, and error analysis
- Practical applications

Learning Objectives

- Evaluate measurement reliability
- Apply measurement skills in experiments

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3. FORCE AND PRESSURE (revision)

Concepts

- Applications (hydraulics, pressure devices)
- Upthrust and flotation (introductory)

Learning Objectives

- Apply pressure concepts to devices
- Explain flotation using pressure differences

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4. ENERGY (Revision)

Concepts

- Energy efficiency and conservation
- Real-life applications

Learning Objectives

- Analyze energy usage in daily life
- Propose energy-saving methods

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5. LIGHT (revision)

Concepts

- Applications of reflection
- Introduction to refraction (basic idea if included)

Learning Objectives

- Apply reflection principles in devices
- Interpret light-based phenomena

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6. HEAT TRANSFER

Concepts

- Heat vs temperature
- Modes of heat transfer (conduction, convection, radiation)
- Expansion of substances Linear, superficial and cubical - phenomenon and effects

Learning Objectives

Learners will be able to:

- Differentiate heat and temperature
- Explain modes of heat transfer
- Analyze applications (insulation, sea breeze)
- Relate expansion to daily life

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7. SOUND

Concepts

- Production of sound
- Propagation of sound waves Longitudinal and its graphical representation (displacement vs time)
- Characteristics (pitch, loudness, quality)
- Amplitude, wavelength, frequency, time-period
- Vibration causing sound
- Mono-tones and characteristics
- Loudness, units
- Human ear (basic)

Learning Objectives

Learners will be able to:

- Explain how sound is produced
- Describe sound propagation
- Differentiate sound characteristics
- Relate sound concepts to hearing

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8. ELECTRICITY

Concepts

- Electric current and circuit
- Conductors and insulators
- Simple circuits and components
- Conservation of charge
- Concept of Static electricity, distribution of charges, its nature, working of an electroscope.
- Lightening conductors
- Effects of electric current (heating, magnetic)

Learning Objectives

Learners will be able to:

- Define electric current
- Construct simple circuits
- Differentiate conductors and insulators
- Explain effects of electric current
- Apply safety measures in electricity use
- Charges - induction and conduction
- Nature of charges

- Hazards of discharges and sparks

NEP 2020 PEDAGOGICAL INTEGRATION (Across All Terms)

- **Experiential Learning:** diffusion, reflection, circuits
- **Competency Focus:** Application-based questions over rote learning
- **Art Integration:** Models (molecules, circuits)
- **Inquiry-Based Learning:** Hypothesis → Experiment → Conclusion
- **Cross-Disciplinary Links:**
    - Math (measurement, graphs)
    - Geography (pressure, heat)
    - Environmental Science (energy resources)

80 Marks QP format:
Compulsory 40 marks
Q1. MCQ - 15 marks (Knowledge, Application, Analysis, Interpretation, Evaluation)
Q2. Fill in the blanks 6 marks + 4 marks of Skill/Application Questions
Q3. Short questions 2x6 + 3 marks (Knowledge, Application, Analysis, Interpretation, Skill, Evaluation)

Any four out of six questions to be answered- 40 Marks
Q4 to Q9
3+3+4 or 5+5 or 4+4+2 mark distributed questions. The type of questions involved - Knowledge, Application, Analysis, Interpretation,Skill, Evaluation.

Application, Interpretation, Analysis and Skill based questions will be used to reduce the habit of rote learning.