St John Baptist De La Salle Catholic School, Addis Ababa

Physics ESSLCE Study Guide

December 25, 2024

Forces on Moving Charged Particles

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Physics Teaching Plan (January to May)

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Month Week Topics Learning Goals Activities & Teaching Methods Assessments Remarks

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January 1-2 - Vectors: Representation, addition, and subtraction.
- Motion in one dimension: Uniform and accelerated motion. - Understand vector operations.
- Analyze motion graphs and equations. - Vector addition using diagrams.
- Graphical analysis of motion problems.
- Interactive Q&A sessions. - Quiz on vector operations.
- Motion worksheet. Review foundational concepts in mechanics.

January 3-4 - Newton's Laws: Applications and implications.
- Frictional forces.
- Conservation of momentum. - Apply Newton's laws to solve problems.
- Explain friction and momentum conservation. - Problem-solving sessions.
- Demonstrations (e.g., collision experiments). - Problem-solving assessment on forces and motion. Set groundwork for complex mechanics.

February 5-6 - Work, energy, and power: Theorem, conservation, mechanical power. - Relate work and energy concepts.
- Calculate power in physical systems. - Energy conservation experiments.
- Group discussions on energy systems. - Calculation problems on work and energy. Focus on energy transformations.

February 7-8 - Fluid mechanics: Pressure, Archimedes' principle, fluid flow dynamics. - Describe fluid behavior under various conditions.
- Explain buoyancy and flow principles. - Lab experiments on buoyancy.
- Solving real-life problems (e.g., dam pressure). - Fluid mechanics worksheet. Use real-world applications to engage students.

March 9-10 - Thermodynamics: Temperature, heat transfer, calorimetry, changes of state. - Understand heat transfer mechanisms.

- Solve problems involving thermal properties. - Conduct calorimetry experiments.
- Discuss heat in everyday applications. - Quiz on thermodynamics concepts. Relate to familiar contexts for better grasp.

March 11-12 - Wave motion: Properties, propagation.
- Sound waves: Interference, applications. - Explain wave behavior and sound phenomena.
- Analyze wave interference and sound applications. - Demonstrations with tuning forks.
- Solve wave problems collaboratively. - Wave mechanics practice test. Reinforce with visual and auditory tools.

April 13-14 - Electrostatics: Charge, electric fields, potential.
- Circuits: Ohm's Law, resistor combinations. - Analyze electric forces and fields.
- Apply Ohm's Law to circuit design. - Build circuits in lab.
- Problem-solving with circuit diagrams. - Lab-based assessment on circuits. Encourage hands-on exploration of concepts.

April 15-16 - Magnetism: Fields, electromagnetic induction.
- Electronics: Semiconductors, transistors. - Understand magnetic interactions.
- Explain basic electronic components. - Demonstrations of electromagnetic induction.
- Simple electronic circuit construction. - Test on magnetism and basic electronics. Bridge physics with real-world tech applications.

May 17-18 - Comprehensive review of all topics. - Reinforce understanding of all topics.
- Identify and address weak areas. - Summarize key concepts.
- Interactive review sessions.
- Group Q&A for clarifications. - Diagnostic quiz covering all topics. Emphasize review and confidence-building.

May 19-20 - Practice exams and strategy. - Apply knowledge to timed exams.
- Develop effective exam strategies. - Conduct mock exams under exam conditions.
- Detailed feedback sessions on answers. - Mock exam results and feedback. Prepare students for the real exam environment.
