Topic 1: Measurements and Units

Learning Objectives:

1. Understand the importance of measurements and units in physics.
2. Master the SI system of units and the process of converting between units.
3. Apply dimensional analysis to solve problems.
4. Estimate uncertainties in measurements and use significant figures appropriately.

Pedagogical Approaches:

* Constructivism: Encourage students to build on their existing knowledge of measurements in everyday life.
* Inquiry-Based Learning: Have students investigate the importance of units and conversions through real-world examples.
* Differentiated Instruction: Provide various resources (e.g., visual aids, interactive tools) to support different learning styles.

Real-World Examples and Applications:

* Converting between different units of length, mass, and time in everyday situations.
* Estimating uncertainties in measuring the dimensions of everyday objects.

Laboratory Activities:

* Practice measuring lengths, masses, and times with different instruments.

Formative Assessments:

* In-class quizzes and group discussions focusing on unit conversions and dimensional analysis.