

## Course Outline - Physics 20

The Physics 20 program emphasizes the science themes: change, diversity, energy, equilibrium, matter and systems. Energy is the science theme common to all units in the course. Energy in its many forms causes change and determines the kind of change matter undergoes.

**Unit 1: Kinematics** ~ The major concept developed in this unit is:

- change in the position and velocity of objects and systems can be described graphically and mathematically
- Approximately 4 weeks

**Unit 2: Dynamics** ~ The major concepts developed in this unit are:

- the concepts of dynamics relate forces to changes in velocity
- work is a transfer of energy
- Approximately 5 weeks

**Unit 3: Circular Motion and Gravitation** ~ The two major concepts developed in this unit are:

- Newton's laws of motion can be used to explain uniform circular motion
- gravitational effects extend throughout the Universe
- Approximately 5 weeks

**Unit 4: Mechanical Waves and Light** ~ The four major concepts developed in this unit are:

- many vibrations are simple harmonic
- waves are a means of transmitting energy
- geometric optics is one model used to explain the nature and behaviour of light
- the wave model of light improves our understanding of the behaviour of light
- Approximately 4 weeks

### Required Materials:

core text: Merrill Physics - Principles and Problems (Canadian Edition)  
 workbook: Physics 20 Notes and Problems (Ladner)  
 Calculator: Scientific

### Student Evaluation: (No Late Submissions will be Accepted)

Assignments	20%
Quizzes	10%
Unit Exams	40%
Final Exam	30%