

PHYSICS 12 COURSE OUTLINE 2026/2027

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Workbook: BC Physics 12 Student Notes and Problems [SNAP] (2025 Edition);
Published by Castle Rock Research Corporation

The following provides a simplified overview of the course. In some topics, not all material will necessarily be covered, while in others, a more in-depth exploration may be undertaken.

**** Note:** Topics may not necessarily be covered in the order indicated.

A. VECTOR KINEMATICS A

uniform motion, freely falling objects, uniformly accelerated motion,

B. VECTOR KINEMATICS B

vector components, velocity vectors and navigation, projectile motion

C. VECTOR DYNAMICS

Newton's Laws, 2-D forces, inclined planes

D. WORK, POWER, AND ENERGY

potential energy, kinetic energy, work-energy theorem, conservation of energy, efficiency

E. MOMENTUM

linear momentum, impulse, conservation of momentum, collisions

F. EQUILIBRIUM

translational equilibrium, rotational equilibrium, torque, centre of gravity

G. CIRCULAR MOTION AND GRAVITATION

centripetal acceleration, Newton's Law of universal gravitation, gravitational potential energy, escape velocity

H. ELECTROSTATICS

electric force, Coulomb's Law, electric field, electric potential energy, electric potential difference

I. APPLICATIONS AND FIRST PEOPLES

application and kinematics / dynamics, salmon management

J. MAGNETIC FORCES AND FIELDS

magnetic force, magnetic field, induced EMF, magnetic flux, Faraday's Law, Lenz's Law, generators, motors, back EMF, transformers

K. MODERN PHYSICS

postulates of special relativity, relative motion and effects (time dilation, length contraction, mass increase), equivalence of energy and mass