



SPH3U - Course Outline

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This course develops students' understanding of the basic concepts of physics. Students will explore kinematics, with an emphasis on linear motion; different kinds of forces; energy transformations; the properties of mechanical waves and sound; and electricity and magnetism. They will enhance their scientific investigation skills as they test laws of physics. In addition, they will analyse the interrelationships between physics and technology, and consider the impact of technological applications of physics on society and the environment.

Curriculum

Students final report card grade will be based on the evidence provided of these overall curriculum expectations:

Scientific Investigation Skills and Career Exploration

- Demonstrate scientific investigation skills in four areas: initiating and planning, performing and recording, analysing and interpreting and communicating.
- Identify and describe a variety of careers related to the fields of science under study, and identify scientists, including Canadians, who have made contributions to those fields.

Kinematics

- Motion involves a change in the position of an object over time.
- Motion can be described using mathematical relationships.
- Many technologies that apply concepts related to kinematics have societal and environmental implications.

Forces

- Forces can change the motion of an object.
- Applications of Newton's laws of motion have led to technological developments that affect society and the environment.

Energy and Society

- Energy can be transformed from one type to another.
- Energy transformation systems often involve thermal energy losses and are never 100% efficient.
- Although technological applications that involve energy transformations can affect society and the environment in positive ways, they can also have negative effects, and therefore must be used responsibly.

Waves and Sound

- Mechanical waves have specific characteristics and predictable properties.
- Sound is a mechanical wave.
- Mechanical waves can affect structures, society, and the environment in positive and negative ways.

Electricity and Magnetism

- Relationships between electricity and magnetism are predictable.
- Electricity and magnetism have many technological applications.
- Technological applications that involve electromagnetism and energy transformations can affect society and the environment in positive and negative ways.

Your Report Card Grade will be determined as follows:

<p>Term work: 70% of your grade will be based on all of the evidence you have provided. It will reflect your most consistent level of achievement with special consideration given to more recent evidence.</p>	<p>15% Knowledge & Understanding: subject-specific content acquired (knowledge), and the comprehension of its meaning and significance (understanding).</p> <p>20% Application: the use of knowledge and skills to make connections within and between various contexts.</p> <p>20% Thinking: the use of critical and creative thinking skills and/or processes.</p> <p>15% Communication: the conveying of meaning through various forms (oral, visual, and/or written).</p>
<p>Final Evaluation: 30% of your grade will be determined at the end of the course.</p>	<p>15% Performance Task - consisting of an investigation or an open-ended problematic situation; completed during final four weeks of the course; individual student effort; evaluated by teacher.</p> <p>15% Exam (a 1.5 hour exam within a 2 hour time slot) - consisting of a variety of question types (e.g., short answer, multiple choice, extended response, problem solving, etc.); completed during exam time period; individual student effort; evaluated by teacher</p>
<p>Your final grade will be calculated by combining your Term (70%) grade and your Exam and Performance Task Evaluations (30%).</p>	

Academic Standards

It is your responsibility to provide evidence of your learning within established timelines. Due dates for assignments and the scheduling of tests will be communicated well in advance to allow you to schedule your time. If you aren't going to be able to follow an agreed upon timeline you should demonstrate your responsibility and organizational skills by discussing with your teacher the challenges you're facing as far in advance of the deadline as possible.

It is your responsibility to be academically honest in all aspects of your schoolwork so that the marks you receive are a true reflection of your achievement.

Plagiarism is using the words, ideas or work of someone else without giving appropriate credit to the original creator. This is a form of cheating.

Consequences for not meeting these academic standards may include:

- Reporting the issue to your parents;
- Requiring you to complete the original or alternative work after school or during your lunch hour;
- Requiring you to complete an alternative assignment;
- Suspension;
- Assigning a "zero" for an assignment not completed prior to an agreed upon closure date;
- Mark deduction of 5% / day.

NOTE: the complete HDSB policies and administrative procedures for "Lates and Missed Assignments" and "Cheating and Plagiarism" policies may be found at www.hdsb.ca

Learning Skills & Work Habits

These learning skills and work habits will be taught, assessed and evaluated throughout the course.

Learning Skills and Work Habits		E – Excellent		G – Good		S – Satisfactory		N – Needs Improvement	
Responsibility									
<ul style="list-style-type: none"> Fulfills responsibilities and commitments within the learning environment. Completes and submits class work, homework, and assignments according to agreed-upon timelines. Takes responsibility for and manages own behaviour. 									
Organization									
<ul style="list-style-type: none"> Devises and follows a plan and process for completing work and tasks. Establishes priorities and manages time to complete tasks and achieve goals. Identifies, gathers, evaluates, and uses information, technology, and resources to complete tasks. 									
Independent Work									
<ul style="list-style-type: none"> Independently monitors, assesses, and revises plans to complete tasks and meet goals. Uses class time appropriately to complete tasks. Follows instructions with minimal supervision. 									
Collaboration									
<ul style="list-style-type: none"> Accepts various roles and an equitable share of work in a group. Responds positively to the ideas, opinions, values, and traditions of others. Builds healthy peer-to-peer relationships through personal and media-assisted interactions. Works with others to resolve conflicts and build consensus to achieve group goals. Shares information, resources, and expertise, and promotes critical thinking to solve problems and make decisions. 									
Initiative									
<ul style="list-style-type: none"> Looks for and acts on new ideas and opportunities for learning. Demonstrates the capacity for innovation and a willingness to take risks. Demonstrates curiosity and interest in learning. Approaches new tasks with a positive attitude. Recognizes and advocates appropriately for the rights of self and others. 									
Self-Regulation									
<ul style="list-style-type: none"> Sets own individual goals and monitors progress towards achieving them. Seeks clarification or assistance when needed. Assesses and reflects critically on own strengths, needs, and interests. Identifies learning opportunities, choices, and strategies to meet personal needs and achieve goals. Perseveres and makes an effort when responding to challenges. 									

Unit Outlines

Units	Curriculum Focus	Major Assignments / Evaluations	Key Resources
Waves & Sound	Understanding the basics of waves and wave behavior with focus on sound waves	Assignments, investigations, quizzes, test	Text book, class website, online resources and applets
Kinematics	Focus on the description and mathematics of objects in motion (speed, acceleration, motion)	Assignments, investigations, quizzes, test	Text book, class website, online resources and applets
Forces	Focus a description of why things move (forces of nature, newton's laws, friction)	Assignments, investigations, quizzes, performance task, test	Text book, class website, online resources and applets
Energy & Society	Focus on descriptions of energy and energy transformations; potential and kinetic energy, work, power, impacts on society	Assignments, investigations, quizzes, performance task, test	Text book, class website, online resources and applets
Electricity & Magnetism	Focus on the interconnection of electricity and magnetism; both are studied in detail. Additional focus on electricity production methods and the impacts on the environment and society.	Assignments, investigations, quizzes, performance task, test	Text book, class website, online resources and applets