

COURSE INFORMATION

DATE: September 2023

SCHOOL: Yeshiva High School of Ottawa

DEPARTMENT HEAD: N/A

TEACHER: Mr. David Jacobs

DEPARTMENT: General Studies



CURRICULUM POLICY DOCUMENT	The Ontario Curriculum: Grades 11 and 12 – Science (2008, revised)		
COURSE TITLE	Physics, Grade 11	COURSE CODE	SPH3U
PRE-REQUISITE	Grade 10 Science, Academic	GRADE & TYPE	Grade 11 University
FULL YEAR / SEMESTER	Semester	CREDIT VALUE	1.0

COURSE DESCRIPTION

This course introduces students to central concepts in physics. Specifically, the topics under study include motion and forces, describing and utilizing work, energy and power, waves and sound, and electricity and magnetism. Throughout the course students will be called upon to use their understanding of mathematics, especially algebra and trigonometry, to describe natural phenomena and make predictions about the outcome of events based on given input information. Many experiments will be conducted throughout this course to help students gain practical comprehension of theoretical concepts.

UNIT DESCRIPTIONS:

UNIT 1 – KINEMATICS AND FORCES

TIME: 35 HOURS

Our study of physics shall begin with motion (kinematics) and forces. Students will investigate how velocity, position, acceleration and time are all related through fundamental kinematic equations. To better understand movement in two directions, students will then be instructed in the use and decomposition of vectors as a means of describing movement and predicting an object's position, instantaneous velocity and the acceleration experienced along position/time graphs. With a secure mastery over principles including acceleration, students will then investigate forces acting upon objects, including concepts such as mass, what a force is, how it impacts an object, and how competing forces on an object influence its overall motion. Throughout this unit, students will have the chance to explore basic kinematics and forces through experimentation.

UNIT 2 — ENERGY, POWER AND WORK

TIME: 15 HOURS

Building upon their understanding of movement in unit 1, students will study the concepts of energy, power and work. By studying energy, students will learn how it transforms from one form to another (potential to kinetic, kinetic to thermal, and so on). They will be able to predict the outcome of simple collisions where energy is transferred, in whole or in part, from one object to

another. By studying power and work, students will learn about physical processes that consume and transform energy as they proceed.

UNIT 3 — WAVES AND SOUNDS **TIME: 20 HOURS**

Waves, and especially sound waves, will be the focus of this unit. Students will learn how energy is translated into wave motions and be able to describe the relationship between the frequency, wavelength and energy inherent in waves, as well as other physical properties such as their amplitude. Students will have the chance to perform simple experiments to demonstrate these properties.

UNIT 4 – ELECTRICITY AND MAGNETISM **TIME: 30 HOURS**

Beginning with the basic principles of atomic structure and how electrons can flow through a circuit, students will learn about the complex natural phenomena surrounding electricity and magnetism. This will include calculations of electrical field strength, predictions of the directionality of magnetic force in a given circuit, as well as analyzing circuit diagrams to understand the relationships between battery power, resistance to flow of various appliances and the effect of switches, parallel and series circuit layouts, and more.

UNIT — SUMMATIVE PERFORMANCE TASKS **TIME: 10 HOURS**

This course will include a summative project and a final exam, both including content from all units of the course.

STUDENT EVALUATION CRITERIA				
TERM – 70%		FINAL – 30%		FINAL REPORT CARD GRADE CALCULATION
Knowledge/Understanding	25%	Knowledge/Understanding	25%	TERM TOTAL + FINAL TOTAL = REPORT CARD MARK
Inquiry/Thinking	25%	Inquiry/Thinking	25%	
Communication	25%	COMMUNICATION	25%	
Application	25%	Application	25%	

ASSESSMENT METHODS		
OBSERVATIONS:	CONVERSATIONS:	PRODUCTS:
<ul style="list-style-type: none"> ● Informal presentations ● Reading skills ● Writing process steps (graphic organizers, research notes, outlines, drafts, editing checklists) ● Listening and speaking skills ● Self-assessment ● Records of practice including checklists, anecdotal notes (homework, classroom contributions, metacognition charts, notetaking) 	<ul style="list-style-type: none"> ● Peer feedback / editing ● Group work records ● Conferences (student- teacher, group) ● Classroom contributions ● Composition/ arrangements ● Response Journals 	<ul style="list-style-type: none"> ● Review quizzes ● Unit tests ● Projects ● Oral presentations ● Assignments ● Summative tasks ● Final Examination (30%)

LEARNING SKILLS

Report Cards will include a letter grade for the following Learning Skills:

INDEPENDENT WORK

The student:

- accomplishes tasks independently

COLLABORATION	<ul style="list-style-type: none"> ▪ accepts responsibility for accomplishing tasks ▪ follows instructions ▪ regularly completes assignments on time and with care ▪ uses time effectively
	<p>The student:</p> <ul style="list-style-type: none"> ▪ works willingly and cooperatively with others ▪ listens attentively, without interrupting ▪ takes responsibility for his/her share of the work to be done ▪ helps to motivate others, encouraging them to participate ▪ shows respect for the ideas and opinions of others
	<p>The student:</p> <ul style="list-style-type: none"> ▪ organizes work when faced with a number of tasks ▪ devises and follows a coherent plan to complete a task ▪ demonstrates ability to organize and manage information ▪ follows an effective process for inquiry and research
	<p>The student:</p> <ul style="list-style-type: none"> ▪ completes homework on time and with care ▪ follows directions ▪ shows attention to detail ▪ perseveres with complex projects that require sustained effort ▪ applies effective study practices
	<p>The student:</p> <ul style="list-style-type: none"> ▪ seeks out new opportunities for learning ▪ seeks necessary and additional information ▪ requires little prompting to complete a task, ▪ approaches new learning situations with confidence and a positive attitude ▪ seeks assistance when needed
SELF-REGULATION	<p>The student:</p> <ul style="list-style-type: none"> ▪ sets individual goals and monitors own progress ▪ seeks clarification or assistance when needed ▪ reflects and assesses critically own strengths, needs and interests ▪ perseveres and makes an effort when responding to challenges

NOTE: The above chart is a reformatting of the skills identified in the Ministry of Education's *Guide to the Provincial Report Card, Grades 9 – 12 : Appendix C: pages 27 to 29* .

POLICIES AND PROCEDURES	
ATTENDANCE	<p>The Ontario Ministry of Education requires 110 hours of instruction for each course. As such, it is essential for the students to arrive punctually to each class.</p> <p>Students arriving more than ten minutes late will be marked “Late” on their report card.</p> <p>Students who are absent for an acceptable reason (see below) still have to make up the number of hours missed under the supervision of a teacher or the principal according to their availability. It is the student’s duty to determine and arrange this supervision, and YHSO does not guarantee teacher’s or principal’s availability.</p> <p><i>Students who are absent for non-acceptable reasons will forfeit their credit.</i></p> <p>ACCEPTABLE REASONS FOR ABSENCE</p> <ul style="list-style-type: none"> • Medical reason (may require a physician’s note) • Family trips or special occasions (up to four missed classes per course) <p>Regardless of reason for an absence, if a student misses more than 26 classroom hours they will forfeit their credit.</p>

ASSIGNMENTS	<p>Students are responsible to complete all their assignments and homework on time. Teachers will write all assignments, homework and tests on a classroom board, along with their due dates, but students are accountable to complete these assessments punctually. <i>Assignments handed in late may result in a deduction of marks.</i></p> <p>Teachers will post all assessments and assignments and their due dates on Google Classroom. Students and their parents will have access to the Google Classroom for their courses.</p>
BEHAVIOUR	<p>Students may not act in any manner that disrupts the education of another, or distracts a teacher. This includes:</p> <ul style="list-style-type: none"> • Excessive noise • Physical disruptions • Eating (unless granted individual permission) • Use of technology not for schoolwork purposes • Acts of disrespect such as name calling, abusive or offensive language or gestures <p>Failure to adhere to these rules will result in disciplinary action as described in the Student Handbook and Course Calendar.</p>
PLAGIARISM	<p>Academic integrity and honesty is expected from every student in Yeshiva High School of Ottawa. We take all instances of suspected dishonesty, plagiarism, or any form of “cheating” very seriously. A student who submits work that is, in whole or in part, plagiarized, will be subject to academic penalties. Repeated infractions may result in the loss of a credit and further disciplinary action. A student who assists another student in academic dishonesty may face academic consequences, including revocation of a credit.</p>