



Course: Physics 11
Teacher: Amir Farrokh
Unit: Work - Energy and Impulse
Date: April
Duration: About 2-3 weeks

Description: This chapter is not entirely new to students, as the concept of conservation of energy has been circulating in our previous science classes since the beginning of the year. What is new in Grade 11, is formulating this concept and understanding the “philosophy” of it. From the simple experiment of tossing a ball upward and getting it back after a few seconds in the palm of your hand, to observing a car coming to a stop through a sliding brake, our vision is to help students become better observers. Students will use their observational skills to explore and ask questions about sources of energy around them, from a light bulb to an accelerating elevator. They need to consider what is happening, how it might be happening and why it might have happened this way.

	Big Ideas	Essential Questions
Understand	<p>Energy is found in different forms, is conserved, and has the ability to do work.</p> <p>Understanding the relationship between work and energy</p>	<p>What is the relationship between work, energy and power in a system?</p> <p>Why can a machine not be 100% efficient?</p>

Do	Core Competencies	
	<p><i>Creative Thinking; (3) Critical Thinking; (4) Personal Awareness and Responsibility</i></p>	<ul style="list-style-type: none"> ● Reasoning and logic <i>Demonstrate fluent and strategic thinking</i> ● Estimate reasonably <i>Demonstrate understanding of the possible outcomes, not accepting any numbers out of range</i> ● Apply <i>Use physical knowledge to solve real-life questions</i> ● Multiple Strategies and Model Connected <i>Understand the concept and be able to change their perspective as well as gain ability to link different ideas</i> ● Explain and justify Communicate Reflect <i>Be able to criticize their own work through discussion</i>
	Curricular Competencies	
	<p>Formulate multiple hypotheses and predict multiple outcomes</p>	<p><i>Make use of virtual labs and applications or websites like Gizmos, to help students see the effect of any change on the system in a real time manner</i></p>

Know	Curricular Content	
	<p>conservation of energy; principle of work and energy</p> <p>power and efficiency</p>	<p><i>Which activities, projects, exercises or discussions will teach this Curricular Content?</i></p> <p><i>Through class discussions and set tasks students will::</i></p> <ol style="list-style-type: none"> 1. <i>learn about how work and energy are related</i> 2. <i>learn the Fundamental Theorem of Work-Energy</i>

	<p>simple machines and mechanical advantage</p> <p>applications of simple machines by First Peoples</p>	<p>3. <i>consider worked examples and analyse steps</i></p> <p>4. <i>explore of the basis of the conservation of energy</i></p> <p><i>Through class discussions, independent work and self-reflection, students will have the opportunity to reinforce the following First Peoples Principles of Learning:</i></p> <ul style="list-style-type: none"> ● <i>Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits and the ancestors.</i> ● <i>Learning is holistic, reflexive, reflective, experimental, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).</i> ● <i>Learning is embedded in memory, history, and story.</i> ● <i>Learning involves patience</i>
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Unit Assessment		
<p>For Learning:</p> <ol style="list-style-type: none"> 1. Whiteboard work 2. Check for specific questions from homework 3. Participation in video conference 	<p>As Learning:</p> <ol style="list-style-type: none"> 1. Self-Assessment using Google Forms 	<p>Of Learning:</p> <ol style="list-style-type: none"> 1. Test

Required Resources
<p><i>McGraw Hill Physics 11 textbook,</i> <i>Youtube videos,</i> <i>Teacher's worksheets and notes</i> <i>video conferencing</i> <i>Gizmos website</i> <i>calculator</i></p>