Course: Physics 11

Teacher Name: Braden Holt; Eric Neal

Contact Information: bholt@sd44.ca; eneal@sd44.ca

Course Description:

Physics 11 is an introductory physics course, which includes mechanics, wave phenomena and circuits. As well as, introducing fundamental physics knowledge, the goal of this course is to teach students basic science skills that are useful beyond the realm of physics. These include critical thinking skills, problem solving skills, and the ability to collect and interpret data. This will be done through a combination of hands-on learning, physical experiments, and problem-solving sessions. Students will be expected to work both independently and in groups.

Summer Learning Beliefs:

Summer Learning provides an engaging learning environment where all students can challenge themselves academically and fulfill their learning goals. To ensure this, students will:

- abide by the student Code of Conduct
- adhere to the Academic Honesty Policy
- adhere to the Summer Learning Student Engagement policy
- respect themselves and others
- attend every class and be punctual
- inquire, think, and engage to the best of their ability
- access technology in class when instructed to do so and for learning purposes only
- challenge themselves and have fun learning

All Summer Learning policies can be accessed at: https://www.sd44.ca/school/summer/About/Pages/default.aspx#/=

Course Syllabus:

Unit	Essential Questions	Content	Curricular Competencies	Assessment Task
Kinematics	How can we predict the path of a projectile?	• Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world • Construct, analyze, and interpret graphs, models, and/or diagrams • Experience and interpret the local environment • Implement multiple strategies to solve problems in real-life, applied, and conceptual situations	• Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world • Construct, analyze, and interpret graphs, models, and/or diagrams • Experience and interpret the local environment	• Investigative analysis of an object in motion • Summative Test

			• Implement multiple strategies to solve problems in real-life,	
Dynamics	How can Newton's laws be used to explain changes in motion?	• Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Describe specific ways to improve their investigation methods and the quality of their data	• How Newton's laws describe changes in motion	• Demonstrating an understanding of Forces and Newton's Laws through a Friction Lab • Summative Test
Energy	If energy cannot be created or destroyed, where does it come from and where does it go?	• Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Consider social, ethical, and environmental implications of the findings from their own and others' investigations	• The different forms of energy • How to do calculations where energy is conserved • How to relate work, power, and efficiency to energy	• Project based assessment exploring Conservation of Energy • Summative Test
Circuits	What are the fundamental differences in series and parallel circuits? Can we break down a large, complex circuit into smaller, manageable parts?	• Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data • Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies • Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled	• How to apply Ohm's law and Kirchhoff's laws to a circuit	• Online circuit simulation used to demonstrate understanding of Kirchoff's Laws • Summative Test
Waves	Where do colours come from?	• Experience and interpret the local environment • Analyze cause-and-effect relationships	• How to calculate and describe the behaviour of light • Mechanical waves	• Investigative analysis of the bending of light waves

	How does music get from a speaker to our ears?	• Formulate physical or mental theoretical models to describe a phenomenon	transfer energy but not matter	

Grade Descriptors:

"A" quality evidence of learning….
Produce high-quality, frequently innovative work. Communicate scientific ideas to connect and synthesize concepts and skills learned over time. Consistently demonstrate sophisticated critical and creative thinking.
Collect, present, and (correctly) transform experimental data. Interpret, analyze and critique scientific findings and experimental data. Frequently transfers knowledge and skills and use concepts to solve non-routine problems.

"B" quality evidence of learning….
Sometimes produces high-quality, innovative work. Communicate scientific ideas to compare and critique concepts and skills learned over time. Consistently demonstrate a degree of critical and creative thinking. Collect and present scientific data in an appropriate manner. Assess, interpret, and revise scientific findings and experimental data. Transfer knowledge and skills and use concepts to consistently solve routine problems correctly with few mistakes.

"C" quality evidence of learning….
Produce work of an acceptable quality. Communicate a basic understanding of scientific concepts and operate superficially within a scientific contextual framework. Display an emergent level of application when it comes to critical thinking skills. Collect scientific data in an appropriate manner. Be inflexible in the use of knowledge and skills, requiring support even in familiar classroom situations. Make attempts to use knowledge, skills and scientific concepts to solve routine problems, with occasional mistakes.

Resources:

Resources
Microsoft Teams

We would like to thank the Coast Salish people, specifically the Skwxwú7mesh Nation and Tsleil-Waututh Nation, on whose unceded traditional territory the North Vancouver School District resides. We value the opportunity to learn, share and grow on this traditional territory.