Course: Science 10

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Course Description:

Science 10 introduces inheritance and its relationship to DNA structure and how genetic engineering affects society. Chemical processes and energy flow in systems are explored in the universe, climate, and chemical reactions. Relationships, patterns and connections are made between various perspectives in science such as physics, chemistry, genetics, and astronomy. Communicating about science in the form of visual (online) presentations and media will be heavily stressed throughout the course.

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/policies/Pages/default.

Course Syllabus:

Unit	Essential Questions	Content	Curricular Competencies	Assessment Task
Unit 1: Astronomy Big Idea: The formation of the universe can be explained by the big bang theory.	Why study the evolution of the universe? How did the Universe begin? How will it end?	Formation of the universe -Big Bang Theory -Components of the Universe over time Astronomical data and collection methods	Demonstrate a sustained intellectual curiosity about the Universe. Consider the changes in knowledge over time as tools and technologies have developed Use knowledge of scientific concepts to draw conclusions	Astronomy Inquiry Research Project: Students will inquire into topics of personal interest relating to Astronomy and the Universe. Learning evidence includes note-taking, quizzes, lab reports, model-building,

			that are consistent with evidence Express and reflect on a variety of experiences, perspectives, and worldviews through place	brainstorming, designing, and reflection.
Unit 2: Physics Big Idea: Energy is conserved, and its transformation can affect living things and the environment.	What energy choices can we make to combat climate change? Do the benefits of harnessing nuclear energy justify the global consequences of nuclear waste?	Law of conservation of energy Potential and Kinetic energy Transformation of energy Local and global impacts of energy transformations from technologies Nuclear energy and radiation	Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods and those of others Experience and interpret the local environment	Structured Inquiry into Global Energy Sources: Students will conduct an analysis of media and biases in communication of science, sustainability, and climate change. Learning evidence includes note-taking, quizzes, reading and analyzing articles, compilation of resources, and writing report drafts.
Unit 3: Chemistry Big Idea: Energy change is required as atoms rearrange in chemical processes.	What is the importance of balance in chemical reactions? How can we know how atoms interact if we cannot see them?	Rearrangements of atoms in chemical reactions Acid-base chemistry Law of conservation of mass Energy change during chemical reactions Practical applications and implications of chemical processes, including First People's Knowledge	Formulate multiple hypotheses and predict multiple outcomes Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative) Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions	Experimental Lab Design and analysis of a chemistry concept, implementing the skills learned in class. Learning evidence includes note-taking, quizzes, lab reports, model-building, brainstorming, designing, writing an Open Design Lab, and reporting conclusions.
Unit 4: Genetics Big Idea: DNA is the basis for the diversity of living things.	What makes you, you? Who should have the knowledge,	DNA Structure and Function Patterns of Inheritance	Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information	Guided Inquiry Project: Students will inquire into topics of personal interest relating to the applications of genetics in the real world

	control, and ownership of an organism's genetic make-up?	Mechanisms for Diversity Applied Genetics and Ethical Considerations	Consider social, ethical, and environmental implications of the findings from their own and others' investigations Consider the role of scientists in innovation Formulate physical or mental theoretical models to describe a phenomenon	AND/OR their family history. Learning evidence includes note-taking, quizzes, research, drafts, compilation of resources, design plan, collaboration with experts, and reflection.

Grade Descriptors:

"A" quality evidence of learning….
Consistently 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 produce 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
All notes and material will be provided online within the Class Notebook in MS Teams.
Textbook: BC Science 10 and BC Science 10 Connections

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.