

Course: Life Sciences 11

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Course Description:

Life Sciences 11 focuses on ecology and evolution, allowing students to investigate a diversity of different organisms. Through this inquiry and engagement in hands on activities, students will discover the interrelationships between members of the Archaea, Bacteria, and Eukarya domains. Refer to the New Curriculum on the MOE site <https://curriculum.gov.bc.ca/>

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: Cells Big Idea: Life is a result of interactions at the molecular and cellular level	What debates are ongoing with the terms “living” and “non-living”? What cellular processes allow organisms to live on land?	<ul style="list-style-type: none">• Levels of Organization• Cell structure and function• Sexual and asexual reproduction• Energy transformations in cells• Viruses	<ul style="list-style-type: none">• Questioning and Predicting• Planning and Conducting• Processing and Analyzing Data and Information• Evaluating• Applying and Innovating• Communicating	Learning evidence Includes note taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating physical and online media. Students will be able to make their own bacteria cultures and understand how

				those cultures respond to external factors.
<p>Unit 2: Evolution</p> <p>Big Idea: Evolution occurs at the population level</p>	<p>What is the role of DNA in evolution and biodiversity?</p> <p>What factors might influence speciation in your local environment?</p>	<ul style="list-style-type: none"> • First Peoples understandings of interrelationships between organisms • Microevolution • Macroevolution • Artificial selection and genetic modifications 	<ul style="list-style-type: none"> • Questioning and Predicting • Planning and Conducting • Processing and Analyzing Data and Information • Evaluating • Applying and Innovating • Communicating 	<p>Learning evidence Includes note taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating physical and online media. Students will understand the processes of microevolution and macroevolution and will consider the ethical implications of GMOs in an inquiry project.</p>
<p>Unit 3: Taxonomy and Classification</p> <p>Big Idea: Organisms are grouped based on common characteristics</p>	<p>How is DNA analysis used to demonstrate the relatedness of species?</p> <p>How convincing is morphology in providing evidence for relatedness?</p> <p>Why do two organisms compete to coexist in the same niche?</p>	<ul style="list-style-type: none"> • Single-celled and multi-celled organisms • Trends in complexity among various life forms • Evidence for phylogenetic relationships • Taxonomic principles for classifying organisms • Binomial nomenclature • First Peoples knowledge on classification • Similarities and differences between domains and kingdoms 	<ul style="list-style-type: none"> • Questioning and Predicting • Planning and Conducting • Processing and Analyzing Data and Information • Evaluating • Applying and Innovating • Communicating 	<p>Learning evidence includes note taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating physical and online media. Students will know how to dissect various organisms and be able to identify characteristics that make those organisms unique.</p>

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
All materials will be provided for students in class.
Students will need access to a computer and internet connection for research purposes.

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.