**Life Sciences 11 Course Outline**

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**Course Objectives:**

* *To build a culture of learning in that is* ***fun, positive, & collaborative*** *☺*

* *To* ***think critically & creatively****,* ***to ask questions and to make connections***

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* *To develop* ***an awareness & care*** *for biological systems & all life forms*

**What Will We Explore in Life Sciences 11?**

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| **Big Idea 1: Life is a Result of Molecular & Cellular Interactions** |
| * levels of organization from cells to ecosystems * cell structure and function, cell types & cell specializations * energy transformations in cells 🡪 photosynthesis & cellular respiration * sexual and asexual reproduction * DNA, genetic modifications & artificial selection * Viruses & bacteria |

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| **Big Idea 2: Evolution Occurs at the Population Level** |
| * microevolution:   + adaptation to changing environments      * + changes in DNA   + natural selection * macroevolution:   + speciation   + processes of macroevolution   + evidence for macroevolution * trends in complexity among various life forms & invertebrate biology |

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| **Big Idea 3: Organisms Are Grouped Based on Common Characteristics** |
| * similarities and differences between domains and kingdoms * taxonomic principles for classifying organisms * binomial nomenclature * evidence for phylogenetic relationships * First Peoples knowledge on classification * First Peoples understandings of interrelationships between organisms |

Questioning and predicting

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**Students will be able to demonstrate the following curricular competencies:**

* Demonstrate intellectual curiosity & develop questions about a scientific topic
* Make detailed observations
* Formulate multiple hypotheses and predict multiple outcomes

Planning and conducting

* Collaboratively & individually plan, select, and use appropriate investigation methods
* Assess risks and address ethical, cultural, and/or environmental issues
* Use appropriate SI units & equipment to accurately collect and record data

Processing and analyzing data and information

* Experience local environments & apply First Peoples perspectives as sources of info

[](http://www.google.ca/imgres?imgurl=http://www.imajlar.com/free_clipart/insect_clipart/insect_clipart_dragonfly.gif&imgrefurl=http://www.free-clipart-pictures.net/insect_clipart.html&usg=__kdFWOqSsbBExs11LMxiJY25mXYQ=&h=200&w=200&sz=8&hl=en&start=27&itbs=1&tbnid=wJxN2okGEr4X_M:&tbnh=104&tbnw=104&prev=/images%3Fq%3Dworm%255D%2Bclip%2Bart%26start%3D20%26hl%3Den%26safe%3Dactive%26sa%3DN%26gbv%3D2%26ndsp%3D20%26tbs%3Disch:1)

* Seek and analyze patterns, trends, connections in data, & relationships between variables
* Construct, analyze, and interpret graphs, models, and/or diagrams
* Use knowledge of scientific concepts to draw conclusions that are consistent with evidence
* Analyze cause-and-effect relationships

Evaluating

* Evaluate methods & experimental conditions, including identifying sources of error
* Describe specific ways to improve investigation methods and the quality of data
* Evaluate the validity and limitations of a model or analogy in relation to the phenomenon
* Demonstrate awareness of assumptions, evaluate the validity of claims, & identify bias
* Connect scientific explorations to careers in science

![A picture containing toy

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* Consider the changes in knowledge as new tools & technologies have developed
* Assess risks and consider social, ethical, and environmental implications of findings

Applying and innovating

* Cooperatively design projects with local/global connections & applications
* Use inquiry to investigate problems/topics & suggest solutions and applications
* Solve new problems in conceptual, applied and real-life situations

Communicating

* Clearly describe a concept using a physical/theoretical model or diagram

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* Use & describe scientific language appropriately to explain a concept or course of action
* Express & reflect on a variety of experiences, perspectives, and worldviews through **place**

**Classroom Expectations:** **Safety & Mutual Respect**

* **We are in this together. We CAN do hard things. Be kind to yourself & to others.**
* Do check Teams for what was covered in a class if you are away.
* Bring all your materials to class- textbook, binder, pen & pencil, your work
* Laboratory dissections involving preserved specimens are part of this course. *Students may opt out of such activities & complete an alternative assignment if needed*

**Work Ethic & Assessment:**

**Participating and doing your best to be prepared will help you do great! ☺**

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| **Good** | **Satisfactory** | **Needs Improvement** |
| * On time for class, with all materials * Actively involved in learning; asks Qs, participates respectfully, works well with all students & in groups, shows initiative * Completes all work to the best of ability * Uses class time wisely * Responsible use of equipment & clean up & technology | * Usually on time for class, with materials * Usually actively involved in class, participates respectfully, works w/others * Completes most work to the best of ability * Usually uses class time wisely * Sometimes needs reminders to use personal technologies responsibly | * Often late for class, missing materials / in excused absences * Needs support to become involved in class activities/participate/ to work with others * Work is incomplete, lacks effort or copied * Struggles to use class time wisely * Personal technologies interfere with learning |

* **All Life Science 11 marks will be entered cumulatively. And, Tests/Quizzes and Assignments/Labs will be weighted equally throughout the year.**
* **The proficiency scale will be used to reflect and report on your progress**.

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| **Emerging** | | | **Developing** | | | | **Proficient** | | | | **Extending** | | |
| *Does not yet demonstrate a basic understanding of concept. Struggles to use key vocabulary or ideas accurately. Substantial errors or gaps throughout work. More practice is required.* | | | *Basic understanding of concepts shown. Can show meaning of some key ideas & vocab. Errors / inconsistency show some missing elements. Inconsistent ability to identify & explain connections. More practice is recommended.* | | | | *Solid understanding of concepts shown. Can apply & use examples for key vocab. Few errors. Connections can be made & explained with some solid details.* | | | | *Sophisticated understanding & mastery shown. Strong application of terms, images & examples with strong details. Strong connections identified and explained with strong reasoning/evidence.* | | |
| I | C- | | C | | C+ | | B | | A | | A+ | | |
| 30% | 50% | 55% | 60% | 65% | | 70 | 75 | 80 | | 86 | 92 | 96 | 100 |

**If you have questions please ask! I look forward to an exciting year ahead!**

Email: vanessa.norris@burnabschools.ca or Website: http://sd41blogs.ca/norrisv/

Twitter: @adventuresinbio

**Helpful Links & References For Your Learning!**

**\*\*Check Teams for class specific materials!\*\***

* Ms Norris’ Website “The Learning Lounge”- <https://sd41blogs.ca/norrisv/>
* Ms Norris’ Email address: [vanessa.norris@burnabyschools.ca](mailto:vanessa.norris@burnabyschools.ca)
* Crash Course Biology on YouTube- <https://www.youtube.com/watch?v=HVT3Y3_gHGg&list=PL3EED4C1D684D3ADF&index=2>
* The Ameoba Sisters on YouTube- <https://www.youtube.com/user/AmoebaSisters>
* Khan Academy Biology on YouTube- <https://www.youtube.com/results?search_query=khan+academy+biology>

Textbook: Miller-Levine Biology or Campbell 7h edition

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| **Topic** | **Miller-Levine** | **Campbell** | **Brief Description** |
| Nature of Biology  Cells | Chap 1  Chap 3 | 1-8 | Microscopy, Characteristics of  Living Things & Cells |
| DNA | Chap 7 |  | The structure of DNA & Replication |
| Classification | Chap 15 |  | Classification Systems & Kingdoms |
| Adaptation & Evolution | Chap. 13, 14 | 16-25 | Evidence of Change and How Change Occurs |
| Microbiology | Chap. 17 | 27-28 | Viruses and Bacteria  Structure, Life Cycles, Diseases |
| Protists & Fungi | Chap 18,19 |  | Protist evolution, animal-like & plant-like |
| Plant Biology | Chap 20-25 | 29-30 | Algae, Mosses, Ferns & Vascular Plants |
| Invertebrate Biology | Chap 26-29 | 32-34 | Invertebrates  Structures, functions, ecological roles |
| Ecology | Chap 47-48 | 50-55 | Biosphere, populations & communities |