Science 8 Course Outline

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BIG IDEAS *Students are expected **to understand** the following*:

Life processes are performed at the cellular level.	The behaviour of matter can be explained by the kinetic molecular theory and atomic theory.	Energy can be transferred as both a particle and a wave.	The theory of plate tectonics is the unifying theory that explains Earth's geological processes.

Curricular Competencies *Students are expected to be able **to do** the following*:

Questioning and predicting

1. Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest
2. Make observations aimed at identifying their own questions about the natural world
3. Identify a question to answer or a problem to solve through scientific inquiry
4. Formulate alternative "If…then…" hypotheses based on their questions
5. Make predictions about the findings of their inquiry

Planning and conducting

6. Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified
7. Measure and control variables (dependent and independent) through fair tests
8. Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision
9. Use appropriate SI units and perform simple unit conversions
10. Ensure that safety and ethical guidelines are followed in their investigations

Processing and analyzing data and information

11. Experience and interpret the local environment
12. Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information
13. Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate
14. Seek patterns and connections in data from their own investigations and secondary sources
15. Use scientific understandings to identify relationships and draw conclusions

Evaluating

16. Reflect on their investigation methods, including the adequacy of controls on variables (dependent and independent) and the quality of the data collected
17. Identify possible sources of error and suggest improvements to their investigation methods
18. Demonstrate an awareness of assumptions and bias in their own work and secondary sources
19. Demonstrate an understanding and appreciation of evidence (qualitative and quantitative)
20. Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources
21. Consider social, ethical, and environmental implications of the findings from their own and others' investigations

Applying and innovating

22. Contribute to care for self, others, community, and world through personal or collaborative approaches
23. Co-operatively design projects
24. Transfer and apply learning to new situations
25. Generate and introduce new or refined ideas when problem solving

Communicating

26. Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate
27. Express and reflect on a variety of experiences and perspectives of **place**

Content: *Students are expected **to know** the following*:

1. characteristics of life 2. cell theory and types of cells 3. photosynthesis and cellular respiration 4. the relationship of micro-organisms with living things: • basic functions of the immune system • vaccination and antibiotics • impacts of epidemics and pandemics on human populations 5. kinetic molecular theory (KMT) 6. atomic theory and models 7. protons, neutrons, and quarks 8. electrons and leptons	9. types and effects of electromagnetic radiation 10. light: • properties • behaviours • ways of sensing 11. plate tectonic movement 12. major geological events of local significance 13. First Peoples knowledge of: • local geological formations • significant local geological events 14. layers of Earth

Core Competencies: Students will be accessing the Core Competencies in all their curricular areas. They may be self-assessing the Core Competencies on their Ongoing Communications. Summative reports at the end of the course will report that the student has engaged in this self-assessment.

COMMUNICATION	THINKING	PERSONAL AND SOCIAL RESPONSIBLITY
The communication competency encompasses the set of abilities that a student uses to impart and exchange information, experience and ideas, to explore the world around them, to understand and effectively engage in the use of digital media.	The thinking competency encompasses the knowledge, skills and processes we associate with intellectual development and is demonstrated through: • creative thinking • critical thinking	The personal and social responsibly competency includes • positive personal and cultural identity • personal awareness and responsibility • social responsibility

Reporting Procedure:

- There will be a minimum of 2 Ongoing Communications of Student Learning per semester
- At mid-course, there will be a Progress Report (January)
- There will be a formal, Summative Report at the end of the course (June)

Assessment:

- The following strength-based Provincial proficiency scale will used to describe student progress in relation to **grade-level expectations.** If students are not able to demonstrate their understanding within grade-level expectations then the scale will be intentionally left blank.

Emerging in the acquisition of knowledge, skills, strategies and processes.	**Developing** the ability to apply knowledge, skills, strategies and processes.	**Proficient** in the consistent application of knowledge, skills, strategies and processes.	**Extending** knowledge, skills, strategies and processes creatively and strategically
The student demonstrates an initial understanding of the concepts and competencies.	The student demonstrates a partial understanding of the concepts and competencies.	The student demonstrates a complete understanding of the concepts and competencies.	The student demonstrates a sophisticated understanding of the concepts and competencies.

Support:

Counseling: Crystal Lynn A-Ge Kate Gustafson Gi - Pa Shannon McRae Pe - Z

Academic: Aboriginal Support: Ms. N Wedholm (C120)