

There are some curricular competencies that students will be expected to achieve in order to earn a passing grade for Science 10  
(Curricular Competencies listed here are explained below)

- \*Questioning and predicting
- \*Planning and conducting
- \*Applying and innovating

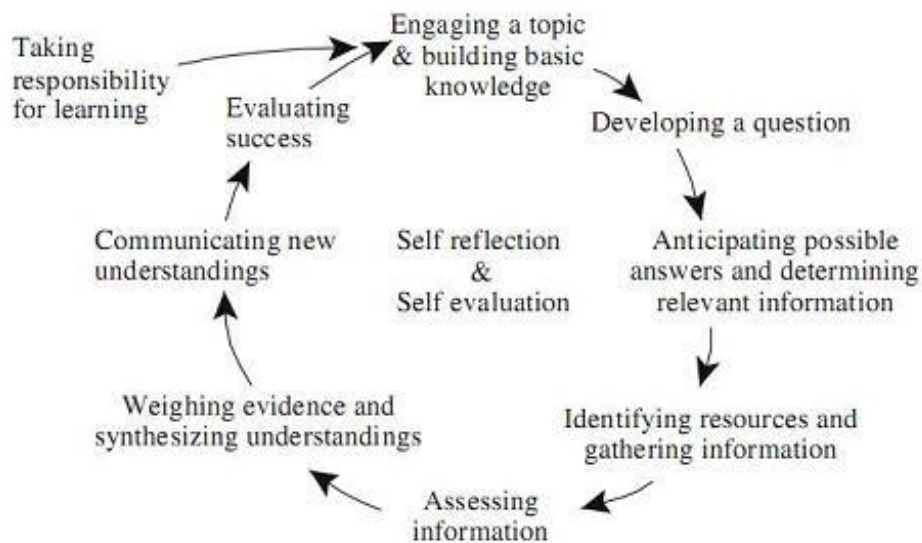
- \*Processing and analyzing data and information
- \*Evaluating
- \*Communicating

There are four Core Concepts for this course. (Core Concepts listed here are explained below)

- 1) Genes are the foundation for the diversity of living things (2 weeks)
- 2) Chemical processes require energy change as atoms are rearranged (3 weeks)
- 3) Energy is conserved and its transformation can affect living things, environment (2 weeks)
- 4) The formation of the universe can be explained by the big bang theory. (1 week)

### This is an Inquiry Based Learning Course

Inquiry Based Learning (IBL) starts with you, the student, taking responsibility for what you learn starting with a question, gathering and analyzing resources and then communicating newly formulated arguments. Below is a diagrammatic outline of the IBL process.



### Grading Criteria

Inquiry Based Activities	10%	Dates to be determined
Vocabulary Quizzes	40%	Scheduled <u>Every Friday at 9:05 am</u>
Problem Solving Assessment	40%	Dates to be determined (usually on Mondays)
Final Problem Solving Assessment	10%	Scheduled <u>November 12<sup>th</sup> at 9:00am</u>

## Key to Succeeding in this Course

- \*Daily Vocabulary Review
- \*Don't wait till the last minute to study
- \*Take note of the examples I use in class
- \*Tie together concepts between the units studied

## Attendance Policy

- \*Understand that some Inquiry Based Activities cannot be "made-up" (**ie:Plan Ahead**)
- \*It is your responsibility to find out what notes, handouts or assignments you have missed.
- \*I will not "chase you" to hand in any assignments or projects.
- \*If you are absent the day of a Vocabulary Quiz there are no make-up quizzes. Your next quiz will be worth double as long as your parents/guardian called in to record your absence with the school secretary **on the day of your absence**. You must be present for the next quiz for this to take effect. **I will only do this for the first two quizzes missed**
- \*If you are absent the day an Inquiry Based Project is due I will only accept the project the very 1<sup>st</sup> day you return if your parents/guardian called in to record your absence with the school secretary **on the day of your absence**.
- \*If you are absent the day of a problem solving assessment and your parents or guardian have called in to report your absence **the day of your absence**, your scheduled make-up exam is November 13, 2020 at 9:00am in room C223.  
(There is no make-up for the final)

## Core Content Explained

### **Genes are the foundation for the diversity of living things- (2 weeks)**

- DNA structure and function
- genes and chromosomes
- simple patterns of inheritance
- mechanisms for the diversity of life
  - mutation and its impact on evolution
  - natural and artificial selection
- applications of genetics and ethical considerations

### **Chemical processes require energy change as atoms are rearranged- (3 weeks)**

- re-arrangement 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 (First People's perspective)

## **Energy is conserved and its transformation can affect living things and the environment-**

- law of conservation of energy (2 weeks)
- transformation of potential and kinetic energy
- local and global impacts of energy transformations from technologies
- First People's perspectives on energy
- nuclear energy and radiation
  - fission vs fusion
  - technologies, applications and implications

## **The formation of the universe can be explained by the big bang theory-**

- big bang theory (not the television show) (1 week)
- components of the universe over time
- astronomical data and collection methods

## **Curricular Competencies Explained**

### **Questioning and predicting**

- Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest
- Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world
- Formulate multiple hypotheses and predict multiple outcomes

### **Planning and conducting**

- Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative)
- Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods
- Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data
- Apply the concepts of accuracy and precision to experimental procedures and data:
  - significant figures
  - uncertainty
  - scientific notation

### **Processing and analyzing data and information**

- Experience and interpret the local environment
- Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information
- Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies
- 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 their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions
- Describe specific ways to improve their investigation methods and the quality of the data
- Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled
- Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources
- Consider the changes in knowledge over time as tools and technologies have developed
- Connect scientific explorations to careers in science
- Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in primary and secondary sources
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations
- Critically analyze the validity of information in primary and secondary sources and evaluate the approaches used to solve problems
- Assess risks in the context of personal safety and social responsibility

## **Applying and innovating**

- Contribute to care for self, others, community, and world through individual or collaborative approaches
- Co-operatively design projects with local and/or global connections and applications
- Contribute to finding solutions to problems at a local and/or global level through inquiry
- Implement multiple strategies to solve problems in real-life, applied, and conceptual situations
- Consider the role of scientists in innovation

## **Communicating**

- Formulate physical or mental theoretical models to describe a phenomenon
- Communicate scientific ideas, information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations
- Express and reflect on a variety of experiences, perspectives, and worldviews through place