

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)

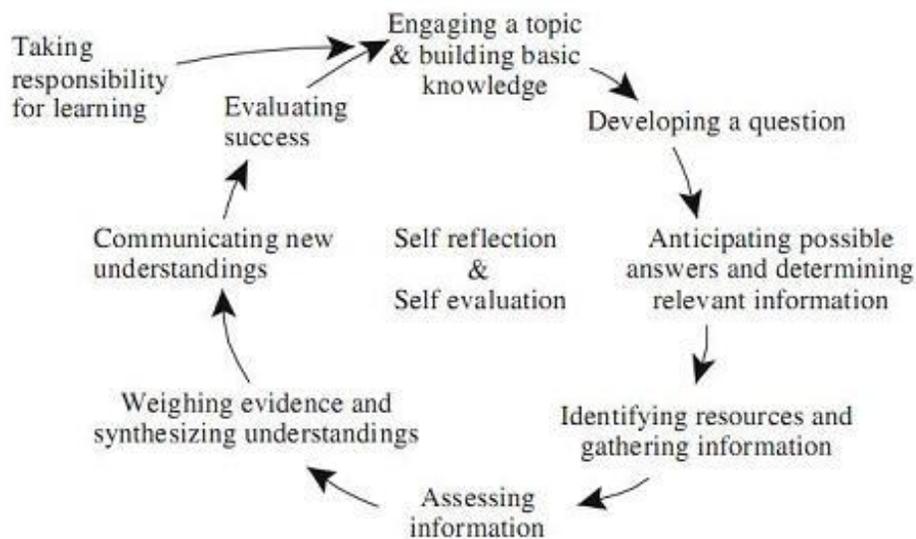
- *Questioning and predicting
- *Planning and conducting
- *Applying and innovating
- *Processing and analyzing data and information
- *Evaluating
- *Communicating

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) Chemical processes require energy change as atoms are rearranged
- 3) Energy is conserved and its transformation can affect living things and the environment
- 4) The formation of the universe can be explained by the big bang theory.

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%
Vocabulary Quizzes	40%
Problem Solving Assessment	40%
Final Problem Solving Assessment	10%

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 1st 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 is at 12:00pm January 23rd 2019 in room C223. No admittance after 12pm. There is no make-up for the final.

Core Content Explained

Genes are the foundation for the diversity of living things-

- 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-

- 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
- 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)
- 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