

Course: Science 10

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Course Description:

Science 10 introduces inheritance and its relationship to DNA structure and how genetic engineering affects society. Chemical process and energy flow in systems is explored in the universe, climate, and chemical reactions. Relationships, patterns and connections are made between various perspectives in science such as climate studies, chemistry, genetics, and astronomy. Communicating about science in the form of visual presentations will be heavily stressed throughout the course.

Inquiry Questions:

- How would you design a machine to test variables of an object in motion?
- How would you design an emergency response plan for a chemical spill in your area?
- How would you determine whether characteristics are genetically inherited?
- How would you investigate the age of the universe?

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 participate 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:

Curricular Competencies	<p>What the students will do:</p> <ul style="list-style-type: none"> • questioning and predicting • planning and conducting • processing and analyzing data and information • evaluating • applying and innovating • communicating
Summative Assessments	<p>What the students will understand:</p> <ul style="list-style-type: none"> • DNA is the basis for the diversity of living things • Energy change is required as atoms rearrange in chemical processes • Energy is conserved and its transformation can affect living things and the environment • The formation of the universe can be explained by the big bang theory
Content	<p>What the students will know:</p> <ul style="list-style-type: none"> • law of conservation of energy • potential and kinetic energy • transformation of energy • local and global impacts of energy transformations from technologies • nuclear energy and radiation • rearrangement 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, including First Peoples knowledge • DNA structure and function • patterns of inheritance • mechanisms for the diversity of life: <ul style="list-style-type: none"> ○ mutation and its impact on evolution ○ natural selection and artificial selection • applied genetics and ethical considerations • formation of the universe: <ul style="list-style-type: none"> ○ big bang theory ○ components of the universe over time • astronomical data and collection methods

Grade Boundaries:

An “A” student will/can....

Consistently 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.

A “B” student will /can ...

Sometimes produce 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.

A “C” student will /can ...

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.

Celebration of Learning:

The 2019 Celebration of Learning is shaped around “connections”. Students will be exploring key words related to their learning and will reflect on their chosen word(s) in a meaningful way. The ideas derived from the exploration of their current Summer Learning experience and previous science courses will form the foundation of a collaborative event between classes which portrays the “connections” the students have identified in their own learning.

Key Words:

- Perspective
- Equality
- Structure
- Innovation
- Justice
- Balance
- Identity
- Development
- Growth

Resources:

BC Science Connections 10 Textbook
BC Science Connections 10 Workbook