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 processes and energy flow in systems are explored in the universe, climate, and chemical reactions. Relationships, patterns and connections are made between various perspectives in science such as physics, chemistry, genetics, and astronomy. Communicating about science in the form of visual (online) presentations and media will be heavily stressed throughout the course.

Inquiry Questions:

- How do energy transformations affect the environment?
- How are the changes in pH chemistry due to human activity affecting the environment?
- Who should have the knowledge, control, or ownership of an organism's genetic makeup? Should we be able to use genetic engineering to modify organisms?
- How has the structure of the Universe changed since the Big Bang?

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:

Conceptual Understandings	Curricular Competencies	Content	Performance Task or Assessment
Unit 1: DNA Big Idea: DNA is the basis for the diversity of living things.	• questioning and predicting • planning and conducting • processing and analyzing data and information • evaluating • applying and innovating • communicating	• DNA Structure and Function • Patterns of Inheritance • Mechanisms for Diversity • Applied Genetics and Ethical Considerations	Learning evidence includes note-taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating online media.
Unit 2: Chemistry Big Idea: Energy change is required as atoms rearrange in chemical processes.	• questioning and predicting • planning and conducting • processing and analyzing data and information • evaluating • applying and innovating • communicating	• Rearrangements 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 People's Knowledge	Learning evidence includes note-taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating online media.
Unit 3: Physics Big Idea: Energy is conserved, and its transformation can affect living things and the environment.	• questioning and predicting • planning and conducting • processing and analyzing data and information • evaluating • applying and innovating • communicating	• 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	Learning evidence includes note-taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating online media.
Unit 4: Astronomy Big Idea: The formation of the universe can be explained by the big bang theory.	• questioning and predicting • planning and conducting • processing and analyzing data and information • evaluating • applying and innovating • communicating	• Formation of the universe • Astronomical data and collection methods	Learning evidence includes note-taking, quizzes, reading and analyzing articles, compilation of resources, writing report drafts, and creating online media.

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.

Resources:

Resources
All notes and materials will be provided online.