Science 10 Course Outline

# Block 2. Ms. Redding, Room 213

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My goal is to create a safe, engaging environment where students can take risks, grow and develop the necessary confidence to overcome obstacles and challenges. These expectations and routines are in place in order to help every student in the classroom succeed in this course. If I am concerned about your success in any way, I may contact your parents/guardians and/or the administration for further support.

**Classroom Expectations and Routines**

Absences: You are expected to take an active part in your schooling. For this reason, you are responsible for finding out about missed assignments as well as what went on in class while you were absent. You will absolutely not be hunted down over missed work! This includes information about exams and quizzes. The excuse “I wasn’t here so I didn’t know”, has no validity in this classroom. Finally, class time will not be used to catch you up in any way.

Eating/drinking: Any food or drink brought to class must not be disruptive and must be cleaned up after. Abuse of this guideline will result in the privilege being taken away. No food or drink is allowed during labs.

Late for class: Please be on time as it is disruptive for the class if you are late. If you are late please enter the classroom quietly.

Leaving class: Please ask me for permission should you need to leave class. To further avoid disruption, I ask that only one student be out at a time, so please be considerate of others and keep your breaks short. Abusing a break (ex. wandering the halls/hanging out) will result in the loss of this privilege. If you need to leave class early for other commitments please let me know ahead of time.

Cell phones: Please no cell phone use during class. Phones should be turned off and kept out of sight at all times.

Laptops/iPods/MP3 players: These devices are permitted only during seat work (not during lesson time). Electronic devices of any type are prohibited in any examination (including quizzes).

Be respectful to everyone in the classroom: That includes listening while others are speaking, respecting other’s property and use of appropriate language (ex. no swearing).

**Unit A: Energy and Matter in Chemical Change (25%)** (Nature of Science Emphasis)

**Overview**: Chemical changes involve energy and transformations of matter. A knowledge of the underlying structure of matter and the basic chemical species is important in understanding chemical changes. As students explore the properties of molecular and ionic compounds, including acids and bases, they begin to appreciate the need for a classification scheme and a system of nomenclature. Students classify, name compounds and write balanced chemical equations to represent chemical changes. As well, students are introduced to the law of conservation of mass and the mole concept.

**Unit B: Energy Flow in Technological Systems (25%)** (Science and Technology Emphasis) **Overview**: The first and second laws (conservation and conversion) of thermodynamics have been useful in the development of modern and efficient energy conversion devices. Students investigating mechanical energy conversions and transfers in systems will recognize that while energy is conserved, useful energy diminishes with each conversion. Students learn that energy can be observed only when it is being transferred, and that mechanical energy can be quantified. Energy conservation and conversion concepts are applied by students to explain energy conversions in natural and technological systems, and to investigate the design and function of energy conversion technologies.

**Unit C: Cycling of Matter in Living Systems (25%)** (Nature of Science Emphasis)

**Overview**: The fundamental unit of life, the cell, is an example of an efficient open system comprised of a cell membrane and organelles that carry out the basic functions of all living organisms. Students will learn that technological advancements in microscopy have enhanced the study of cells and cellular processes. The understanding of life processes at the cellular level can also be applied to multicellular organisms.

**Unit D: Energy Flow in Global Systems (25%)** (Social and Environmental Contexts Emphasis)

**Overview**: Solar energy sustains life and drives the global climate systems on Earth. Without solar energy there would be no heat or precipitation and, therefore, no life on Earth. Students will gain an understanding that the absorption and transfer of thermal energy at and near Earth’s surface results in a variety of climate zones with characteristic weather patterns and biomes. Climatic factors largely determine the flora and fauna found in each of the world’s major biomes. The United Nations Intergovernmental Panel on Climate Change has stated that the balance of evidence suggests a human influence on global climate. Scientists from various fields are studying this relationship to determine the potential impact on biomes.

**Evaluation/Assessment:**

The course is composed of 4 units. There will be daily formative course work and it is essential that this work is completed to ensure success on summative work.

Students will be evaluated on their summative course work – tests, quizzes, lab reports and Unit Exams.

Science 10 consists of four units of study:

1. Chemistry – 25% of course work
2. Physics – 25% of course work
3. Biology – 25% of course work
4. Climate ­– 25% of course work

Within each unit, 60% of the student’s grade comes from quizzes and assignments; the remaining 40% will come from Unit exams and tests.