



Biology 20 Course Outline

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Google Classroom Code: xzgsbe6

Welcome to Biology 20! The major science themes developed in this course are diversity, energy, equilibrium, matter and systems. These major concepts allow connections to be drawn among the four units of this course and the following course in Biology 30, a Diploma Examination course at the grade 12 level. It is a challenging, but richly rewarding course for students interested in the Biological sciences. There will be four major units of study involving: Energy & Matter Exchange in The Biosphere; Ecosystems & Population Change; Photosynthesis & Cellular Respiration; and Human Systems. Students will be expected, and should be capable of, a higher level of performance and autonomy than in Science 10.

Let's Talk About Assessment

Formative Assessment: Formative assessment is also known as assessment *for* learning. Essentially, this is *feedback* that helps both students and teachers diagnose how learning is progressing and what interventions may be needed to improve student learning. It helps students focus their priorities on areas of concern and it informs the teacher as to whether or not changes may be needed in planning lessons and activities.

Summative Assessment: Summative assessment is also known as assessment *of* learning. This type of assessment is done after the learning is over. It is essentially an *autopsy*. It informs students, parents, teachers and Alberta Education how well the learning went. It is past tense. This is where the bulk of your grade, the two digits that are submitted to Alberta Education at the end of the course, comes from.

While you are learning new material, your assessments will be formative. For example, quizzes have been designed to inform you of your progress and are given no actual weight in the marking scheme. We will use quizzes to form a diagnosis of your learning. Daily work that includes research questions, lab reports and projects are weighted against the unit exams in a 1/3 to 2/3 ratio. Make no mistake; you must be able to perform on your summative evaluation items, especially the unit exams, if you are to be successful in this course.

Long Range Plan

The basic learning resource of this course is the text, *Biology*, by Nelson Ltd. Other material will be developed or provided to enhance the course.

Unit A: Soon to Mars – combines the biosphere, photosynthesis & cellular respiration

(27 days)

Oct. 27 – Dec. 12

Energy & Matter Exchange in the Biosphere

General Outcome 1: *Students will explain the constant flow of energy through the biosphere and ecosystems.*

Most of the energy in the biosphere comes from the sun. Where does it all go? How is energy stored within the biosphere? What eventually happens to all the energy in the biosphere?

Nelson 2 – Energy Flow in the Biosphere

General Outcome 2: *Students will explain the cycling of matter through the biosphere.*

Energy flows and matter cycles in the biosphere. What different types of essential matter are recycled? How are they recycled?

Nelson 3 – The Cycling of Matter in the Biosphere

General Outcome 3: *Students will* explain the balance of energy and matter exchange in the biosphere, as an open system, and how this maintains equilibrium.

Have humans had an impact on our atmosphere? What is the Greenhouse Effect? What is ozone depletion? What impact has this had on ecosystems?

Nelson 1 – The Biosphere as a Closed System

Photosynthesis & Cellular Respiration

General Outcome 1: *Students will* relate photosynthesis to storage of energy in organic compounds.

We know we need plants to carry out photosynthesis; how do they do it? What are the inputs and outputs of photosynthesis? What steps are required to accomplish photosynthesis?

Nelson 6 – Photosynthesis

General Outcome 2: *Students will* explain the role of cellular respiration in releasing energy from organic compounds.

Humans use cellular respiration to release energy from the food we eat. How is this accomplished? What are the inputs and outputs of respiration? What steps are required to accomplish respiration?

Nelson 7 – Cellular Respiration

Unit B: Join the Pack - Ecosystems & Population Change (16 days) Dec. 13 – Jan. 17

General Outcome 1: *Students will* explain that the biosphere is composed of ecosystems, each with distinctive biotic and abiotic characteristics.

Who eats who in an ecosystem? What are trophic levels? What are pyramids of numbers, biomass and energy in an ecosystem?

Nelson 4 – Characteristics of Ecosystems

General Outcome 2: *Students will* explain the mechanisms involved in the change of populations over time.

There is a great deal of variation within populations. Why? How does the inheritance of characteristics help a population adapt to its environment? What happens to a population's characteristic over time?

Nelson 5 – Evolution

Unit C: Chemistry of Life -Macromolecules & Enzymes (7 days) Sept. 1– Sept. 12

General Outcome 1: *Students will* explain how the human digestive and respiratory systems exchange energy and matter with the environment.

How do we digest the food we eat? What are the chemical and physical processes involved? Which organs provide these processes?

Nelson 8 – Nutrients & Enzymes

Unit D: Dr. Diagnosis - Human Systems (24 days) Sept. 13 – Oct. 26

General Outcome 1: *Students will* explain how the human digestive and respiratory systems exchange energy and matter with the environment.

How do we digest the food we eat? What are the chemical and physical processes involved? Which organs provide these processes?

Nelson 8 – Nutrients, Enzymes, and the Digestive System

Nelson 9 – Respiratory System and Motor System

General Outcome 2: *Students will* explain the role of the circulatory and defense systems in maintaining an internal equilibrium.

How does the circulatory system assist the digestive, excretory and respiratory systems in their exchange of energy and matter with the environment? What is blood made of? How do we fight infection?

Nelson 10 – Circulatory System

Nelson 11 – Blood and the Immune System

General Outcome 3: *Students will* explain the role of the excretory system in maintaining an internal equilibrium in humans through the exchange of energy and matter with the environment.

How does our body maintain a balanced environment for all of our cells to function? How do our kidneys work to help maintain this balance?

Nelson 12 – Excretory System

General Outcome 4: *Students will* explain the role of the motor system in the function of other body systems.

Nelson 9 – Respiratory System and Motor System

Course Review: TBA – time permitting

Final Exam: Somewhere during January 23-27th?

School Awarded Mark

The school awarded mark will be based out of a possible 100%. A detailed outline of grades is provided below. Students will write a **final exam worth 20% of the final grade.**

Assessment and Evaluation

This Biology 20 course will have the following areas of evaluation:

Units of Study 80%

Unit A: Soon to Mars 30 (24/80)

Quizzes (formative)	-
Labs & Daily Assign (form/sum)	2
Research Project (summative)	8
Unit A Exam (summative)	20

Unit B: Join the Pack 30 (24/80)

Quizzes (formative)	-
Labs & Daily Assign (form/sum)	2
Research Project (summative)	8
Unit B Exam (summative)	20

Unit C: Chemistry of Life 10 (8/80)

Quizzes (formative)	-
Labs & Daily Assign (form/sum)	1
Research Project (summative)	3
Unit C Exam (summative)	6

Unit D: Human Systems 30 (24/80)

Quizzes (formative)	-
Labs & Daily Assign (form/sum)	2
Research Project (summative)	8
Unit D Exam (summative)	20

Final In-Class Exam 20%

VERY IMPORTANT: If your child has a failing grade or is not meeting their own, or your personal expectations, **they cannot simply “do some extra work sheets” and pass.** The assessment plan in place is not based on effort, attendance, or attitude. Student grades are based on demonstrated knowledge and understanding of the curriculum. With this stated, they must demonstrate their knowledge in a reasonable time period. If a student misses a major assessment they will be **expected to provide a note** from a parent. If a student is absent for a second major assessment, a doctor’s note will be expected. All assessments are still required to be completed. **Due dates for assignments will be made clear. If a student misses the deadline, they will be reminded, and it will be due no later than one week after the due date, unless the teacher agrees otherwise. If an assignment still has not been received, a grade of 0% will be assigned.** However, if students wish to redo an assessment, or do it for the first time, to demonstrate they have, or have increased their knowledge and understanding, they must meet with the teacher to discuss a plan, including what they have done to prepare for the assessment. These reminders and deadlines will be discussed after **each unit of study.**

Extensions:

If you need an extension on an assignment, you must submit a formal email request a **minimum of 2 days** prior to the original due date. Your email should briefly explain why you need an extension. If you are not understanding the assignment, ideally you should have had a discussion with me so that I can help, or plan. **Not all extension requests will be granted.**

CLASSROOM EXPECTATIONS:

- You are expected to be in class on time and prepared.
- Excessive absences and/or lates will not be tolerated. See school policy for more details. We will go through this policy on the first day.
- If you are going to be absent for a test or quiz, please let me know in advance so that an alternative time can be agreed upon. If you have not let me know in advance, you will be expected to write the quiz or test on the day you return.
- Most assignments will be posted in the Google Classroom.
- When students miss a class, they should make use of P2S to get missed handouts from me, copy notes from a classmate, or ask me questions about a missed lesson. Most assignments will be posted in the Google Classroom.
- Be an active participant in class! Ask questions if you are having difficulty understanding a concept. I am available during P2S or after school by appointment if you need extra help.

CLASSROOM CELL PHONE POLICY

The use of cell phones in a Classroom setting is a distraction and disrespectful. Cell phones will **NOT** be allowed in my classroom.

That means phones should ideally be left in your locker/vehicle. Your backpack, pocket or the “classroom phone hotel” may be suitable alternatives so long as the device stays there.

Parents, please help your child with this by not texting your child (or accepting texts from them) during class time. If you are unsure of bell times, they are available on the school website. As noted above, when you need to take your child from school for emergencies or appointments, the school is legally required to know for the safety of all. Having the office contact students helps limit and streamline interruptions in the classroom.

COMMUNICATION

Finally, please do not hesitate to contact me throughout the semester with any questions or concerns. School email is my preferred form of communication.

If, as a parent/guardian you do not look at your email regularly, please contact me at the school so we can discuss what form of communication will support you and your child best.

Due to the large number of students I teach, I cannot call every time a student misses an assignment. If a student consistently is not completing work, I will contact home to discuss the issue. Please provide your contact information below. I prefer to communicate via e-mail.

Homework is *not* given every night. When there is homework, it should never be more than 30 minutes in one night if the student is working in class. If students have legitimate obstacles meeting deadlines, I will accommodate them.

Parents

I cannot emphasise enough the *importance of your support and involvement* in your child's education. I strongly suggest that parents join the google classroom to have access to weekly updates for assignment/quiz/test due dates. **If you do not have internet access or a cell phone, please check the box below.**

Teacher email lamontn@lrsd.ab.ca (preferred method of contact)

Student Name: _____ Parent/Guardian Name(s) _____

Email: _____ (please indicate if last name is different)

Home Phone: _____

Parental Signature: _____

Please check one of the following:

- ___ I have access to the internet/text messaging and will check my child's attendance and progress. (Note: I will still print regular reports)
- ___ I have *no* access to the internet/text messaging and require printed reports.
- ___ I do not wish to be contacted.