

# **Mayerthorpe Jr/Sr High School Course Outline**

## **Science 10 2023- 24**

**Instructors: Jason Bidniak**  
**Rooms: 124**  
**Telephone: 780 786 2624**  
**E-mail: [jason.bidniak@ngps.ca](mailto:jason.bidniak@ngps.ca)**

### **COURSE DESCRIPTION**

The secondary science program is guided by the vision that all students have the opportunity to develop scientific literacy. The goal of scientific literacy is to develop the science-related knowledge, skills and attitudes that students need to solve problems and make decisions, and at the same time help them become lifelong learners—maintaining their sense of wonder about the world around them.

Education in Alberta aims to honour cultural diversity and promote intercultural understanding. Students are able to build on foundational knowledge about First Nations, Metis and Inuit peoples. The program of studies provides opportunities for students to develop a knowledge and understanding of, and respect for, the histories, cultures, languages, contributions, perspectives, experiences and contemporary contexts of First Nations, Metis and Inuit.

### **COURSE CURRICULUM OUTCOMES**

Upon completion of this course, participants will have/will be able to:

1. critical sense of wonder and curiosity about scientific and technological endeavors
2. to use science and technology to acquire new knowledge and solve problems, so that they may improve the quality of their own lives and the lives of others
3. critically address science related societal, economic, ethical and environmental issues
4. a foundation in science that creates opportunities for them to pursue progressively higher levels of study, prepares them for science-related occupations, and engages them in science-related hobbies appropriate to their interests and abilities
5. enable students, of varying aptitudes and interests, to develop a knowledge of the wide spectrum of careers related

## COURSE TOPICS/UNITS

### Timeline

|           |  |   |
|-----------|--|---|
| <b>1.</b> | <b>Energy and Matter in Chemical Change</b> <ul style="list-style-type: none"><li>● Describe the basic particles that make up the underlying structure of matter, and investigate related technologies.</li><li>● Explain, using the periodic table, how elements combine to form compounds, and follow IUPAC guidelines for naming ionic compounds and simple molecular compounds.</li><li>● Identify and classify chemical changes, and write word and balanced chemical equations for significant chemical reactions, as applications of Lavoisier's law of conservation of mass.</li></ul> | <b>5 weeks</b> <ul style="list-style-type: none"><li>● unit exam</li><li>● topic quizzes</li><li>● projects/labs</li><li>● other formative assessment as required</li></ul> |
| <b>2.</b> | <b>Energy Flow in Technological Systems</b> <ul style="list-style-type: none"><li>● Analyze and illustrate how technologies based on thermodynamic principles were developed before the laws of thermodynamics were formulated.</li><li>● Explain and apply concepts used in theoretical and practical measures of energy in mechanical systems.</li><li>● Apply the principles of energy conservation and thermodynamics to investigate, describe and predict efficiency of energy transformation in technological systems.</li></ul>   | <b>5 weeks</b> <ul style="list-style-type: none"><li>● unit exam</li><li>● topic quizzes</li><li>● projects/labs</li><li>● other formative assessment as required</li></ul> |
| <b>3.</b> | <b>Cycling of Matter in Living Systems</b> <ul style="list-style-type: none"><li>● Explain the relationship between developments in imaging technology and the current understanding of the cell.</li><li>● Describe the function of cell organelles and structures in a cell, in terms of life processes, and use models to explain these processes and their applications.</li><li>● Analyze plants as an example of a multicellular organism with specialized structures at the cellular, tissue and system levels.</li></ul>   | <b>4 weeks</b> <ul style="list-style-type: none"><li>● unit exam</li><li>● topic quizzes</li><li>● projects/labs</li><li>● other formative assessment as required</li></ul> |
| <b>4.</b> | <b>Energy Flow in Global Systems</b> <ul style="list-style-type: none"><li>● Describe how the relationships among input solar energy, output terrestrial energy and energy flow within the biosphere affect the lives of humans and other species.</li><li>● Analyze the relationships among net solar energy, global energy transfer processes—primarily radiation, convection and hydrologic cycle—and climate.</li><li>● Relate climate to the characteristics of the world's major biomes, and compare biomes in different regions of the world.</li></ul>                                 | <b>4 weeks</b> <ul style="list-style-type: none"><li>● unit exam</li><li>● topic quizzes</li><li>● projects/labs</li><li>● other formative assessment as required</li></ul> |

|  |  |  |
|--|--|--|
|  | <ul style="list-style-type: none"><li>Investigate and interpret the role of environmental factors on global energy transfer and climate change</li></ul> |  |
|--|--|--|

**RESOURCES/TEXTS/SUPPLIES:** Pearson Science 10

**FEES:** none

**PREREQUISITES:** Recommended 65% or above in Science 9.

## **COURSE EVALUATION**

### **STUDENT ASSESSMENT:**

**Assessment for Learning (Formative Assessment)** is a systematic process of collecting information or evidence about student learning and is not assigned a grade/mark for the report card. **Assessment of Learning (Summative Assessment)** the judgment we make about the assessments of student learning based on established criteria and a mark/grade is recorded for the report card. The purpose of assessment is to improve student learning. This means that judgments of student performance must be criterion-referenced so that descriptive feedback can be given that includes clearly expressed next steps for improvement. Tools of varying complexity are used by the teacher to facilitate this. For the more complex evaluations, the criteria are incorporated into a rubric where levels of performance for each criterion are stated in language that can be understood by students. Where possible, students will be engaged in their own assessment through self reflection and the construction of rubrics

Assessment is embedded within the instructional process throughout each unit rather than being an isolated event at the end. Often, the learning and assessment tasks are the same, with formative assessment provided throughout the unit. In every case, the desired demonstration of learning is articulated clearly and the learning activity is planned to make that demonstration possible. This process of beginning with the end in mind helps to keep focus on the expectations of the course curriculum outcomes. The evaluations are expressed as a percentage/mark/grade based upon levels of achievement.

### **The Final Grade:**

The evaluation for this course is based on the student's achievement of curriculum expectations and the demonstrated skills required for effective learning.

The percentage grade represents the quality of the student's overall achievement of the expectations for the course and reflects the corresponding level of achievement.

Credit is granted and recorded for this course if the student's grade is 50% or higher. The final grade for this course will be determined as follows:

- 80% of the grade will be based upon evaluations conducted throughout the course.
  - Assignments and labs – 10%
  - Quizzes – 20%
  - Unit tests – 50%
  
- 20% of the grade will be based on a final examination administered at the end of the course. This exam will be based on an evaluation of all units of the course.

## **GRADE DETERMINATION:**

### **Term grade determination:**

Grade will be based upon evaluations conducted throughout the course. This portion of the grade will reflect the student's most consistent level of achievement throughout the course, although special consideration will be given to more recent evidence of achievement.

### **Final grade determination:**

Grade will be based on the accumulation of term grade evidence and a final examination administered at the end of the course (this exam will be based on an evaluation of all units of the course). This grade will reflect the student's most consistent level of achievement throughout the course, although special consideration will be given to more recent evidence of achievement.

## **OPPORTUNITIES TO DEMONSTRATE LEARNING:**

When the teacher's professional judgment indicates the student is in a position to demonstrate learning on a summative assessment with greater success than the initial attempt, such an alternative or additional summative assessment will be provided at a time agreed upon by the student and the teacher.

## **Reassessment Procedure:**

The purpose of reassessment is to allow a student to remove an uncharacteristic grade. Individual reassessments will only be granted in extenuating circumstances.

To qualify for a reassessment the following requirements must be met:

1. You must show evidence of preparing for the original assessment
  - a. For example:
    - i. Completion of all formative and summative assessments (assignments/quizzes/projects).
    - ii. Completion of practice questions/formative assessments
    - iii. Actively engaged in lessons/class/learning activities and effective use of class time.
2. You must review the assessment and receive feedback in order to establish an understanding of your grade.
  - a. For example:
    - i. A student/teacher conference
    - ii. Post assessment self-reflection
3. You must provide evidence of enhanced learning of the outcomes.
  - a. For Example:
    - i. Completion of teacher tutorial sessions
    - ii. Completion of additional practice materials
    - iii. Exam Analysis - identifying errors/common mistakes/distractors
4. You must arrange to meet for reassessment in a timely manner.
5. The reassessment may be in an alternative form than the original assessment, but will assess the same outcome(s) from the programs of study.

## **Classroom Expectations:**

- Be on time for every Science 10 class.
- Be prepared for every Science 10 class.
- Complete all assignments and readings
- Set a goal, for example my goal is for every student to achieve 70% or better.
- Respect the space you are in. Keep the classroom clean.
- Adhere to Mayerthorpe High School Code of Conduct.

## **Therefore:**

- You are responsible for getting all notes and assignments missed due to absence. Please use Google Classroom daily as outcomes, itinerary and assignments are listed.
- You are responsible for your achievement. Help is available outside class time when permitted.
- All summative assessments must be written.
- You will be marked late if not in the room as attendance is completed. 20 minutes late is considered an absence.
- Attendance policy is in effect – see student handbook.

## **NO BUS DAYS:**

- **In the event of buses not running; I will run a drop in google scheduled during regular class time. This will be time to ask questions , clarify concepts, work on assignments, have group discussions, etc. No new material covered but dependent on the frequency of this situation this could change.**

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**Parent/Guardian: Please email [jason.bidniak@ngps.ca](mailto:jason.bidniak@ngps.ca) to confirm you have gone through this outline or if you have concerns/questions.**

**Thank you**