Mayerthorpe Jr/Sr High School
Course Outline

2019-20

Science 30

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COURSE DESCRIPTION

The secondary science program is guided by the vision that all students, regardless of gender or cultural background, are given the opportunity to develop scientific literacy. The goal of scientific literacy is to develop in students the science-related knowledge, skills and attitudes that they need to solve problems and make decisions and, at the same time, to help students become lifelong learners who maintain their sense of wonder about the world around them.

Diverse learning experiences within the science program provide students with opportunities to explore, analyze and appreciate the interrelationships among science, technology, society and the environment and to develop understandings that will affect their personal lives, their careers and their futures.

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

1.	Unit A Living Systems Respond to Their Environment • Students will analyze how the human circulatory system facilitates interaction between blood cells and the external environment and investigate cardiovascular health. • Students will analyze the defense mechanisms used by the human body to protect itself from pathogens found in the external environment. • Students will apply the principles of heredity and molecular genetics to explain how human diseases can arise from inherited traits, the risks and benefits of genetic technology, and the need for ethical considerations in the application of scientific knowledge.	**4 weeks** • unit exam • topic quizzes • projects/labs • other formative assessment as required
2.	Unit B Chemistry and the Environment • Students will analyze the sources of acids and bases and their effects on the environment. • Students will analyze the sources of organic compounds and their effects on the environment. • Students will analyze, from a variety of perspectives, the risks and benefits of using chemical processes in meeting human needs and assess technologies for reducing the impact of chemical compounds on the environment.	**4 weeks** • unit exam • topic quizzes • projects/labs • other formative assessment as required
3.	Unit C Electromagnet Energy • Students will explain field theory and analyze its applications in technologies used to produce, transmit and transform electrical energy. • Students will describe the properties of the electromagnetic spectrum and their applications in medical technologies, communication systems and remote-sensing technologies used to study the universe.	**4 weeks** • unit exam • topic quizzes • projects/labs • other formative assessment as required
4.	Unit D Energy and the Environment • Students will explain the need for balancing the growth in global energy demands with maintaining a viable biosphere. • Students will describe the sun as Earth's main source of energy and explain the functioning of some conventional and alternative technologies that convert solar, nuclear, tidal and other energy sources into useable forms.	**4 weeks**

RESOURCES/TEXTS/SUPPLIES: Science 30 Alberta Education

FEES: none

PREREQUISITES: Credit in Science 20 is required to take Science 30.

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.

- **70% of the grade will be based upon evaluations conducted throughout the course.**
  - Assignments and labs – 10%
  - Quizzes – 30%
  - Unit tests– 60%
- **30% of the grade will be based on a Diploma Exam (Jan 30) administered at the end of the course.**

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.

Classroom Expectations:

- Be on time for every Science 30 class.
- Be prepared for every Science 30 class.
- Complete all assignments and readings.
- Respect your space. Keep your room clean.
- Set a goal, for example my goal is for every student to achieve 70% or better.
- Adhere to Mayerthorpe High School Code of Conduct.
- No cell phones allowed in classroom

Therefore:

- You are responsible for getting all notes and assignments missed due to absence.
- You are responsible for your achievement. Help is available outside class time when permitted.
- All summative assessments must be written. All summative assessments must be written.
- Attendance policy is in effect – see student handbook

Parent/Guardian: Please email me at jason.bidniak@ngps.ca to confirm you have looked over this outline or if you have concerns/questions.

Thank you