

Grade 8 Science Course Outline

Instructor: Ms. C Hutchings

As stated in the Alberta program of studies for science, the following goals have been established to ensure the *success* of a Canadian science education:

- Encourage the development of a critical sense of wonder and curiosity about scientific and technological endeavours.
- Improve the quality of their own lives and others by acquiring new knowledge and solving problems by using *science* and technology.
- Prepare students to critically address science-related societal, economic, ethical and environmental issues.
- Provide a foundation in science that will *enhance* their lives so that is encourages occupations in the science-related field or within hobbies and personal interests and abilities.
- Enable students, of varying aptitudes and interests, to develop knowledge of the wide spectrum of careers related to science, technology and the environment.

The four foundations of the program provide the general directions for the program and identify major components of its structure. These foundations will support the development of science literacy by providing the opportunity to apply critical aspects of science.

Foundation 1 - Science, Technology and Society (STS) ~ *Students will* develop an understanding of the nature of science and technology, the relationships between science and technology, and the social and environmental contexts of science and technology.

Foundation 2 ~ Knowledge— *Students will* construct knowledge and understanding of concepts in life science, and physical *science* and Earth and space science and apply these understandings to interpret, integrate, and extend their knowledge.

Foundation 3 -- Skills — *Students will develop* the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively and for making informed decisions.

Foundation 4 — Attitudes — *Students will be encouraged* to develop attitudes that support responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Course Content

The textbook for the course is Science Focus 8

Proposed Course Outline (Dates are approximate)

Unit Two: Cells and Cell Systems **September - October 20th**
Topic 1) Living Organisms - characteristics, structure, function,
organization

- Topic 2) Using the Microscope
- Topic 3) The Cell and Its Structures
- Topic 4) Fluid Movement in Cells
- Topic 5) Cell Specialization and Organization
- Topic 6) Body Systems in Humans
- Topic 7) Body Systems and Your Health

Unit One: Mix and Flow of Matter **October 22 - December 9th**

- Topic 1) Properties of matter, and the particle model of matter.
- Topic 2) Mixing and Dissolving - pure substances, mixtures and solutions, solute and solvent, concentration, solubility and saturation points, and WHMIS symbols and nomenclature
- Topic 4) Viscosity and Flow Rates
- Topic 5) Density
- Topic 6) Buoyancy
- Topic 7) Fluid Pressure

Unit Five: Fresh and Saltwater Systems **December 12 - February 13th**

- Topic 1) Distribution and Characteristics of water on the Earth
- Topic 2) Earth's Frozen Water and Erosion
- Topic 3) Fresh Water Systems
- Topic 4) The *Oceans* and Climate
- Topic 5) Organisms Living in Water
- Topic 6) Water Quality

Unit Four: Mechanical Systems **February 18th - April 19**

- Topic 1) Levers and Inclined Planes and Calculating Mechanical Advantages
- Topic 2) Wheel and Axle, *Gears*, Pulleys and Calculating Speed and Force Ratios
- Topic 3) Energy, Friction, and Efficiency Calculations
- Topic 4) Force, Pressure, and *Area* Calculations and Hydraulic applications
- Topic 5) Hydraulics and Pneumatics at Work
- Topic 6) Combining Systems
- Topics 7 & 8) History, People, and Machine Development

Unit Three- Light and Optical Systems **April 21 - June 6th**

- Topic 1) Nature and sources of light
- Topics 2 & 3) Reflection and Refraction
- Topic 4) Lenses, Vision, and Images
- Topic 5) Technologies That Extend Human Vision
- Topic 6) Sources of Colour
- Topic 7) Wavelength and Frequency of Light
- Topic 8) Electromagnetic Spectrum Used in Technologies

This schedule will hopefully allow for a year-end review from June 8 - June 17th.

Student Evaluation Term marks in this course will be based on

the following format:

Assignments & Labs	50 %
Quizzes	20 %
Unit Exams	30 %

The student's final mark will be a representation of their three term marks plus a final exam.

Term 1	23%
Term 2	24%
Term 3	23%
Final Exam	30%
Final Mark	<hr/> 100%

This course places an importance on laboratory hands-on work. Inadequate preparation, unsafe laboratory practices, or irresponsible behaviour may exclude a student from these activities. All students are expected to demonstrate *an* ability to conduct themselves in a safe and prepared manner.

Students may be required to write pre-labs before scheduled lab activities. This ensures that they have read the lab so that they *are* prepared to do the lab in the limited time we have to complete and clean up. If pre-labs aren't written, that student will sit out the lab to write it, and then will be responsible for getting results from other students so that he/she *can* complete the expected lab write-up on time. The teacher will not set up the lab for a student to do at another time unless the student misses a laboratory **for** legitimate reasons (medical appointments, illness, etc.) and wishes to do it during a noon hour. Please ask should this occur.

Exam Writing Policies

Students will be given one week's notice for scheduled quizzes and two week's notice of unit exams. However, pop quizzes are sometimes given so students should routinely be reviewing notes and completing all assignments. When students are absent for quizzes and unit exams they must provide the teacher with a note explaining the reason for the absence so that they can write it later.

Homework Policies

- 1) Students should expect to have homework about twice a week. Most assignments are given during class so that students have the class to work on it. Therefore, there homework should generally only be for finishing what they did not get done during class time provided. They are given 2 days to write pre-labs and 2 - 3 days to complete the last three parts of the lab write-up after the lab has been done.

2) Late assignments (handed in after the start of class on the day it is due) will be deducted 10% a day for two days, after which time they receive a zero. Parents will be notified if this is becoming a problem.

3) Homework assignments are posted on the school's web page (date assigned & when due).

4) Any student who is to be away due to a pre-planned/extended absence is responsible for finding out from the teacher what assignments will be missed and what work is to be done prior to them leaving so that he/she is kept up to pace with the rest of the class upon their return to the classroom.

5) Students involved in band and on school teams **must ensure their assignments are handed in before they leave** - they can either have a classmate bring it to class or hand it into the teacher or office.

6) Students are expected to have two homework buddies, so there is no excuse for not knowing what homework is due.

Individual assistance is available upon request. Arrangements can be made to meet during noon recess and/or after school. Students are responsible for finding their own way home with any after school assistance. Help is only a request away.

If you have any questions regarding the course, please contact Ms. Hutchings at 459-3990.

Please sign below to indicate you have read this outline and return it me. The student should put this outline in his/her binder for safekeeping.

Student signature _____

Parent/Guardian signature _____

I look forward to a partnership of work to ensure your child's success. Thank you,

Corrine Hutchings