



Science Foundations 20F Syllabus

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Course description

A general science course that encourages scientific literacy. Class time is spent conducting experiments, gathering information, and analyzing it in the manner scientists would do. Areas concentrate on Chemistry in Action, Motion, Dynamics of Ecosystems, Weather Dynamics and Lab Safety.

Course Expectations

Students should:

- Be prepared for class and have all their learning supplies (calculator, pencil, paper, notes)
- Be respectful of others comments and belongings
- Be responsible for their own learning (not on your cell phone or distracting others)
- Be prepared to make mistakes and ask for help



Digital Citizenship

SVSD AP 203 digital Citizenship and AP 230 Cell Phone Use

“The Swan Valley School Division is committed to providing an engaging and safe learning environment where the potentially harmful impacts of online platforms and cell phone use is minimized. To support this positive environment, the following personal device or cell phone guidelines will be in place.”

“Grade 9 to 12 students: banned from cell phone use during class time on campus and off campus but are permitted to responsible use of cell phones during break times and lunch.”

“Student with medical or diverse learning needs may qualify for exceptions to the Administrative Procedure, however a Student Specific Plan will need to be created to accompany such an exception.” If this applies to you and you have not completed this plan, please see me, so we can make arrangements for it to be done.

“Teachers may direct Grade 9 to 12 students...to use cell phones for educational purposes.”

“The SVSD is not responsible for loss/theft/damages incurred to personal ICT devices including physical or data damage.”

The term “cell phone” includes tablets, e-readers, smart phones, MP3 players, smart watches, electronic toys or any other personal technology devices.

Classroom Implementation of ICT

- All devices will be handed into the bucket or placed on the teacher's desk. If any staff member requests you to hand in your device, you are required to do so according to the SVRSS School Code of Conduct
- At times, technology will be used in the classroom to enhance learning in which laptops will be provided to each student.
- If a student is leaving class to go to the washroom or other tasks, the device will remain in the classroom.
- Parents/Guardian should be aware that their child will not be able to respond to message/calls received during class time.

Attendance:

Attendance will be taken within the first 10 minutes of class. Students will be marked truant if they are not in class when attendance is taken. At the time that they enter class they will need to notify the teacher so that the truant designation can be changed to reflect lateness. If a student knows ahead of time that they will be away, please discuss and ask for any assignments that will be missed before leaving. This will help you to stay with the rest of the class and not get behind.

Assessment

Formative

This type of assessment gives the student opportunity to make mistakes and learn from those mistakes. Some kinds of formative assessment that I will be using are practice questions with solutions, interviewing, and observation.

Summative

This type of assessment will give students ownership of how well they are doing in the course. Although students should know how well they are doing in the course by their formative assessment these assessments will be used for your mark. Some types of this assessment will be Rich Performance Tasks (Homework and Assignments), Tests, and Final Exam.

Evaluation Plan

1. Rich Performance Tasks (Assignments and Quizzes)	25%
2. Demonstrations: Classroom and Lab Work	15%
3. Projects (Mandatory Completion)	5%
4. Tests	35%
5. Final Exam	20%



Students will be given a minimum of 3 school days' notice for tests. Quizzes can be given at random. All questions for testing will come from materials covered in class and from handouts given.

Topics:

Introduction Senior Science

- Introduction to labs (Lab reports, Lab Safety, WHMIS, Lab Equipment)
- Conversions

Essential Learning Outcomes:

i. Chemistry: Chemical Processes

Students will use the Periodic Table to determine the following:

- Bonding, Lewis Dot Diagrams, and combining capacities
- Naming of compounds and creating formulas

Students will investigate chemical reactions (synthesis, decomposition, single/double displacements, combustion)

- Law of Conservation of Mass, balancing equations

Students will classify and characterize acids and bases including:

- pH scale, industry use, neutralization, and environmental impact

ii. Physics: Motion

Students will outline historical developments in force and motion including:

- Newton's Laws, Aristotle, Galileo

Students will investigate how force relates to motion including:

- Inertia, friction and momentum (weather, surface, size of vehicle)
- Potential energy converted into kinetic, sound and thermal energy (car collisions)
- Braking distances (displacements and velocities)

iii. Sustaining Ecosystems

Students will investigate and explain ecosystems including:

- Carrying capacities (biodiversity), limiting factors
- Populations (open/closed population)
- Species Interactions

Students will understand and interpret nutrient cycles including:

- Carbon, nitrogen, and oxygen
- Biogeochemical cycles
- Bioaccumulation

Students will investigate human impact and shifting perspectives on ecosystems including:

- Ecosystem services
- Connectivity and disruptions
- Alien species and invasive species

iv. Weather Dynamics

Students will explore and illustrate weather patterns and factors including:

- Hydrosphere, atmosphere,
- Transfer of energy within the environment (wind/ocean currents)
- Severe weather phenomenon

Students will investigate and evaluate human impact on climate including:

- climate change (global warming)
- use of technology to gather and interpret data

Important Notes

- **Missing Tests:**

Any student missing an important summative assessment like a test may be required to be assessed with an alternate and possibly more challenging assessment once a zero and missing is placed in PowerSchool. (Rationale: student has created an advantage by having more time to prepare and/or discuss assessment items). Missing an assessment with parental permission, illness, field trip, court appearance, etc. may still warrant an alternate assessment as per the instructor.

Exam:

- There are **EXEMPTIONS** in this course. Students may qualify for an exemption if they have a grade of **85% or higher** and have **met all class expectations**. A grade of 84% does not qualify as there is an entire semester to earn 85%. **Truants and missed or incomplete assignments will void any exemptions.** For exam writers, a **minimum mark of 50% overall in the course**, is necessary to receive the credit for the course. Low exam scores may indicate that a student may need to rewrite the exam, and this will be addressed during exam week. I encourage all students to strive for excellence to avoid any possibility of credit loss!
- **Final Examination:**
If a student's final exam mark is higher than their term mark, the final exam weighting will be considered at 100%. That is, if a student scores higher on the final exam than their term mark, the final exam score becomes their final course grade. This will NOT be considered in reverse (i.e. the final exam will hold a minimum respective weight as per the course outline).

Course Structure

	Unit	Outcomes	Assessment
Feb 5 to Feb 12	Intro to Senior Science (Safety and Lab Skills)	S1-0 (1-9)	Observation/Interview (F) Practice Questions (F) Quiz (S) Assignment (S) Labs (S) Project (S)
Feb 13 to March 13	Ecosystems	S1-3 (1-22)	Observation/Interview (F) Practice Questions (F) Assignment (S) Labs (S) Project/Quiz (S)
March 17 to April 21	Chemistry (Chemical Process)	S1-2 (1-14)	Observation/Interview (F) Practice Questions (F) Quiz (S) Assignment (S) Labs (S) Project (S)
April 22 to May 30	Physics (Motion)	S1-1 (1-18)	Observation/Interview (F) Practice Questions (F) Quiz (S) Assignment (S) Project (S)
June 2 to June 12	Weather	S1-4 (1-11)	Observation/Interview (F) Practice Questions (F) Assignment (S) Project (S)
June 13 to 27	Review and Exam		Practice Questions (F) Test(S) Homework/Assignment (S)