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COLLINGWOOD SCHOOL

MORVEN CAMPUS

70 Morven Drive, West Vancouver, B.C. V7S 1B2 Phone: 604.925.3331 Fax: 604.925.3862

**Course Outline – Science 9 2017-2018**

**Course Overview**

Science 9 focuses on students learning various core competencies specific to science while focusing on content specific to biology, physics, chemistry and geology. The first unit is Chemistry during which students will develop an understanding of atomic structure and how this affects the characteristics of various elements. They will also learn about how ionic and covalent compounds form as well as various trends of the periodic table. The second unit is Ecology in which students learn about how energy and nutrients cycle and how these affect local and global ecosystems. The third unit is Biology where students will focus on two different types of reproduction: Sexual and Asexual. Students will understand the steps, advantages and disadvantages of mitosis and meiosis. The fourth unit is Physics and will focus on electricity. Students will understand the difference between static and current electricity. They will investigate and create series and parallel circuits and use Ohm’s law to solve circuit problems. Finally they will learn how electricity is measured in their home and learn ways to reduce their consumption of electricity. Within all of these units, students will develop place-based knowledge about the area in which they live, learning about and building on Aboriginal knowledge and other traditional knowledge of the area.

The curricular competencies for Science 8 include:

* Questioning and Predicting
* Planning and Conducting
* Processing and Analyzing Data and Information
* Evaluating
* Applying and Innovating
* Communicating

**Course Content (Unit Overview)**

Unit 1. Chemistry - Atomic Structure and Periodic Table Trends

Unit 2. Ecology - Ecosystems, Energy flow and Nutrient Cycles

Unit 3. Biology - Reproduction

Unit 4. Physics - Electricity

**Course Texts/Resources**

BC Science 9 Connections

1. [www.mrmurraysci.weebly.com](http://www.mrmurraysci.weebly.com)
2. [www.msramsden.weebly.com](http://www.msramsden.weebly.com)
3. [www.msharrisonweiss.weebly.com](http://www.msharrisonweiss.weebly.com)

**Assessment & Evaluation**

**Course Mark: 80%**

* Tests (20%)
* Projects/Labs/Assignments (40%)
* Homework/participation (10%)
* Quizzes (10%)

**School Based Final Assessment: 20%**

**Policies & Procedures**

Please ensure that you have read and understand the following Collingwood School policies and documents:

* Punctuality Protocol (for assignments and tests)
* Acceptable Computer Use Policy
* Academic Integrity Document (Plagiarism Policy)
* Habits of A Successful Learner / Work Habits Rubric

**How to contact your teacher:**

Email:

[evan.hall@collingwood.org](mailto:evan.hall@collingwood.org)

[liam.murray@collingwood.org](mailto:liam.murray@collinwood.org)

[calindy.ramsden@collingwood.org](mailto:calindy.ramsden@collingwood.org)

[ainsley.harrisonweiss@collingwood.org](mailto:ainsley.harrisonweiss@collingwood.org)

*C:\Users\sara.bruner\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\OJ08XP3O\MC900237945[1].wmf***Atoms, Elements and Compounds (Chemistry)**

Ministry of Education Learning Standards: It is expected that students will:

* Use modern atomic theory to describe the structure and components of atoms and molecules
* Use the periodic table to compare the characteristics and atomic structure of elements
* Write and interpret chemical symbols of elements and formulae of ionic compounds
* Describe changes in the properties of matter

*C:\Users\sara.bruner\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\L3NNQYYU\MC900232341[1].wmf***Reproduction (Biology)**

Ministry of Education Learning Standards

It is expected that students will:

* Explain the process of cell division
* Relate the processes of cell division and emerging reproductive technologies to embryonic

Development

* Compare sexual and asexual reproduction in terms of advantages and disadvantages

**C:\Users\sara.bruner\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\OJ08XP3O\MC900279092[1].wmfCharacteristics of Electricity (Physics)**

Ministry of Education Learning Standards

It is expected that students will:

* Explain the production, transfer, and interaction of static electrical charges in various materials
* Explain how electric current results from separation of charge and the movement of electrons
* Compare series and parallel circuits involving varying resistances, voltages, and currents
* Relate electrical energy to power consumption

**The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them**

Ministry of Education Learning Standards

It is expected that students will:

* Demonstrate the effects of solar radiation on the cycling of matter and energy
* Describe how matter cycles within biotic and abiotic components of ecosystems
* Analyse sustainability of systems
* Describe traditional perspectives of First peoples in BC knowledge of interconnectedness and
* sustainability

**Essential supplies:**   
  
1. Writing materials (pen, pencil, eraser, ruler, lined paper)

2. Technology Component (laptop / tablet / netbook) *\*Phones are not considered appropriate technology hardware\**

3. Miscellaneous (calculator)  
  
**Expectations:**  
  
1.      Students are expected to **arrive prepared**(both with materials and in proper mindset) for each class.  Please bring the necessary supplies and no extra materials that may distract you or other students.  
  
2.      Collingwood’s Morven Campus (grades 8-12) has the following policy in place regarding **student**

***Work habits:***  
3.      **Participation**is expected in all classroom discussions and activities.  
  
4.      **Be respectful**of others by being appropriately quiet during class discussions, lab activities and always clean up your own lab equipment.  
  
5.      **Safety measures** must be followed at all times.  Safety in the science classroom is important because of the potential for danger due to equipment and chemicals. Please do not run or engage in horseplay in the lab. If you are curious and wish to perform an experiment and are not sure of the safety of your actions, ask your teacher.   
  
6.      **Homework** will be assigned regularly.  In the absence of a specific assignment, students should spend time updating and reviewing notes.  
  
7.      **Attendance** is very important!  Students who miss class are **responsible** for making up missed work themselves.  Unexcused absences will result in zeros for missed assignments, labs, quizzes and tests.

8.      **Chapter and Unit Tests**

1. If an excused absence occurs for unit and chapter tests, the re-write day occurs Thursday morning at 7am
2. Receiving a grade below 60% - students in Grade 9 are given the opportunity to re-write the test (again Thursday morning at 7 am)
3. For further information on test writing expectations, please refer to the *Collingwood School Academic Integrity and Punctuality Protocol Document:* <http://www.collingwood.org/uploaded/user_files/mailout/june_2016/Morven/Collingwood_School_Academic_Integrity_and_Punctuality_Protocol_Document.pdf>

9.      **Missed Student Assignments**:

Collingwood’s Morven Campus (grades 8-12) has the following policy in place regarding

***Punctuality Deductions***  
  
On-time - No deduction  
1 school day late - 10% off total assignment mark  
2 school days late - 20% off total assignment mark  
3 school days late - 30% off total assignment mark  
4-6 school days late - Assignment will be on pass-fail basis only and no feedback/commentary will be given on the paper  
7+ school days late - Assignment will be given a zero  
  
Refer to the Punctuality Protocol in the August mail out, found at the link below:  
  
[*http://www.collingwood.org/uploaded/user\_files/mailout/june\_2016/Morven/Collingwood\_School\_Academic\_Integrity\_and\_Punctuality\_Protocol\_Document.pdf*](http://www.collingwood.org/uploaded/user_files/mailout/june_2016/Morven/Collingwood_School_Academic_Integrity_and_Punctuality_Protocol_Document.pdf)

10.      According to the Collingwood School **Academic Integrity Document**, students are expected to behave in an open and honest manner.  This includes avoiding plagiarism and writing tests on the assigned date.  Refer to the Collingwood School Academic Integrity Document in the August mail out, found at the link below:  
  
[*http://www.collingwood.org/uploaded/user\_files/mailout/june\_2016/Morven/Collingwood\_School\_Academic\_Integrity\_and\_Punctuality\_Protocol\_Document.pdf*](http://www.collingwood.org/uploaded/user_files/mailout/june_2016/Morven/Collingwood_School_Academic_Integrity_and_Punctuality_Protocol_Document.pdf)

11.  **Tutorials**

Students are strongly encouraged to get help as soon as difficulties occur. Talk to your teacher to set up an appointment.  
  
12.  **Explore**

You are responsible to complete missed assignments, work, quizzes and tests when you return.  
  
13.  **Critical Thinking**  
  
The Science Department considers the development of the critical thinking skills of our students to be essential to their success in science and in life. Critical thinking is a complex process with many essential facets. In order to address this complexity we have chosen areas of focus for each grade. These are indicated in the table below. As students’ progress through these grades they will continue to master the skills from earlier grades. The skills chosen as a focus for later grades will also not be ignored in the earlier grades. Each student report card will include a comment on the progress being made in the grade specific area of critical thinking. 

**C:\Program Files\Microsoft Office\MEDIA\CAGCAT10\j0305257.wmfScience 9 Curricular Competencies:**

*Students are expected to be able to do the following:*

**Planning and Conducting**

* Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest
* Make observations aimed at identifying their own questions
* Formulate multiple hypotheses and predict multiple outcomes

**Planning and Conducting**

* Collaboratively and individually plan, select and use appropriate investigation methods
* Asses risks are address ethical, cultural or environmental issues
* Select and use appropriate equipment to record data

**Processing and analyzing data and information**

* Experience and interpret the local environment
* Seek and analyze patterns, trends, and connections in data, including describing relationships between variables
* Construct, analyze and interpret graphs
* Use knowledge of scientific concepts to draw conclusions that are consistent with evidence

**Evaluating**

* Evaluate their methods of experimental design
* Describe specific ways to improve their investigation methods
* Demonstrate an awareness of assumptions, question information given, and identify their own work and secondary sources
* Consider changes in knowledge over time as tools and technologies have developed
* Consider social, ethical and environmental implication of their findings from their own and others’ investigations

**Applying and Innovating**

* Contribute to care for self, others, community, and the world through individual or collaborative approaches
* Transfer and apply learning to new situations
* Generate and introduce new or refined ideas when problem solving

**Communicating**

* Communicate scientific ideas, claims, information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations.