**Collingwood School**

**Course Outline 2013 -2014**

**SCIENCE 9**

**"To myself I seem to have been only like**

**a boy playing on the seashore, and diverting**

**myself in now and then finding a smoother pebble**

**or a prettier shell than the ordinary, while**

**the great ocean of truth lay all**

**undiscovered before me." -Isaac Newton**

This course is divided into four areas of Science: **Processes of Science, Physical Science (Chemistry and Physics), Earth and Space Science, and Life Science (Biology).** This outline illustrates the units in the order that we will study and the pertaining chapters in the textbook.

**Textbook:** [**http://www.pearsoned.ca/school/product/pearsonetext/**](http://www.pearsoned.ca/school/product/pearsonetext/)

**Textbook & Workbook:** BC Science 9 (McGraw-Hill Ryerson Edition)

**Website:** <http://www.bcscience.com/bc9/>

**BC 9 Home Version username:** CS99

**BC 9 Home Version password:** CL99

**Teachers:**  Evan Hall **email:** evan.hall@collingwood.org **website:** http://mrhallsci.weebly.com

 Sara Bruner **email:** sara.bruner@collingwood.org **website** <http://brunerscience.com/>

 Katie Geale **email:** katie.geale@collingwood.org **website** <http://gealescience.weebly.com/>

**Mark Distribution:**

It is expected that students successfully complete both class and laboratory work. The following percentages show the mark distribution for the course.

 40 % Chapter and Unit Tests

 10 % Quizzes

 25 % Projects, Labs, Class Assignments

 5 % Homework and Participation

 20 % June Exam

**Essential supplies:**

One binder with a section for Science. Make sure you have lined paper, graph paper, textbook, workbook, pens, pencils, eraser, ruler and 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:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Work Habits** | **FULLY MEETING (FM)** | **MEETING (M)** | **MINIMALLY MEETING (MM)** | **NOT MEETING (NYM)** |
| **RESPONSIBILITY** | **FM (ALWAYS)** | **M (\*MOSTLY)** | **MM (INCONSISTENTLY)** | **NYM (SELDOM)** |
| **Punctuality** | Always on time for class | Mostly on time for class | Inconsistently on time for class | Seldom on time for class |
| **Preparedness - materials** | Always prepared for class | Mostly prepared for class | Inconsistently prepared for class | Seldom prepared for class |
| **Completion of in-class assignments** | Always completes work on time and is on-task during classroom activities | Mostly completes class work in a focused manner | Inconsistently – work is completed in class in a focused manner | Seldom completes work during class time; focus frequently slips |
| **Respect for work** | Always respects the quality of own work | Mostly respects the quality of own work | Inconsistently respects the quality of own work | Seldom respects the quality of own work |
| **Homework** | Homework assignments are always completed on time | Homework assignments completed on time | Inconsistently – Homework is completed on time | Seldom completes homework |
| **Catches up on missed work** | Independently catches up on missed work; work always fully meets expectations | Mostly makes up missed work and meets expectations | Missed work is made up, but might require extended deadlines | Seldom is missed work completed |
| **ATTITUDE** | **FM (ALWAYS)** | **M (\*MOSTLY)** | **MM (INCONSISTENTLY)** | **NYM (SELDOM)** |
| **Attitude (overall)** | Engages in and demonstrates great interest in learning | Mostly engages in and demonstrates an interest in learning | Inconsistently engaged in classroom activities | Seldom engages in class activities |
| **Participation (attitude/contributes)** | Participates and/or makes a positive contribution in classes | Mostly participates in class discussions | Inconsistently participates in classes/discussions | Seldom contributes to the classroom environment  |
| **Team work** | Acts as a leader with other students | Mostly works well with others | Inconsistent ability to work with other students | Seldom works well with others |
| **Respect for others** | Respectful and encouraging of other students and their work | Most often is respectful of other students and their work | Generally respectful of other students and their work | Seldom is respectful of other students and their work |
| **Following instructions** | Listens and follows teacher instructions | Mostly listens and follows teacher instructions | Inconsistently listens and follows teacher instructions | Seldom follows instructions |
| **INDEPENDENCE** | **FM (ALWAYS)** | **M (\*MOSTLY)** | **MM (INCONSISTENTLY)** | **NYM (SELDOM)** |
| **Effort** | Puts forth an energetic/vibrant effort | Mostly puts forth strong effort | Inconsistently puts forth effort | Seldom applies him/herself |
| **Time Management** | Manages time extremely well and is able to work without direct supervision; on task | Mostly often manages time well and is able to work without direct supervision | Inconsistently manages time; does require direct supervision | Seldom is on task and often requires direct supervision  |
| **Extra help** | Seeks extra help when needed; regularly attends tutorials | Mostly attends tutorials when needed | Inconsistently seeks help when needed | Seldom seeks help and does not attend tutorial sessions |
| **Initiative** | Willing to ask for assistance and helps other | Most often helps others | Inconsistently helps others | Seldom helps others |
| **Risk Taking** | Demonstrates a high degree of willingness to take chances | Mostly willing to take chances | Inconsistently willing to take chances | Seldom willing to take chances |

1. **Participation** is expected in all classroom discussions and activities.
2. **Be respectful** of others by being appropriately quiet during class discussions, lab activities and always clean up your own lab equipment.
	1. **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.
3. **Homework** will be assigned regularly. In the absence of a specific assignment, students should spend time updating and reviewing notes.
4. **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.
5. Collingwood’s Morven Campus (grades 8-12) has the following policy in place regarding **student assignments**:

|  |  |
| --- | --- |
| **Submission Date** | **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 |

Prior to the student receiving a zero, during the 4-6 day pass fail period, teachers will post notification of this on PCR via an Interim report. This notice **MUST** be posted no later than the end of day 3. The 4-6 pass fail period will not commence until the notice is posted. Refer to the Punctuality Protocol in the August mail out, found at the link below:

<http://www.collingwood.org/uploaded/user_files/august_mailouts/23._Punctuality_Protocol.pdf>

1. 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/august_mailouts/22._Academic_Integrity.pdf>

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

After an absence, students will write the test no later than the day of the second class following their return. If they fail to do so, they will receive a zero. Students will, however, be expected to demonstrate his/her knowledge of the material. The only exceptions will be in the submission of a doctor’s note. Teachers will notify parents via an email or phone call before the final day that the writing can occur.

For further information on test writing expectations, please refer to the Collingwood

School Academic Integrity Document: Plagiarism & Test Taking Agreement.

1. **Tutorials** are available. Students are strongly encouraged to get help as soon as difficulties occur. Talk to your teacher to set up an appointment.
2. **Explore** – you are responsible to complete missed assignments, work, quizzes and tests the first week back from Explore.
3. **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.

|  |  |
| --- | --- |
| **Critical Thinking Skills** | **Grade**  |
| Ask pertinent questions | 7 |
| Adjust opinions when new facts are found.  | 7 |
| Admit a lack of understanding or information where necessary | 7 |
| Look for evidence | 8 |
| Examine problems carefully | 8 |
| Analyze data | 8, 9 |
| Define criteria | 9 |
| Weigh evidence and draw reasoned conclusions | 8, 9 |
| Reject incorrect or irrelevant information | 10 |
| Assess statements and arguments | 10, 11 |
| Identify assumptions and biases | 10, 11 |
| Consider a variety of explanations  | 11, 12 |
| Identify missing information | 11 |
| Suspend judgment until all facts have been gathered and considered | 12 |
| Synthesize concepts across disciplines | 12 |

**Curriculum:**

**Processes of Science**: **Introduction & Safety in the Classroom/ Lab**

(Introduction and integrated throughout the year)

### **Ministry of Education Prescribed Learning Outcomes**

*It is expected that students will:*

* Demonstrate safe procedures
* Perform experiments using the scientific method
* Represent and interpret information in graphic form
* Demonstrate scientific literacy
* Demonstrate ethical, responsible, cooperative behaviour
* Describe the relationship between scientific principles and technology
* Demonstrate competence in the use of technologies specific to investigate procedure and

 research

#### Text Reference:

* Safety in the Science Classroom (pages 8 - 15)
* Science Skills Guide (pages 460 – 500)
* Applicable in all chapters throughout the textbook

**Unit 1: Atoms, Elements and Compounds (Chemistry)**

**Ministry of Education Prescribed Learning Outcomes**

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

***Text Reference:***

* Chapter 1 – Atomic theory explains the composition and behaviour of matter
* Chapter 2 – Elements are the building blocks of matter
* Chapter 3 – Elements combine to form compounds

**Unit 3: Characteristics of Electricity (Physics)**

**Ministry of Education Prescribed Learning Outcomes**

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

***Text Reference:***

* Chapter 7 – Static charge is produced by electron transfer
* Chapter 8 – Ohm’s Law describes the relationship of current, voltage, and resistance
* Chapter 9 – Circuits are designed to control the transfer of electrical energy

**Unit 2: Reproduction (Biology)**

**Ministry of Education Prescribed Learning Outcomes**

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

***Text Reference:***

* Chapter 4 – The function of the nucleus within the cell
* Chapter 5 – Mitosis is the basis of asexual reproduction
* Chapter 6 – Meiosis is the basis of sexual reproduction

**Unit 4: Space Explorations (Space)**

**Ministry of Education Prescribed Learning Outcomes**

It is expected that students will:

* Explain how a variety of technologies have advanced understanding of the universe and solar

 system

* Describe the major components and characteristics of the universe and solar system
* Describe traditional perspectives of a range of Aboriginal peoples in BC on the relationship

 between the Earth and celestial bodies

* Explain astronomical phenomena with reference to the Earth/moon system
* Analyse the implications of space travel

***Text Reference:***

* Chapter 10 – Scientific evidence suggests the universe formed about 13.7 billion years ago
* Chapter 11 – The components of the universe are separated by unimaginably vast distances
* Chapter 12 – Human understanding of Earth and the universe continues to increase through

observation and exploration

**Extra Unit \*Science Expo: Vernier\***

**Educational Learning Outcomes**

*It is expected that students will:*

* 21st century learning skills
* Teamwork
* Collaboration and communication
* Creativity
* Decision making
* Problem solving
* ICT
* Citizenship