**Course Outline**

**Schedule:** Semester 1 period 1

**Teacher Contact:** Marie-Eve Owen, room 141, marie-eve.owen@yesnet.yk.ca

**Website:** www.m-eowen.weebly.com (due dates, answer keys, videos)

**Textbooks:** Chemistry 11 Workbook (Hebden), Essential Experiments in Chemistry (Morrison, Scodellaro)

**Supplies:** A binder, lined paper, graph paper, pencil, pen, eraser, ruler, scientific calculator

**Recommended:** Mastery of Pre-calculus & Science 10

**Student Behaviour:** Follow laboratory safety rules, be responsible for any missed material, show respect.

**Course description:** Math skills are used in Stoichiometry and dimensional analysis problems in Chemistry 11. Students will learn concepts pertaining to matter, the mole concept, chemical reactions, solubility and organic chemistry. They will analyze patterns and relationships in chemical processes and naming. They will also practice precise and accurate unit measurement and conversion using the mole concept in stoichiometric calculations. Students will evaluate how organic structures and soluble compounds affect our world with a First Nations perspective.

**Assessment and Evaluation:**

Demonstrate a proficient understanding of the curricular content and the ability to perform the curricular competencies. Absence during assessment will result in a zero unless a parent or guardian contacts me and an alternative date is set outside regular class hours. Some grade penalty may apply. Plagiarism and cheating will result in an automatic zero without opportunity to re-do.

* 10 Quizzes 10%
* 9 Tests 45%
* 3 Projects/assignments/labs 30%
* Final Exam 15%

**Learning Schedule: Resource:** Hebden, Chemistry 11

* Safety in the Chemical Laboratory Unit 1 2 days
* Introduction to Chemistry Unit 2 2 weeks
* Physical Properties and Physical Changes of Substances Unit 3 1 week
* Inorganic Nomenclature Unit 4 3 weeks
* The Mole Concept Unit 5 2 days
* Chemical Reactions Unit 6 3 weeks
* Calculations Involving Reactions (Stoichiometry) Unit 7 3 weeks
* Atoms and the Periodic Table Unit 8 2 week
* Solution Chemistry Unit 9 2 week
* Organic Chemistry Unit 10 if time allows
* Review: Final Exam 2 weeks

**Labs: Resource:** Essential Experiments in Chemistry (Morrison, Scodellaro):

|  |  |  |
| --- | --- | --- |
| **UNIT** | **Lab** | **Page** |
| **1** | none | -- |
| **2** | 1A Making Measurements and Working in the Chemistry Laboratory | 1 |
| **3** | 2E Determining Aluminum Foil Thickness | 25 |
| **4** | none | -- |
| **5** | 4A Counting Atoms in a Chemical Reaction | 38 |
| **6** | 5B Types of Chemical Reactions | 52 |
| **7** | 6C Mole ratios in a Copper-Silver Replacement Reaction | 65 |
| **8** | 3A Recognizing elements Compounds and Mixtures | 28 |
| **9** | 10D Solubility Trends and Precipitate Formation | 131 |

**BC Curriculum: Resource:** https://curriculum.gov.bc.ca

*Big Ideas:*

* Atoms and molecules are building blocks of matter.
* Organic chemistry and its applications have significant implications for human health, society, and the
* environment.
* The mole is a quantity used to make atoms and molecules measurable.
* Matter and energy are conserved in chemical reactions.
* Solubility within a solution is determined by the nature of the solute and the solvent.

*Students are expected to know the following curricular content:*

* quantum mechanical model and [electron configuration](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* valence electrons and Lewis structures
* [chemical bonding](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry) based on electronegativity
* [bonds/forces](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [organic compounds](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [applications of organic chemistry](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* the mole
* [dimensional analysis](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [reactions](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [stoichiometric calculations](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry) using significant figures
* local and other [chemical processes](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [green chemistry](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [solubility](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry) of molecular and ionic compounds
* [stoichiometric calculations in aqueous solutions](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)
* [analysis techniques](https://curriculum.gov.bc.ca/curriculum/science/11/chemistry)

*By the end of this course students are expected to be able to do the following* Curricular competencies:

#### [Questioning and predicting](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest

#### [Planning and conducting](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Apply concepts of accuracy and precision to data (significant figures, uncertainty, scientific notation, correct units).

#### [Processing and analyzing data and information](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Construct, analyze, and interpret graphs, models, and/or diagrams. Use knowledge of scientific concepts to draw conclusions that are consistent with evidence

#### [Evaluating](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Consider the changes in knowledge over time as tools and technologies have developed

#### [Applying and innovating](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Implement multiple strategies to solve problems in real-life, applied, and conceptual situations

#### [Communicating](https://curriculum.gov.bc.ca/curriculum/science/12/anatomy-and-physiology): Communicate scientific ideas, information, and evidence-based arguments using appropriate scientific language.