Chemistry 40S

R.D. Parker Collegiate
2014-2015

Teacher: Mrs. Kornelsen
email: akornelsen@mysterynet.mb.ca
Phone: (204) 677-6200
Room: 203

This course will spark interest and increase your knowledge surrounding chemical properties, uses, implications, and chemical issues effecting individuals and society. . The more you discover about yourself and the world, the more fascinating the world becomes! Your opportunities to make a great impact on society will grow as your understanding and knowledge of the sciences increases.

Prerequisite

Students entering chemistry 40S have completed CH30S and therefore should be able to: interpret chemical equations and reaction types; utilize the mole, molar mass, and concentration; and identify an atom or ion given the subatomic particles.

Content

By the end of the course students are expected to be able to complete the following essential skills.

1. **Describe and understand the basic "true" structure of the atom.**
2. **Calculate and understand the variation of differing reaction rates.**
3. **Establish relationships between variables: rate law.**
4. **Understand and be able to apply the principles of equilibrium, Le Chatelier's Principle, and solubility.**
5. **Understand the fundamental difference between a strong acid/base and a weak acid/base.**
6. **Explain redox reactions and battery use.**
7. **Understand the role of chemistry in other aspects of the world and in other disciplines (especially quantum chemistry**

Units	Subtopics
Atomic Theory & Quantum Chemistry	▪ Periodic Trends ▪ Electron Configuration ▪ Quantum Numbers ▪ Molecular Geometry (VSEPR) ▪ Electromagnetic Spectrum ▪ Transition Energy
Kinetics	▪ Reaction Rate ▪ Potential Energy Diagrams ▪ Reaction mechanisms ▪ Rate Laws
Equilibrium	▪ Keq ▪ Le Chatelier's Principle ▪ Solubility
Acids & Bases	▪ Kw, $[OH^-]$, $[H_3O^+]$ ▪ pH & pOH ▪ Ka & Kb ▪ Titrations
Electrochemistry & Redox	▪ Oxidation Numbers ▪ Electrochemical Cells

Evaluation

You will never be surprised with any assessments. I will always give you an outline of how you will be assessed and what you will be assessed on. You will need to keep up with your homework, study, and work hard to do well in this course and take advantage of this learning opportunity you have been given.

To achieve high marks in this course you will be expected to utilize appropriate chemical vocabulary, read and understand scientific tables and data, and to seek out extra help when needed. Students will be assessed in a variety of ways on all curricular outcomes.
Course material will be weighted as follows:

Term (70%)

Unit Tests/Assessments	60%
Quizzes, Assignments, Labs, and Projects	40%

Exam (30%)

For each unit you can anticipate approximately two lab assignments, a creative assignment, practice quiz, and a unit test. All work must be handed in to complete the course. There will be time given in class to complete most assignments so there should be no excuses.

Note: All assignments are due at the **beginning** of class.

Extra Help

Grade 12 chemistry is an extensive course that covers many different topics and requires understanding rather than memorization. Students who are attending regularly and putting in effort will have no problems succeeding in this course.

Please use these opportunities to receive some individual help if and when you need it.

- Tuesdays and Thursday after school (3:30 pm) – Please let me know that you are planning on coming. These times are subject to change based on other commitments I have that week at lunch.
- Other times by appointment.

Enjoy your time in chemistry. Your opportunities to learn are endless!

Required Materials

Daily: 3 ring binder, paper, dividers, pen/pencil, calculator
Upon request: graph paper, scissors, pencil crayons

We must use time wisely and forever realize that the time is always ripe to do right
~Nelson Mandela

Course Expectations

1) The Three R's.
    a. **R**espect yourself
    b. **R**espect others
    c. Accept **R**esponsibility for all of your actions
2) Research and summarize portions of the course material on your own.
3) Attendance is mandatory. In the event of an absence, it is *your responsibility* to obtain notes and assignments from another student and to catch up on any missed work while away.
4) Apply study skills early on and throughout this course.

We are what we repeatedly do. Excellence, therefore, is not an act but a habit.
~ Aristotle

Science is a very exciting subject that helps you learn about yourself and the world around you. Take advantage of this opportunity – you only get to live this year once! I look forward to learning with you!

~Mrs. Kornelsen