Grade 9 Science  
By: Bryan Barker  
Edited by: Zongyi Yang

In science, the Grade 9s have made a healthy transition from elementary school. Students have started the year off in Chemistry with four new avenues of science.

Firstly, students expanded their Grade 8 knowledge. Things such as lab equipment, WHMIS symbols, metric conversions, density, changes of state, the particle theory, and classifications of matter have been studied and expanded on.

Secondly, labs have been done to explore the difference between chemical and physical changes. By making observations about a substance through the five different senses, Grade 9s can now properly identify a change as chemical or physical.

Thirdly, atomic theories and models have been introduced. Scientists’ theories or laws have been presented to students for further examination of atoms. This semester, Grade 9s have been introduced to the early pioneers of scientific thought from the early philosophers to people such as Dalton, Thomson, Rutherford, and Bohr.

Lastly, the periodic table has been introduced to the Grade 9s. Students are required to memorize the first twenty elements. They have learned how the table was organized, and learned the structure of an atom. Students have also learned about ionic changes within these atoms (ions), isotopes, chemical formulas, and binary compounds.

In mid-October, Grade 9s end their Chemistry unit, and move onto Physics where they will learn about the characteristics of electricity.

Grade 10 Science  
By: Bryan Barker  
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The Grade 10s have begun the year off with Physics; the study of motion. They have since preformed two labs from September to mid-October based on motion.

Students have been assigned a lab based on uniform speed and acceleration and have also performed a project based on gravity. The Grade 10s were asked to build a car that would roll down a ramp. The trick is that the car must stop exactly at 3 metres from the base of the ramp without external aid or electronic devices, and the materials, including the wheels, were not to be pre-fabricated. Crafty ideas for a successful device included harnessing friction or using pre-measured string wound on the wheels. Other students tied a string of appropriate length from the top of the ramp to the base of their cars, arguing that it is not external aid, but a three meter long vehicle.

The Grade 10s also used mathematics and graphed results of motion, such as position and velocity.

After the Physics unit, students immersed themselves into the world of Chemistry. The Grade 10s performed many labs involving single and double displacements. They are currently working on their Grade 10 Chemistry projects.
In the first unit of the Grade 12 Biology course, students learned about three macromolecules: carbohydrates, proteins, and fats and lipids (there are actually four but the fourth is discussed in the next unit: Molecular Genetics). Students learned that the body mostly breaks down carbohydrates into glucose in order to produce energy for its many cells to use. The process for this is called cellular respiration and, although the chemical formula for it may seem simple enough, students learn that the process is anything but simple. They also learned about the amazing diversity of proteins and the importance of fat in our lives. Photosynthesis is also discussed in this unit.

The students had many interesting in-class discussions about what they learned. They learned about saturated and unsaturated fatty acids and applied them to real life when they discussed the risks and benefits of both butter and hydrogenated margarine. There was also an interesting class discussion about good fatty acids like omega-3 fatty acids, which is found mostly in fish like salmon and they learned how eggs have been specially developed to have omega-3 fatty acids. Students are constantly learning more about themselves and learning how to make healthier lifestyle choices by applying what they learn.

Presently, students have started their second unit about the genetic code of life (DNA) and its many applications in life. They are learning about the fascinating Human Genome Project and how decoding the human genetic code can have a drastic impact on human lives and how illnesses are detected and treated.

**Events**

The Annual Terry Fox Run was held at Markville this year. Students in Grades 11 and 12 Biology classes participated along with many of their schoolmates. Almost $3000 was raised.
The most stimulating thing about Grades 11 and 12 Chemistry is probably the various labs that illustrate the essence of a specific area of study. In junior years, amusement primarily resulted from watching things blow up or catch fire in labs, however, senior Chemistry students confront the more daunting task of applying their knowledge to solve problems.

Grade 11 students had to execute experiments on ionic/covalent compounds, finding chemical and empirical formulas from scratch, compositions, and calculations using moles. Their summative project consisted of making cookies based on a recipe given to them in strange units. Their task was to use what they have learned to convert the esoteric units into common units, and to churn out some cookies to boot.

In Grade 12, students had to evaluate properties and structures of different alcohols and esters, make Aspirin, assess trends in boiling points and calculate the energies of reactions. Combined knowledge from their studies had to be used accurately to create their 3-D molecular structures that presently reside in room 328.

Nothing can subdue nature, but where the greater malady is fixed: always add acid…

Hey fellow Physics enthusiasts! This school year has been off to a great start as the students of the Grade 12 Physics course began working hard from the very first day of class. What was in store for these students was four challenging yet exciting units; Forces and Motion, Energy and Momentum, Electric, Gravitational and Magnetic Fields, and lastly, Matter – Energy Interface.

The first unit, Forces and Motion, consists of three main parts; kinematics (the study of motion), dynamics (the study of forces and the effects they have on motion) and circular Motion. Both kinematics and dynamics are introduced in the Grade 11 Physics course, but for the Grade 12 curriculum, it is explored with more depth. Projectile motion is one of the new topics, along with centripetal force and frames of reference. This unit also encompasses two labs, one on friction and the other on uniform circular motion.

Energy and Momentum, the second unit of the course, was just completed as the unit test was written earlier this week. Many new topics were taught, consisting of work and energy, momentum and collisions, and gravitation mechanics. A new type of potential energy is elastic potential energy (Hooke’s Law), momentum and the change in momentum (impulse), collision and general gravitational potential energy.

The Grade 12 Physics students of this semester have a lot of work ahead of them as they have begun designing and building their robots to compete in the Robolympics in mid-December. The robots are to complete four events; RoboSpeed, RoboClimb, RoboPull and RoboToss. The Robolympics is going to be a fun and challenging competition! Let the games begin!
The Science Club
By: Linda Xia
Edited by: Zongyi Yang

For those of you un-cool people who did not bother to come to our awesome science club meetings, this is just an update on what amazing, fun, awesome things you have missed. For the month of October, the cool dudes and dudettes of the science club got to dissect a shark, build an ecosystem, and make bubbles.

During the dissecting unit, the science club members dissected a specimen of small sharks that are about 50 cm long, called the Dog Fish. They cut open the poor shark and explored its inner organs, and learned the proper names and functions of its organs and body parts.

Our enthusiastic learners did not only get to dissect a shark; they built an entire ecosystem, and did an experiment on how fertilizers affect our ecosystems by over, average, and non-fertilizing their ecosystems. As a result, this experiment shows that the chemicals - and other enhancers that we release into our ecosystems to improve them - can actually damage them in reverse.

The most recent science club activity was bubble making! Our cool members learned how to make bubble films, permanent bubbles, and flaming bubbles.

There are still many fun activities to come, so please feel welcome to drop in anytime, and maybe you will actually have a good time learning something new.