

Science 24

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Welcome to Science 24!

I hope that you will find this course enjoyable and that you will develop knowledge and skills that will allow you to gain a better understanding of the world and processes that you encounter in everyday life. Throughout the course you will acquire problem solving and laboratory skills, as well as complete a variety of projects and assignments.

Course Philosophy

The science 14/24 program, as defined by the Alberta program of studies, is designed to support the development of science literacy. The school must provide a foundation of learning experiences that address critical aspects of science and its application. These critical areas – the foundations of the program – provide general direction for the program.

The Science 24 program aims to make Science learning relevant by presenting it in a meaningful context. There will be opportunities for students to explore the process of science, its applications and implications, and to examine related technological problems and issues. By doing so, students become aware of the role of science in responding to social and cultural change and in meeting needs for a sustainable environment, economy, and society.

Foundation 1: Science, Technology and Society (STS)

Foundation 2: Knowledge – life science, physical science, earth and space science

Foundation 3: Skills – initiating, planning, performing, analyzing, interpreting, teamwork

Foundation 4: Attitudes – interests, respect, scientific inquiry, collaboration, safety

Materials

- ★ Textbook: Science Connect 2. The course will also be supplemented with other resources.
- ★ Work booklets for each unit
- ★ Pencils, pens and erasers
- ★ Binder with lined paper
- ★ A calculator will be required for some of the units.

Course Outline

The following is the course outline listing the approximate time line, specific outcomes (from Alberta program of studies), and related chapters in the textbook for each unit.

Unit A: Applications of Matter and Chemical Change

- ★ Chapters 1 through 4 (pages 1 – 75)
- ★ September 1st- October 1st

Key concepts:

- commonly used materials, and chemical change in everyday life
- evidence of chemical change
- describing and classifying combustion and rusting reactions, acid–base reactions, and simple composition and decomposition reactions
- writing and interpreting word and chemical equations
- conservation of mass in chemical change
- chemical reactions at home and in the workplace
- environmental effects of chemical change technologies

Unit B: Understanding Common Energy Conversion Systems

- ★ Chapters 5 through 8 (pages 78 – 153)
- ★ October 2nd – November 2nd

Key concepts:

- energy transformation and conservation
- generation and distribution of electricity
- electrical household devices as converters of energy, and energy consumption
- rate of energy transfer and efficiency
- chemical and energy changes in chemical and biological systems
- living organisms as energy converters
- formation, extraction and combustion of fossil fuels
- fossil fuel based technologies and quality of life for future generations



Unit C: Disease Defence and Human Health

- ★ Chapters 9 through 12 (pages 154 – 229)
- ★ November 3rd – December 3rd

Key concepts:

- social impact on human health
- role of environmental factors (toxins, pathogens) and genetic factors on human health
- communicable and non-communicable diseases
- human actions to reduce contamination by pathogens
- role of the human body's defence systems
- natural and artificial immunization
- principles of simple inheritance
- impact of recent genetic research on societal decision making

Unit D: Motion, Change and Transportation Safety

- ★ Chapters 13 through 16 (pages 230 – 303)
- ★ December 4th - January 10th

Key concepts:

- reaction time, speed and safe following distance
- graphical and mathematical analysis of the relationships among speed, distance and time
- collisions and conservation of momentum effects of lengthening and shortening duration of collision
- safety systems designed to reduce impact of collisions
- transportation safety regulations

- ★ Time remaining at the end of June will be spent on final exam review

Class Structure

Class time will generally be very structured. Class will begin with a discussion/review of the material learned the previous day and then will be followed by the current day's lesson. The instructional strategies will include lecture with the use of Smart board notes, and presentations, videos, simulations, and question and answer discussions. After the lesson, students will work either in small groups or individually to complete assigned work. We will also do some investigative group work as well as labs.

Students will be expected to do assignments almost every class. Most of the assignments will be done entirely within the set time limits of the 78-minute classes with very few for homework.

Extra help is available before school or during lunch upon request.

Evaluation

Evaluation per Unit		Course Evaluation	
Assignments and Labs	50%	Course Work	70%
Quizzes and Chapter Test	20%	Final Exam	30%
Scientific Attitudes	10%		
Unit Tests	20%		

- Evaluation will be objective based which coincide with the course outcomes outlined in the Program of Studies.
- Marks are cumulative which means that they are a running tally of the student's achievement throughout the semester.

"No Zeros" policy

- At Beiseker Community School, it is our belief that a student's grade should demonstrate and reflect the student's knowledge. To this end, we will do our best to avoid assigning a mark of zero on a task or assignment. However, if after attempts such as: phone calls or e-mails home, Powerschool notification, study hall referral, tutorials, adapted programming, administrative referral, etc, have been attended to and the student has still not complied, then an incomplete or failing grade may be applied.

Assessment for and of learning statement:

- Evaluation in this class includes both assessment *of*, and *for* learning. Assessment *for* learning includes all of the activities that we do to provide feedback in order to help students master the material and guide their learning. It is used by both the student and the teacher and might include project work, self and peer feedback, parent feedback, revision, practice work, group work, and other assignments. While the majority of the assessment in the class is assessment for learning, it will usually be only a small part of the final grade because it is used mainly as a teaching and learning tool, rather than an evaluation tool. The report card grade will therefore be primarily based on assessments of learning. An assessment *of* learning is an evaluation of the student's mastery of the course outcomes at any given time and will include project work, written work, assignments, practical work, exams, and other evidence of mastery demonstrated by the student.

General Expectations

- **Mature** and considerate behaviour is expected in class. Politeness and respectful behaviour to towards everyone in the room, and to property, is my number one expectation. Safe and efficient laboratory practices are mandatory. Failure to comply with laboratory safety procedures and directions given by your teacher will result in removal from the class. Working cooperatively with others is essential.

- **Attendance** is one of the most important factors for academic success. It is expected that you come to class every day on time with the materials you require for class. A mark will be given for demonstrating the scientific processes and attitudes which can only be achieved if you are in attendance for these skills to be observed.
- **Work Habits** – It is expected that the student use their class time to the best of their abilities for the whole period every class. I expect everyone to be listening when I am providing instruction. Please raise your hand and ask questions at any time during the class. Respectful behaviour is a necessity to all members of the class and shall be reciprocated.
- **All notes**, handouts, readings, assignment missed due to being absent are your responsibility. Please make arrangements with myself or a classmate to obtain missed materials. Should a quiz, lab or exam be missed due to an excused absence, you will be allowed to make it up on your own time.
- **Assignments** are due by the end of class on or before the due date. If you miss a class when an assignment is due, then it will be due the next day you are back in class.

Did you know...

- ☺ The most dangerous animal in the world is the common housefly. Because of their habits of visiting animal waste, they transmit more diseases than any other animal.
- ☺ There are 206 bones in the adult human body and there are 300 in children (as they grow some of the bones fuse together)