

Peace River High School  
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Peace River High School

# **Science 9**

# **Course Outline and Long Range Plans**

**September 2011**

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# Science 9 Course Outline

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## Course Philosophy

### Goals of the Science 9 Programme

According to the Program of Studies, the major goals of the Science 9 curriculum are:

- encourage students to develop a critical sense of wonder and curiosity about scientific and technological endeavours
- enable students to use science and technology to acquire new knowledge and solve problems, so that they may improve the quality of their own lives and the lives of others
- prepare students to critically address science related societal, economic, ethical and environmental issues
- provide students with a foundation in science that creates opportunities for them to pursue progressively higher levels of study, prepares them for science-related occupations, and engages them in science-related hobbies appropriate to their interests and abilities
- enable students, of varying aptitudes and interests, to develop a knowledge of the wide spectrum of careers related to science, technology and the environment.

## Course Outline

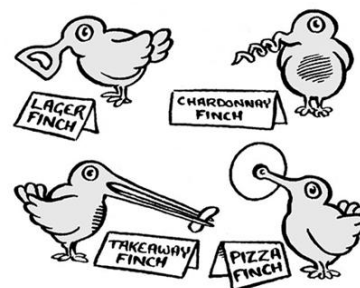
The following is the course outline listing the approximate percentage of time spent on each of the five units, the approximate time line, unit overview (from Alberta program of studies), and related chapters in the textbook.

## Unit 1: Biological Diversity

**Date:** Sept 1<sup>st</sup> – Sept 27<sup>th</sup>

Textbook pages: 8 - 87

**Overview:** Biological diversity is reflected in the range of species found in local and global environments and by subtle variations in characteristics found within individual species. In this unit, students learn that diversity is maintained through natural processes of sexual and asexual reproduction, though the survival of individual species—and variations within those species—may be influenced by ecological and human-caused factors. Students examine trends toward loss of diversity and examine related issues concerning environmental quality and the impact of technologies.



## Unit 2: Matter and Chemical Change

**Date:** September 28<sup>th</sup> – October 25<sup>th</sup>

Textbook pages: 88 - 177

**Overview:** Different materials have different properties. The ability to distinguish between different substances and make sense of their properties, interactions and changes requires the development of ideas about chemical substance. In this unit, students are introduced to the formal study of chemical substance through laboratory investigations and introductory studies of chemical theory. In the laboratory, students observe and compare chemical substances and, with guidance on safety, investigate the properties of materials and the ways they interact. In conjunction with these studies, students are introduced to ideas about elements and compounds, and corresponding structural ideas about atoms and molecules. Theoretical ideas are introduced as means for explaining, interpreting and extending their laboratory findings; these ideas include a general introduction to the periodic table, chemical nomenclature and simplified ways of representing chemical reactions.

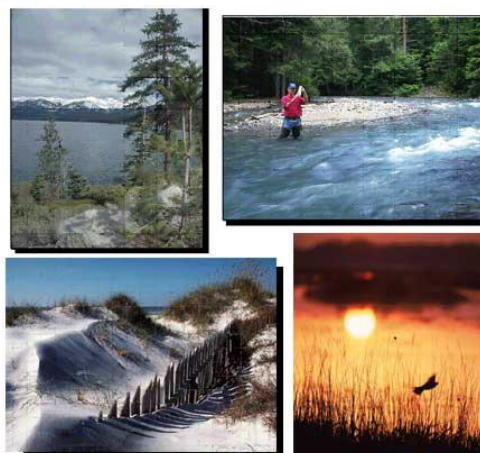


## Unit 3: Environmental Chemistry

**Date:** October 26<sup>th</sup> – November 18<sup>h</sup>

**Textbooks pages:** 178 - 269

**Overview:** Environments are often viewed from a physical and biological perspective, but to fully understand how they function, it is important to view them from a chemical perspective as well. A study of environmental chemistry helps students understand that chemical substances make up the underlying fabric of the world and are part of the process in all natural cycles and changes. Through this unit, students also become aware of human-produced chemical substances that enter and interact with environments, and they investigate potential impacts of different substances on the distribution and abundance of living things.

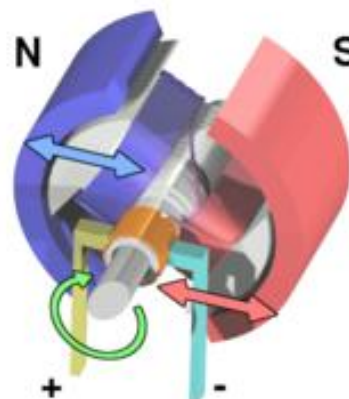


## Unit 4: Electrical Principles and Technologies

**Date:** November 21<sup>st</sup> – December 13<sup>th</sup>

**Textbook pages:** 270 - 365

**Overview:** Electricity provides the means to energize many devices, systems and processes that are part of our technological environment. Electrical devices are used to transfer and transform energy, to provide mechanisms for control and to transmit information in a variety of forms. In this unit, students learn the principles that underlie electrical technologies, by studying the form and function of electrical devices and by investigating ways to transfer, modify, measure, transform and control electrical energy. Using a problem-solving approach, students create and modify circuits to meet a variety of needs. Students also develop skills for evaluating technologies, by comparing alternative designs and by considering their efficiency, effectiveness and environmental impact.



## Unit 5: Space Exploration

**Date:** December 14<sup>th</sup> – January 20<sup>th</sup>

**Textbook pages:** 366 - 475

**Overview:** Technologies have played an essential role in the study of space and in the emerging use of space environments. Our modern understanding of space has developed in conjunction with advances in techniques for viewing distant objects, for transmitting images and data through space and for manned and unmanned space exploration. A study of space exploration provides an opportunity for students to examine how science and technology interact and to learn how one process augments the other. Students become aware that technologies developed to meet the challenges of space are applied to new purposes.



**Review: Jan 23<sup>rd</sup>**

**PAT: Tuesday, January 24<sup>th</sup> at 9:00am**

### General Expectations

- ✓ **Regular attendance** – To be successful in Science 9, the student must be attending classes and completing the work associated with learning the concepts and skills of the course. The student is responsible for getting notes and doing the work that was assigned if they are absent/late. If the student knows that they will be away, please notify the teacher so the student can pick up their work so they do not fall behind.
- ✓ **Arrive on time/Be prepared** – It is expected that you are in your desk ready to start class when the bell goes. If you are unable to avoid being late, please enter the classroom with a minimum of disruption. Books, pencils, calculators, data booklets, etc. are to be brought to class every day. Handouts, quizzes, assignments, notes and exams are to be kept in order in a binder.

- ✓ **Attitude** – Another necessity for this course is independence and accountability. You are responsible for keeping up with the homework, asking for help if needed, and studying for tests. This class is preparing you for high school courses, which requires all of these.
- ✓ **Work Habits** – It is expected that the student use their class time to the best of their abilities for the whole period every class. It is expected that everyone is listening when instruction are being provided. 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.
- ✓ **Homework/Exams** – Homework assignments are due at the beginning of each class. No assignments will be accepted once the unit test has been written by the class. It is the student’s responsibility to make up for any work missed during an absence. If an exam or quiz is missed due to an absence, the student will need to make necessary arrangements to write the quiz/exam with your teacher.
- ✓ **Help Sessions** –Extra help may be available before school, during lunch and after schools. Please make arrangements with your teacher.

## Tentative Schedule

	<b>Topics</b>	<b>Tentative Dates</b>
Unit 1	Biological Diversity	Sept 1 – 27
Unit 2	Matter and Chemical Change	Sept 28 – Oct 25
Unit 3	Environmental Chemistry	Oct 26 – Nov 18
Unit 4	Electrical Principles and Technologies	Nov 21 – Dec 13
Unit 5	Space Exploration	Dec 14 - Jan 20
Review	Review	Jan 23

Note: completion dates are tentative and subject to change if necessary.

## Evaluation:

Category	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Midterm (Nov 7)	PAT (Jan 24)
Classwork	80%	80%	80%	80%	80%	-	-
Unit Tests	20%	20%	20%	20%	20%	-	-
School Final Mark	15%	15%	15%	15%	15%	5%	20%

## Reporting Periods

Report Card	October 19
Report Card	November 29
Final Report Card	January 31
Provincial Achievement Test - Jan 24 <sup>th</sup>	

- Report strips will be handed out periodically between report cards and parents/students can check their marks on Peace River High School's web page under TMS marks.

## Materials

The textbook for the course is Science In Action 9. The e-book version is available online at [learnalberta.ca](http://learnalberta.ca) (username: LA46 password 6717) keyword search "science in action". A calculator is also required for the course.

If you have any questions with the information contained in this course outline, please contact one of us at the school, either by phone, 624-4221, or email.

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