Science 14 Course Outline

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**RESOURCE:** “Science Connect 1” by Colbourne, et.al.

(Published by McGraw-Hill Ryerson)

LINK to PROGRAM OF STUDIES:

[www.learnalberta.ca/ProgramsOfStudy.aspx?lang=en&posLang=en&Core=Science](http://www.learnalberta.ca/ProgramsOfStudy.aspx?lang=en&posLang=en&Core=Science)

**GRADING:**

24% Unit Exams (multiple choice – based on chapter notes in duotang) (4 X 6% each)

24% Chapter Quizzes (also based on chapter notes in duotang) (12 X 2% each)

32% Chapter Questions (open book tests that are done in class or lunch/after school if you’re absent - not to be done at home) and other Assignments, Labs, etc.

20% Final Exam

**MAJOR OUTCOMES: APPROXIMATE TIMELINE:**

*Unit A – Investigating Properties of Matter 4 weeks*

Focusing Questions:

How do we use properties to classify matter? How can an understanding of the properties of matter be used practically? What is the underlying structure of matter that helps us to classify and understand matter?

Key Concepts:

– safe handling, storage and disposal of household chemicals

– Workplace Hazardous Materials Information System (WHMIS) and consumer product symbols

– solutions and solubility of household substances – dilution and concentration

– preparing solutions – separating mixtures

– acids and bases – the periodic table: metals, nonmetals and metalloids

– elements and compounds – corrosion and rusting

*Unit B – Understanding Energy Transfer Technologies 4 weeks*

Focusing Questions:

How do common energy transfer technologies work in meeting our daily needs?

Why are efforts to promote energy conservation, by improving the efficiency of these technologies,

important to society?

Key Concepts:

– cooling and heating systems based on radiation, convection, conduction

– particle model of matter, temperature, thermal energy and heat

– methods to reduce the loss of heat from buildings, our bodies and constructed devices

– specific heat capacity – protection against thermal energy transfer

– simple machines as force or distance multipliers that transfer energy

– energy transfer (work), force and distance – reducing reliance on nonrenewable energy sources

*Unit C – Investigating Matter and Energy in Living Systems 4 weeks*

Focusing Questions:

What lifestyle choices can be made to help our organs and organ systems function

optimally? How do cells, which are microscopic and invisible to the naked eye, work together in organs and organ systems to carry out life functions?

Key Concepts:

– structures and functions of, and the relationship between, the digestive and circulatory systems

– diets and human nutritional needs

– social influences on human dietary-induced disorders and circulatory diseases

– microscopy, structure and function of plant and animal cell parts, and the cell theory

– life functions common to living systems – functions of cells in organs and organ systems

– photosynthesis and respiration – capture, storage and use of energy by living organisms

– role of technology to monitor life functions

*Unit D – Investigating Matter and Energy in the Environment 4 weeks*

Focusing Questions:

How is human activity influencing the natural flow of matter and energy in the

biosphere? Should humans as a species be concerned about the effects of their activities on other species and the environment?

Key Concepts:

– role of living organisms in cycling matter – flow of energy through the biosphere

– food chains, food webs and energy pyramids – maintaining equilibrium in the biosphere

– recycling of human-generated wastes – biodegradable material

– impact of modern agricultural technologies – biotic and abiotic factors and ecosystems

– field study of ecosystems – factors affecting population growth

– human impact on ecosystems

**EXPECTATIONS OF STUDENTS**

1. Be polite (to everyone!).
2. Be respectful (of people and property!).
3. Be prepared (bring textbooks, duotang, writing materials, etc.).
4. Be on time. Think about how many people you are inconveniencing every time you’re late!
5. Find out what assignments you missed when you’re absent.

Final Deadline for all assignments in a unit is the day of the unit exam.

NOTE: There are worksheets to fill in as you watch videos. However, if you are absent for a video, you will have to write a report on the video topic.

1. If you missed a test when you were absent, you will do it the next time I see you in class – so be prepared! NOTE: You will write it in the classroom as the rest of us proceed onto the next topic.

7) Your “emergency” hallway passes out of the classroom are limited to 10. (keep to 5 minutes – we’re right next to the washrooms!) Only one person at a time! After you’ve used 10 free passes, any more will cost you 5 minutes each (at lunch or after school). Serve the 5 minutes you owe me before you can use another hall pass. 8) CELL PHONES – Do not use during instruction, labs or group/partner activities. I will take it away and lock it in the Prep. Room until after class. During tests, leave cell phones at front of room on my desk until you’re done your test. Then you can pick it up and entertain yourself until everyone’s done their test. During independent work, cell phones can be used solely for listening to music (place in envelope!). If you use it for texting, internet, games, etc. during independent work, I will lock it up!

9) Come in and get help if you need it – before school, lunchtime, after school.