Science 9

# Highwood High School


### Teacher: Mr. K. Jones

**Semester:** Fall Semester

**School Year:** 2016/2017

**Email:** jonesk@fsd.ab.ca

**Guiding Questions**

1. What is biological diversity, and by what processes do diverse living things pass on their characteristics to future generations? What impact does human activity have on biological diversity?
2. What are the properties of materials, and what happens to them during chemical change? What evidence do we have of chemical change; and what ideas, theories or models help us explain that evidence?
3. What substances do we find in local and global environments? What role do they play, and how do changes in their concentration and distribution affect living things?
4. How do we obtain and use electrical energy? What scientific principles are involved? What approaches can we use in selecting, developing and using energy-consuming devices that are efficient and effective in their energy use?
5. How have humans attained a presence in space? What technologies have been developed and on what scientific ideas are they based? How has the development of these technologies contributed to the exploration, use and understanding of space and to benefits on Earth?

**Science 9 Unit Overviews and General Outcomes**

Unit: A **Biological Diversity (Text Unit 1)**

1. Investigate and interpret diversity among species and within species, and describe how diversity contributes to species survival

2. Investigate the nature of reproductive processes and their role in transmitting species characteristics

3. Describe, in general terms, the role of genetic materials in the continuity and variation of species characteristics; and investigate and interpret related technologies

4. Identify impacts of human action on species survival and variation within species, and analyze related issues for personal and public decision making

Unit: B **Matter and Chemical Change (Text Unit 2)**

1. Investigate materials, and describe them in terms of their physical and chemical properties

2. Describe and interpret patterns in chemical reactions

3. Describe ideas used in interpreting the chemical nature of matter, both in the past and present, and identify example evidence that has contributed to the development of these ideas

4. Apply simplified chemical nomenclature in describing elements, compounds and chemical reactions

Unit: C **Environmental Chemistry (Text Unit 3)**

1. Investigate and describe, in general terms, the role of different substances in the environment in supporting or harming humans and other living things

2. Identify processes for measuring the quantity of different substances in the environment and for monitoring air and water quality

3. Analyze and evaluate mechanisms affecting the distribution of potentially harmful substances within an environment

Unit: D **Electrical Principles and Technology (Text Unit 4)**

1. Investigate and interpret the use of devices to convert various forms of energy to electrical energy, and electrical energy to other forms of energy

2. Describe technologies for transfer and control of electrical energy

3. Identify and estimate energy inputs and outputs for example devices and systems, and evaluate the efficiency of energy conversions

4. Describe and discuss the societal and environmental implications of the use of electrical energy

Unit: E **Space Exploration**  **(Text Unit 5)**

1. Investigate and describe ways that human understanding of Earth and space has depended on technological development

2. Identify problems in developing technologies for space exploration, describe technologies developed for life in space, and explain the scientific principles involved

3. Describe and interpret the science of optical and radio telescopes, space probes and remote sensing technologies

4. Identify issues and opportunities arising from the application of space technology, identify alternatives involved, and analyze implications

**Tentative Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| Text Unit | Units of Study | Approximate # of Classes | Final Weighting (%) |
|  | Science Inquiry (Labs, and Skills) |  | 20 |
| 1 | Biological Diversity | 16 | 16 |
| 2 | Matter and Chemical Change | 18 | 16 |
| 3 | Environmental Chemistry | 15 | 16 |
| 5 | Space Exploration | 10/Flex | 16 |
| 4 | Electrical Principles and Technology | 14 | 16 |
|  | PAT Examination | 1 |  |

**Course Evaluation**

**Unit Evaluation**

Topic assignments, quizzes, performance tasks, journals,

Unit assignments, etc 60%

Unit Exams 40%

**Course Evaluation**

Science Inquiry (Labs and Skills) 20%

Course Material 80%

**Internet Resources & Extra Practice**

**Class Website**: <http://science9jones.weebly.com/>

**Remind:**

**Google Classroom**

 Access Code: 8ja0b52

Alberta Exambank (Practice exams, questions, quizzes, etc.)

<http://alberta.exambank.com/grade9.html>

Login: highwood

Password: exambank101

**Extra Help**

Extra help can be obtained outside of class time if needed. Here is where you can find it.

* Your Teacher– Talk to me to schedule extra help sessions or try stopping by the classroom before or after school, or at lunchtime to see if I am available on short notice.
* Other Teachers – Other teachers in the science department are often available for extra help if I am not. Please do not hesitate to ask other teachers for help. This is especially useful during flex block.

**Classroom Expectations**

Extra help can be obtained outside of class time if needed. Here is where you can find it.

1. I will make this class enlightening enough for you to justify being here.
2. You will critically evaluate your understanding by asking questions.
3. It is both of our responsibilities to ensure that you learn.
4. Do not accept what I say to be fact. Critically question everything.
5. You will be reasonable and respectful to all members of this class.
6. Even though it may hurt at times, you will THINK while you are here.