

School Year: 2018-19

Course Outline for: Mathematics 8 **Teacher(s):** James Caudle, Ben Craigen, Jane Londero

Course Description:

Generally speaking, mathematics 8 consolidates students’ knowledge and understanding of number concepts in preparation for the increasingly abstract and algebraic concepts in secondary mathematics. Fluency with number operations is a goal, introducing exponentiation and extending operations to fractions and negative numbers. Proportionality is presented as a unifying concept across fractions, ratios, and percents. The curricular competencies for math 8 are virtually the same as for math 7 or math 9; students develop their capacities for reasoning and analysis – most directly through the solving of rich problems. Reflection on mathematics and making connections are another area of development. Finally, students will practice communicating and representing mathematics in ways that are effective and efficient.

Assessment and Unit Overview:

Time Period	UNDERSTAND Big Idea	KNOW Key Content Standard	ASSESSMENT PIECES	DO Key Curricular Competencies	ASSESSMENT PIECES
	Number: proportionality	Percents, proportional reasoning, squares, cubes, roots		<i>Reasoning and Analyzing</i>	Problem solving journals, challenge tasks
	Fraction operations	Fraction operations		Understanding and Solving	Unit tests, formative quizzes, assignments
	Linear relationships	Linear relations, expressions, 2-step equations		Communicating and Representing	Projects, presentation problems
	Area & volume relationships	Surface area & volume, Pythagorean theorem, views & nets		Connecting and Reflecting	Problem solving journals, projects, math labs
	Analyzing data				

Discuss how we are creating the gradebook in aspen and reporting on standards-based grading of curricular competencies and content

Resources required: textbooks/workbooks etc

Connections to Yukon First Nation Ways of Knowing and Doing: Within this course, teaching style will reflect on the traditional teaching practices of Yukon First Nation: The ones specifically identified are:

- *Emphasis on mastery*
- *Engaging community resources and learning*
- *Emphasis on formative feedback*
- *Starting with modelling of expected learning; gradual shift to autonomy of tasks*
- *Making next steps clear*
- *Clarification of the learning focus*
- *Connections to student lives and place*
- *Have well defined and consistent behaviour expectations*
- *Communicate to students that we care for them*

When possible, classroom teaching will incorporate aspects of first nation knowledge and culture when the curriculum allows.

Evaluation and Reporting Plan:

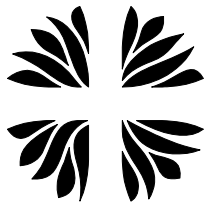
Use of Aspen Gradebook to record evidence of student performance.

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Linear Dates	Semester 1 Courses	Semester 2 Courses	Type of Report	Communication
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Re-assessment Policy: Students have the opportunity to try again to demonstrate improved knowledge of the particular concept. Students must show that they have made efforts to learn the concept before getting the opportunity to be re-assessed. Note that this is subject to time constraints of the course and is not guaranteed as the end of a course approaches for students requiring *multiple* areas of re-assessment.



School Year: 2018-19

Course Outline for: Scimatics (Math 9)

Teacher(s): Craigen/Londero/Caudle/Gray

Course Description:

The goal of Scimatics Math 9 is to give students a chance to practice math skills everyday in a linear school year. By combining the two courses together, not only do students receive consistent re-enforcement of math skills on a regular basis, but it also allows the integration of math into scientific analysis whenever possible. *The link that connects math to science is crucial in developing an appreciation for the importance of math in our lives and the world around us.*

Assessment and Unit Overview:

Time Period	UNDERSTAND Big Idea	KNOW Key Content Standard	ASSESSMENT PIECES	DO Key Curricular Competencies	ASSESSMENT PIECES
<i>Term 1</i>	<p>Number Representation</p> <ul style="list-style-type: none"> Number operations apply equally to algebraic situations and can be described and analyzed 	<ul style="list-style-type: none"> perfect squares and cubes square and cube roots percents less than 1 and greater than 100 (decimal and fractional percents) 	-Assignments -Quizzes -Tests -Projects	<p>The following apply to all Big Ideas</p> <ul style="list-style-type: none"> Reasoning and Analyzing Understanding and Solving Communicating and Representing Connecting and Reflecting <p>The following apply to all Big Ideas</p>	-Assignments -Quizzes -Tests -Projects
Term 2	<p>Computational Fluency and Flexibility</p> <ul style="list-style-type: none"> Calculations using all operations including rational numbers Fraction Operations 	<ul style="list-style-type: none"> numerical proportional reasoning (rates, ratio, proportions, and percent) operations with fractions (addition, subtraction, multiplication, division, and order of operations) 	-Assignments -Quizzes -Tests -Projects	<ul style="list-style-type: none"> Reasoning and Analyzing Understanding and Solving Communicating and Representing Connecting and Reflecting 	-Assignments -Quizzes -Tests -Projects
Term 3	<p>Discrete Linear Relationships</p> <ul style="list-style-type: none"> Graphing Identifying regularities and making generalizations 	<ul style="list-style-type: none"> discrete linear relations (extended to larger numbers, limited to integers) expressions- writing and evaluating using substitution two-step equations with integer coefficients, 	-Assignments -Quizzes -Tests -Projects		

		constants, and solutions			
Term 4	<p>Shapes</p> <ul style="list-style-type: none"> Similar shapes have proportional relationships that can be described, measured and compared <p>Analyzing Data</p> <ul style="list-style-type: none"> Determining validity and reliability of data 	<ul style="list-style-type: none"> Pythagorean theorem construction, views, and nets of 3D objects surface area and volume of regular solids, including triangular and other right prisms and cylinders central tendency theoretical probability with two independent events financial literacy — best buys 	<ul style="list-style-type: none"> -Assignments -Quizzes -Tests -Projects 		

Grades will be recorded in Aspen using a combination of content and curricular competencies to track performance.

Resources required:

Mickleson Math 9 Workbook

Connections to Yukon First Nation Ways of Knowing and Doing:

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- *Emphasis on formative feedback*
- *Start teaching by modelling of expected learning; gradual shift to autonomy of tasks*
- *Making next steps clear*
- *Clarification of the learning focus*
- *Connections to student lives and place*
- *Have well defined and consistent behaviour expectations*
- *Communicate to students that we care for them*

Classroom teaching will incorporate aspects of first nation knowledge and culture when the curriculum allows.

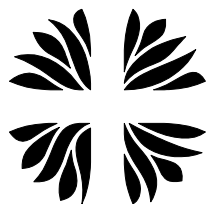
Evaluation and Reporting Plan:

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School Year: 2018-19

Course Outline for: Scimatics 8

Teacher(s): Ben Craigen, JD Caudle, Jane Londero, Erik Gray

Course Description: The Science 8 program is designed to provide students with a “hands on” type of science experience. All science classes stress the need to make accurate observations, the importance of good records, along with the ability to generalize about ideas and communicate these ideas to others. In addition, students are taught how to use equipment, follow instructions and work safely in any laboratory situation.

Time Period	UNDERSTAND Big Idea	KNOW Key Content Standard	ASSESSMENT PIECES	DO Key Curricular Competencies	ASSESSMENT PIECES
<i>Term 1</i>	Life processes are performed at the cellular level	<ul style="list-style-type: none"> • Characteristics of life, cell theory and types of cells • Relationships of 	Quizzes/Tests Discussions Activities Assignments	<i>Questioning and predicting</i> <i>Planning and conducting</i> <i>Processing and analyzing data and information</i>	Destination Immagination Science Fair Lab reports

		micro-organisms with living things • Photosynthesis	Presentations	<i>Evaluating</i> <i>Applying and innovating</i> <i>Communicating</i>	Experiments Class discussions Field trips Tests Presentations
<i>Term 2</i>	The behaviour of matter can be explained by the kinetic molecular theory and atomic theory	• KMT, atomic theory and models • Protons, neutrons, electrons, quarks and leptons	Quizzes/Tests Discussions Activities Assignments Presentations		
<i>Term 3</i>	Energy can be transferred as both a particle and a wave	• Electromagnetic radiation • Light	Quizzes/Tests Discussions Activities Assignments Presentations		
<i>Term 4</i>	The theory of plate tectonics is the unifying theory that explains Earth's geological processes	• Plate tectonic movement • First Peoples knowledge of local geological formations and events • Layers of Earth	Quizzes/Tests Discussions Activities Assignments Presentations		

Assessment and Unit Overview:

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Resources required: Course textbook and workbook

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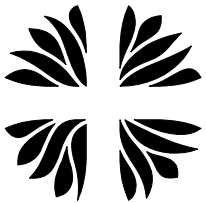
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School Year: 2018-19

Course Outline for: Science 9

Teacher(s): Caudle, Craigen, Gray, Londero

Course Description: This course is designed to introduce the students to 4 of the main sections of Science so they can be introduced to some of the concepts/ vocabulary/ methods/ discoveries and uses in today’s world that each discipline has contributed to Science research and application.

Assessment and Unit Overview:

Time	<i>UNDERSTAND</i>	<i>KNOW</i>	<i>ASSESSMENT</i>	<i>DO</i>	<i>ASSESSMENT</i>
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Period	Big Idea	Key Content Standard	PIECES	Key Curricular Competencies	PIECES
Term 1	Cells are derived from cells	Asexual Reproduction - Types and examples	Quizzes, explanation diagrams of phases of Mitosis	<i>Explanation of these processes and ability to give examples in the natural world</i> - <i>Identify in prepared slides some of these stages</i>	Test , Lab report and drawings
		Sexual Reproduction - Types - Human Reproduction	Quizzes explanation diagrams of phases of Meiosis	Distinguish between Asexual and Sexual Reproduction Give examples and benefits of each. Link to Salmon populations in the Yukon and First Nations food chain	Test, Vocabulary Quiz,
Term 2	Electron Arrangement of Atoms impacts their chemical nature	Elements and arrangement on the Periodic Table Determining the compounds formed by the elements	Sheets on components of atoms, drawing out the electron arrangement of elements	Determining electrons, protons, neutrons and their arrangement in the elements, identify Families on the Periodic Table and discussing their reactivity	Identifying elements by Atomic number, mass and family on the Periodic Table

Term 3	Electric Current is the Flow of Electric charge.	Ideas about how Atomic Theory was developed Discuss the EM Spectrum.	Lewis and Bohr Model Diagrams Draw and explain the different forms of Light.	Complete sheets on Balancing and combining compounds Describe the different levels of energy in Light. Do problems involving volts, current, amperes and describe the relationship between them.	Lab work on Chemical Reactions. Test with Voltage, Current and Ampere problems.
Term 4	Connecting Biosphere, Geosphere, Hydrosphere and Atmosphere.	Describe what each sphere is made up of and the inter-relationship between them.	Give examples of the organisms and the cycles that act upon each of the spheres.	Describe how they are being affected by the influence of humans and other organisms - past, present and future. Describe ways to keep them in balance.	Report on some of the changes to these spheres over the last 10,000 years.

Discuss how we are creating the gradebook in aspen and reporting on standards-based grading of curricular competencies and content

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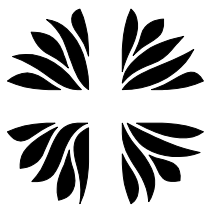
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School Year: 2018-19

Course Outline for: Physics 11

Teacher(s): Craigen

Course Description:

Physics is relevant to a wide range of human concerns and achievements. Everything we do in life is governed by the laws of physics. Our rapid technological change in the recent past is closely related to our understanding of physics principles. Just think of life without cell phones, the Internet, debit cards or Justin Bieber. Moreover, the concepts of physics have a profound effect on the way we think about our universe, our societies, and ourselves. Physics is also essential to academic studies and career training in the fields of science, engineering, technology, and medicine.

The senior secondary physics courses aim to bolster and develop a scientific way of thinking and a hands-on approach in understanding the basic laws of physics. The topics in this course have been chosen because they illustrate the **substance** of physics.

Assessment and Unit Overview:

Time Period	UNDERSTAND Big Idea	KNOW Key Content Standard	ASSESSMENT PIECES	DO Key Curricular Competencies	ASSESSMENT PIECES
<i>Term 1</i>	<ul style="list-style-type: none"> • An object's motion can be predicted, analyzed, and described. • Forces influence the motion of an object. 	<ul style="list-style-type: none"> • vector and scalar quantities • horizontal uniform and accelerated motion • projectile motion • contact forces and the factors that affect magnitude and direction • mass, force of gravity, and apparent weight • Newton's laws of motion and free-body diagrams • balanced and unbalanced forces in systems 	<ul style="list-style-type: none"> -Assignments -Quizzes -Tests -Projects -Labs 	<p>The following apply to all Big Ideas</p> <ul style="list-style-type: none"> • <i>Planning and Conducting</i> • <i>Questioning and Predicting</i> • <i>Processing and Analyzing Data and Information</i> • <i>Evaluating</i> • <i>Applying and Innovating</i> • <i>Communicating</i> 	<ul style="list-style-type: none"> -Assignments -Quizzes -Tests -Projects -Labs
<i>Term 2</i>	<ul style="list-style-type: none"> • Energy is found in different forms, is conserved, and has the ability to do work. • Mechanical waves transfer energy but not matter. 	<ul style="list-style-type: none"> • conservation of energy; principle of work and energy • power and efficiency • simple machines and mechanical advantage • applications of simple machines by First Peoples • electric circuits (DC), Ohm's law, and Kirchhoff's laws • thermal equilibrium and specific heat capacity • generation and propagation of waves • properties and behaviours of waves • characteristics of sound • resonance and frequency of sound • graphical methods in physics 	<ul style="list-style-type: none"> -Assignments -Quizzes -Tests -Projects -Labs 		

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Resources required:

Scientific Calculator and General School Supplies

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