

# Science and Math 9 Course Outline 2017-2018

Springbank Community High School

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Welcome to Science and Math 9 at SCHS! I am very much looking forward to learning with you this year. This is a combined course in which we will complete the requirements for both Science and Math 9. Keeping classes together in this way allows us to study both subjects individually, and also to take advantage of opportunities to enrich our understanding with some combined projects and/or assignments.

Generally, we will work through the curricula one unit (science) or chapter (math) at a time, so even though your schedule may say 'Math' for Day one and 'Science' for day two, please consider math and science to be one course, working through topics one by one.

## **Topics of Study in Math:**

### **Unit 1: Number Sense**

This unit builds on previous math knowledge and includes:

- Chapter 1: Square Roots and Surface Area
- Chapter 2: Powers and Exponent Laws
- Chapter 3: Rational Numbers

### **Unit 2 - Patterns and Relations**

This unit explores the many different ways that patterns can be used to describe and explain relationships. We will learn to recognize, extend, create and use patterns which are represented in a variety of forms.

- Chapter 4: Linear relations
- Chapter 5: Polynomials
- Chapter 6: Linear equations and inequalities

### **Unit 3 - Statistics and Probability**

In this unit, we will study degrees of certainty in statistical data, and work to understand the role of chance in probability. You will undertake a research project and use the data collected to talk about probability.

- Chapter 9: Probability and Statistics

### **Unit 4 - Shape and Space**

We will work to further develop our spatial sense in this unit through solving problems involving 3-D objects and 2-D shapes.

- Chapter 7: Similarity and Transformations
- Chapter 8: Circle Geometry

## **Your Grade in math will be determined as follows:**

### ***Assessment for Learning 80%, comprised of:***

Quizzes /Assignments / Projects	45%
Chapter Tests	40%

### ***Assessment of Learning 20%, comprised of:***

Final Exam (PAT - late June)	10%
Written Final Exam	5%

## **Topics of Study in Science:**

### **Unit 1: Matter and Chemical Change**

Key topics in this unit will include:

- WHMIS and safety
- Substances and properties
- Endothermic and exothermic reactions, reactants and products, conservation of mass, reaction rates
- Atomic theory and the periodic table
- Introduction to chemical nomenclature

### **Unit 2: Electrical Principles and Technologies**

Key topics in this unit will include:

- Forms of energy and transformation of energy
- Generation, storage, and transmission of electrical energy
- Electric charge and current, circuits
- Measures and units of electrical energy
- Electrical Resistance and Ohm's Law

### **Unit 3: Environmental Chemistry**

Key topics in this unit will include:

- Chemicals essential to life, substrates and nutrients
- Air and water quality, hazards, probabilities, and risk assessment, evidence of toxicity
- Organic and inorganic materials
- Acids and bases
- Concentration, Dispersal, stability and biodegradability

### **Unit 4: Space Exploration**

Key concepts in this unit will include:

- Technologies for space observation and exploration, satellites and orbits
- Describing position and motion in space
- Distribution of matter and composition and characteristics of bodies in space
- Life support and communication technologies

### **Unit 5: Biological Diversity**

Key concepts in this unit will include:

- Biological Diversity, Species concept, diversity within species
- Habitat diversity, populations and niches
- Sexual and Asexual reproduction, inheritance, chromosomes and cell division
- Natural and Artificial Selection

### **Your Grade in Science will be determined as follows:**

Assignments, Labs, Quizzes and Projects	45%
Unit Exams	40%
Provincial Achievement Test	15%

### ***Required Materials:***

Laptop, pen, pencil, eraser, ruler, protractor, calculator (graphing function is optional), paper, binder, text, coiled notebook, graph paper. Please note that graphing calculators are not permitted to be used while writing the PAT.

### ***Expectations:***

- Be on time and prepared
- Be respectful of our learning space, yourself, and all the people around you
- Use your time wisely. There is a lot of work to accomplish in a limited amount of time in Math 9. Keep this in mind as you allocate time to tasks.
- Use electronics appropriately. This includes knowing when to not use them at all. All phones will be housed in the “cell phone hotel” while in the classroom.

### ***Homework and Assignments:***

Expect to spend about one half hour per school night working on math and/or science homework, completing assignments, reading your text and going over material from the day’s class. Assignments will be posted on the calendar in the Moodle course. There is no such thing as a school night with no homework! All assignments are to be handed in at the **beginning of class** on the day they are due.

### ***Lates and Absences:***

Please be on time for class. If you are late, quietly wait at the door until you are let into class. Quizzes will often be given at the beginning of class so if you are late you will have less time to finish. Excessive tardiness will be dealt with by administration if we are unable to resolve the issue. Please inform me as early as possible if you know that you will be absent, so that we can work together to make sure that you keep abreast of your classwork while you are away. **If you are absent from class it is your responsibility to find out what you missed.** A missed class is not an excuse for not handing in assignments or being prepared for quizzes and tests.

### ***Exams and Quizzes:***

**If you are going to be away for an exam or quiz, you must notify the teacher prior to your absence, by way of a phone call, message, or telling the teacher you will be away. The phone call and/or message must reach the teacher prior to the class writing the exam or quiz.** If you have been excused you are expected to write the exam the first day you are back in class and it is your responsibility to approach me about it. If the test/quiz is not written upon your return or at an agreed upon time an incomplete will be given.

### ***Extra Help:***

Extra help is always available. Please sign up for a Math/Science Focus time, or make an appointment to see me at a mutually convenient time. I will be available most days before school, at lunch and after school – my door is always open, and I am always a quick email away!