COURSE OUTLINE
September 2019 to June 2020
MATH 8/9

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COURSE DESCRIPTION

The main goals of mathematics education are to prepare students to:

(a) use mathematics confidently to solve problems
(b) communicate and reason mathematically
(c) appreciate and value mathematics
(d) make connections between mathematics and its applications
(e) commit themselves to lifelong learning
(f) become mathematically literate adults, using mathematics to contribute to society

Students who have met these goals will:

(a) gain understanding and appreciation of the contributions of mathematics as a science, philosophy and art
(b) exhibit a positive attitude toward mathematics
(c) engage and persevere in mathematical tasks and projects
(d) contribute to mathematical discussions
(e) take risks in performing mathematical tasks
(f) exhibit curiosity

COURSE CURRICULUM OUTCOMES

Number

General Outcome: Develop number sense.

Specific Outcome 1
Use estimation strategies to estimate quantities and read and write numerals in the millions

Specific Outcome 2
Round numbers to the nearest unit, tenth and hundredth

Specific Outcome 3
Recognize, model and describe, concretely, pictorially and symbolically:
• multiples; e.g., lowest common multiple for pairs of numbers less than 10
• factors; e.g., greatest common factor for pairs of numbers less than 25
• composites

• prime factorizations

Specific Outcome 4
Write a whole number:
• as an expanded numeral, using powers of 10
• in scientific notation

Specific Outcome 5
Estimate and apply arithmetic operations to whole numbers and decimals, e.g., 2-digit whole number multipliers and divisors, in everyday contexts

Specific Outcome 6
Estimate and apply arithmetic operations to proper fractions and mixed numbers with like denominators concretely, pictorially and symbolically

Specific Outcome 7
Generate and verify equivalent fractions to solve problems that involve adding and subtracting fractions with unlike denominators

Specific Outcome 8
Convert among fractions, decimals and percents concretely, pictorially and symbolically

Specific Outcome 9
Assess the reasonableness of calculations and problem-solving strategies, using a variety of tools and/or strategies; e.g., estimation, mental mathematics, tables, graphs, calculators and/or computers

Specific Outcome 10
Represent and explain the meaning of rates concretely, pictorially and symbolically

Specific Outcome 11
Estimate and calculate mean (average) in relation to everyday contexts]

Specific Outcome 12
Estimate and calculate percents to solve everyday problems

Specific Outcome 13
Use rates to estimate, calculate and compare prices

Specific Outcome 14
Compare and order positive and negative numbers, using appropriate tools; e.g., a number line or a thermometer

Patterns & Relations - Patterns and Relationships
General Outcome: Use patterns to describe the world and to solve problems.
Specific Outcome 1
Identify, describe and summarize, in spoken and written form, patterns and relationships

Specific Outcome 2
Make predictions based on everyday patterns and use patterns to draw conclusions

Specific Outcome 3
Create expressions and rules to describe, complete and extend patterns and relationships

Patterns & Relations - Variables & Equations

General Outcome: Represent algebraic expressions in multiple ways.
Specific Outcome 4
Demonstrate and explain how to solve simple problems, using informal algebraic methods

Specific Outcome 5
Read and graph relationships and draw conclusions in everyday contexts

Shape & Space - Measurement
General Outcome: Use direct and indirect measurement to solve problems.
Specific Outcome 1
Use common metric (SI) units and instruments to take accurate measurements of:
- length
- mass (weight)
- volume (capacity)

Specific Outcome 2
Use conversion charts, calculators and/or other tools to compare and convert a variety of metric (SI) units

Specific Outcome 3
Use common imperial units and instruments to take accurate measurements of:
- length
- mass (weight)
- volume (capacity)

Specific Outcome 4
use conversion charts, calculators and/or other tools to compare and convert a variety of imperial units of measure

Specific Outcome 5
Develop, verify and apply rules or expressions for the area of rectangles; e.g., mm2 , cm2 , m2 , km2

Specific Outcome 6

Estimate, measure and calculate areas of quadrilaterals and triangles to solve problems in everyday contexts

Specific Outcome 7
Design and construct rectangles when given perimeter or area, or both, using a variety of tools; e.g., grids

Specific Outcome 8
Estimate, measure and calculate the circumference, radius and diameter of circles to solve problems in everyday contexts

Specific Outcome 9
Identify, discuss and classify examples of angles in the environment; e.g., right, acute, obtuse, straight or reflex

Specific Outcome 10
Estimate, measure and draw angles up to 180°, using a protractor or other tools

Specific Outcome 11
Add and subtract hours and minutes in everyday applications

Shape & Space - 3-D Objects & 2-D Shapes

General Outcome: Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them.

Specific Outcome 12
classify and construct 3-D objects, using a variety of tools and strategies

Specific Outcome 13
Sketch 3-D objects and skeletons with and without grids

Specific Outcome 14
Sort quadrilaterals and regular polygons according to the number of lines and symmetry

Specific Outcome 15
Relate reflections to lines and planes of symmetry

Specific Outcome 16
Draw and classify triangles according to the measurements of their angles; e.g., acute, obtuse, scalene

Specific Outcome 17
Use scale to reproduce a 2-D shape

Shape & Space - Transformations

General Outcome: Describe and analyze position and motion of objects and shapes.

Specific Outcome 18
Create, examine and describe designs, using translations (slides), reflections (flips) and rotations (turns)

Specific Outcome 19
Grace a path, given in oral or written instructions, and write or describe instructions for a given path

Specific Outcome 20
Draw designs and determine locations in the first and second quadrants of a coordinate grid, using ordered pairs

Statistics & Probability - Data Analysis

General Outcome: Collect, display and analyze data to solve problems.

Specific Outcome 1
Read, interpret and communicate information represented in graphs, charts and other collection tools

Specific Outcome 2
Collect, organize and display data and information, by hand and/or using technology, in a variety of ways; e.g., tables, charts, bar or line graphs, frequency diagrams, broken-line graphs

Specific Outcome 3
Make conclusions and predictions based on data and information analysis

Specific Outcome 4
Examine sets of data, draw conclusions and make comparisons

Specific Outcome 5
Determine trends by identifying and examining extremes, gaps or clusters in a set of data

Specific Outcome 6
Examine the distribution of a set of data, using smallest and largest value, frequency, value in the middle and patterns

Specific Outcome 7
Use appropriate vocabulary, related to the home or workplace, to discuss and examine data; e.g., probable/improbable, equally likely/less likely/more likely, best/worst

Specific Outcome 8

Manipulate data in everyday applications, at home or in the workplace, by selecting appropriate tools such as spreadsheets

Required Materials:

Students are expected to bring these materials with them to every class:

3 ring binder – divided into two sections (one section for notes, one section for assignments)
Loose leaf paper – lined and graph
Blue pens
Red (or another accent colour) pens
Pencils – all math homework and tests must be completed in pencil
Eraser and Ruler
Geometry set and a CALCULATOR

Program Organization and Anticipated Time

Unit #1: Whole Numbers (**September-October)**

Unit #2: Operations with Whole Numbers **(October-November)**

Unit #3: Decimals **(November-December)**

Unit #4: Working with Data **(December- January)**

Unit #5: Patterns, Relationships, and Equations (**January-February)**

Unit #6: Percents and Rates **(February-March)**

Unit #7: Operations with Fractions **(March-April)**

Unit #8: 2-D and 3-D Geometry**(April-May)**

Unit #9: Course Review **(May-June)**

JUNE: Final Exam date TBD

Expectations

Students must ensure that they behave in a manner that permits a positive learning experience for the individual and the class as a whole. This involves cooperation, dedication, and self-discipline on the part of the student. In addition, regular and prompt attendance is required if the course is to be successfully completed. Any inappropriate behavior will be dealt with immediately. Further incidents may result in sterner action involving parents and/or the principal.

1. **ARRIVE ON TIME AND PREPARED**. Time lost by late arrival or unprepared arrival may be made up for at noon.

2. **RESPECT** is an essential part of working in a learning community:

    a. All students are expected to respect themselves, each other and the teacher, as well as all property and equipment. Name-calling, teasing, inappropriate language, damage to property, etc will not be tolerated.

    b. **Use class time effectively** and complete your work on time. Misuse of class time will result in less class time to work on assignments, etc. Misuse of time may also result in making up for that time at lunch hour.

    c. Do not talk when someone else is talking, whether it is the teacher or a classmate. You want to be heard when you are speaking and it is expected you would demonstrate the same respect.

3. This is **YOUR** learning environment! A neat and tidy classroom makes the learning experience more enjoyable and safe for everyone. You are responsible for maintaining your personal space and the classroom in general. Please clean up after yourself.

4. Inform the teacher if you know you are going to be absent so you can complete missed work on your own time. If you are absent unexpectedly, it is your responsibility to find out what you missed from the teacher or a classmate and get caught up.

5. **If you are struggling or unsure of a concept, please speak with the teacher immediately. The longer you wait, the further behind you find yourself!**

Rewrite Policy

You will be allowed to rewrite unit tests only. A rewrite will not be offered for assignments, quizzes or final exams, except in the event of extenuating circumstances. In order to rewrite a unit test, the following **criteria must be met:**

- all class assignment must be completed with a minimum of 75%, by the date of the original test
- request the rewrite within one day of the return of your original test
- complete all corrections from the original test on a separate sheet of paper, including explanations of errors and hand in within one week of the return of the original test

After corrections are turned in, the date for the rewrite will be decided. There will be one rewrite allowed, meaning that all students requesting a rewrite will be required to write it at the same time. Rewrites will be done on the students' time; that is, at noon or after school, not during class time

Homework

Efforts will always be made to provide ample class time to complete course work but occasionally more time may be required and homework becomes a necessity.

Extra Help Policy

It is the student's responsibility to request extra help outside the classroom. Advance notice is required.

It is expected that students attempt work on their own before asking for extra help. Assignments and tests are not the time to ask for help, as then the assessment is not a true picture of what the student knows. Several opportunities for Learning Activities will take place – these are the activities that students should request help with or clarification if required.

We all need to do our part to ensure a successful year, the teacher has final responsibility for what goes on in our classroom and therefore, it is expected that students follow instructions and requests in order to maintain a safe and positive learning environment.

Assessment Strategies:

The learning strategies which will be used to help students reach their potential include:

- Differentiated Instruction (D.I.) and Assessment for Learning (A4L).

D.I. involves being more aware of the differences in how students learn which in turn leads to varied methods of instruction to better meet student needs. D.I. will also involve giving students a greater say in some of the areas they choose to focus their studies on and how they present their findings. A4L *(Learning Activities)* requires students to be more aware of the objectives and requirements of each assignment. It focuses on using assignments as a method of improvement rather than as a source of marks. In this light some of the students' work will be commented on or

discussed, without putting an actual mark on it. In this way students will learn what is expected of them and how to improve their work. It is vital that students put their best effort into completing and learning from all assignments.

- Assessment of Learning

Assignments -on a regular basis individual assignments will be taken in and carefully marked as a check of student understanding and progress. These will include Applying Concept and Critical Thinking questions, book/ lab reports, mapping projects, etc. and are used for marks.

-all assignments and projects must be completed. Late work will be completed at noon as zeros are not acceptable.

Quizzes- to ensure that students keep up with their studies on a daily basis there will be short quizzes in which students will be asked to recall work from the previous day, explain an important concept or term, etc.

Tests- at the end of each unit a test will be written covering the work just completed. However, due to the fact that most courses build on previous knowledge, understanding the ideas from earlier chapters will be necessary. Tests will consist of a variety of multiple choice questions, vocabulary words, and written response questions, depending on the course. All tests must be written. If you have a valid reason for missing a test, make arrangements to write a make-up as soon as you return.

Final Exam- these will deal with all the material covered to date. The format will be similar to the chapter tests but on a larger scale.

The Final Grade:

The evaluation for each course is based on the student's achievement of curriculum expectations and the demonstrated skills required for effective learning. The percentage grade represents the quality of the student's overall achievement of the expectations for the course and reflects the corresponding level of achievement.

Evaluation:

Assignments-	70%
Unit Tests -	10%
Quizzes-	10%
Final Exam-	10%

** The teacher retains the right to change the evaluation scheme to meet the needs of the program or students.*

Any parent wishing to meet with me to discuss a problem or concern may arrange a meeting by calling the school (780) 786-2624. Any student wishing to request extra help or wishing to discuss a problem or concern can speak with me at school. I will do my best to make myself available for extra help.

_____	_____
Parent / Guardian Name	Parent / Guardian Signature
_____	_____
Student Name	Student Signature