Mayerthorpe Jr. Sr. High School

Math 8 Course Outline 2019-2020

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Resource Textbooks – Math Links 8 & Math Makes Sense 8

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

Education in Alberta aims to honour cultural diversity and promote intercultural understanding. Students are able to build on foundational knowledge about First Nations, Metis and Inuit peoples. The program of studies provides opportunities for students to develop a knowledge and understanding of, and respect for, the histories, cultures, languages, contributions, perspectives, experiences and contemporary contexts of First Nations, Metis and Inuit.

COURSE CURRICULUM OUTCOMES

Number
General Outcome: Develop number sense.
Specific Outcome 1
Demonstrate an understanding of perfect squares and square roots, concretely, pictorially and symbolically (limited to whole numbers).
Specific Outcome 2
Determine the approximate square root of numbers that are not perfect squares (limited to whole numbers).
Specific Outcome 3
Demonstrate an understanding of percent greater than or equal to 0%, including greater than 100%.
Specific Outcome 4

Demonstrate an understanding of ratio and rate.
Specific Outcome 5
Solve problems that involve rates, ratios and proportional reasoning.
Specific Outcome 6
Demonstrate an understanding of multiplying and dividing positive fractions and mixed numbers, concretely, pictorially and symbolically.
Specific Outcome 7
Demonstrate an understanding of multiplication and division of integers, concretely, pictorially and symbolically.

Patterns & Relations - Patterns
General Outcome: Use patterns to describe the world and to solve problems.
Specific Outcome 1
Graph and analyze two-variable linear relations.

Patterns & Relations - Variables & Equations
General Outcome: Represent algebraic expressions in multiple ways.
Specific Outcome 2
Model and solve problems concretely, pictorially and symbolically, using linear equations of the form:

- $ax = b$
- $\dfrac{x}{a} = b, a \neq 0$
- $ax + b = c$
- $\dfrac{x}{a} + b = c, a \neq 0$
- $a(x + b) = c$

where a, b and c are integers.

Shape & Space - Measurement
General Outcome: Use direct and indirect measurement to solve problems.
Specific Outcome 1
Develop and apply the Pythagorean theorem to solve problems.
Specific Outcome 2
Draw and construct nets for 3-D objects.
Specific Outcome 3
Determine the surface area of:
- right rectangular prisms
- right triangular prisms
- right cylinders

to solve problems.
Specific Outcome 4
Develop and apply formulas for determining the volume of right rectangular prisms, right triangular prisms and right cylinders.

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 5
Draw and interpret top, front and side views of 3-D objects composed of right rectangular prisms.

Shape & Space - Transformations
General Outcome: Describe and analyze position and motion of objects and shapes.
Specific Outcome 6
Demonstrate an understanding of the congruence of polygons.

Statistics & Probability - Data Analysis
General Outcome: Collect, display and analyze data to solve problems.
Specific Outcome 1
Critique ways in which data is presented in circle graphs, line graphs, bar graphs and pictographs.
Statistics & Probability - Chance & Uncertainty
General Outcome: Use experimental or theoretical probabilities to represent and solve problems involving uncertainty.
Specific Outcome 2
Solve problems involving the probability of independent events.

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
Ruler
Geometry set and a CALCULATOR

Program Organization and Order of Instruction
Unit #1: Square Roots and the Pythagorean Theorem- **September/October**
Unit #2: Integers- **October/November**
Unit #3: Operations with Fractions- **December/January**
Unit #4: Measuring Prisms and Cylinders- **January/February**
Unit #5: Percent, Ratio and Rate- **February/March**
Unit #6: Linear Equations and Graphing- **March/April**
Unit #7: Data Analysis and Probability- **April/May**
Unit #8: Geometry- **May/June**

Evaluation

Assignments (45%)
Individual assignments will be taken in for assessment of student progress. Assignments will generally consist of chapter questions. In order to ensure consistent effort, students will not be informed as to whether or not an assignment will be taken in or become part of their binder for review. All assignments must be turned in at the beginning of class.

Tests and Quizzes (35%)– To ensure that students keep up their studies on a daily basis, there may be unannounced quizzes in which students will be asked to recall information from the previous day. At the end of each unit, a test will be written with the main emphasis on the most recently completed unit.

However, because mathematics knowledge builds upon itself, understanding of previous chapters will be essential. All students may be required to complete corrections of all tests after they are returned.

<u>Final Examination (20%- June)</u>
The final examination will follow a similar format to that of the unit tests but on a larger scale and will cover the entire year's work. There will be review classes prior to the exam date.

* Marks are calculated on a cumulative basis. The teacher retains the right to change the evaluation scheme to meet the needs of the program or students.

Homework
Efforts will always be made to provide ample class time to complete course work but sometimes, more time is required and homework becomes a necessity.

Rewrite Policy
You will be allowed to rewrite <u>unit tests only</u>.   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:**
- request the rewrite within <u>one day</u> of the return of your original test
- complete all corrections for the original test on a separate sheet of paper, including explanations of errors and hand in within <u>one week</u> 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.

The resulting mark for the report card will be the higher mark of the two tests.

Classroom Expectations
In order for our classroom to be a positive learning community, we all need to respect each other's right to learn and teach. All students in our class are capable of success in math if we all follow these basic expectations:

1. ARRIVE <u>ON TIME</u> AND <u>PREPARED, EVERYDAY</u>. You will need your binder, textbook, journal, blue pen, red pen, pencil, eraser, highlighter, ruler, agenda and a CALCULATOR. There is no excuse for leaving these items at home or in your locker because you know you have MATH class every other day. It is disrespectful and disruptive to the teacher and your fellow classmates to arrive late or unprepared. **Time wasted by late arrival or unprepared arrival will 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. **Inappropriate behaviour will be dealt with**

immediately. Further incidents will be handled more sternly and may involve parents and administration.

    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!

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, 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.

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.

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Any parent wishing to meet with me to discuss a problem or concern may arrange a meeting by calling the school (780-786-2624) or by email whichever is most convenient. 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.