

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE: COLLEGE PREPARATORY MATHEMATICS

CODE NO.: MTH097-5 **SEMESTER:**

PROGRAM: GENERAL ARTS & SCIENCE - COLLEGE PREPARATORY

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DATE: AUGUST 1991 **PREVIOUS OUTLINE DATED:** JUNE 1989

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TOTAL CREDIT HOURS: 75

PREREQUISITES) : NONE

I. PHILOSOPHY/GOALS:

The objectives of this course are to increase the student's speed, accuracy and skill in performing basic arithmetic calculations and operations on algebraic expressions, as well as the solution of practical problems involving linear equations in one variable.

A study of measurement will enable the student to use metric and Imperial units of length, capacity and mass and to change from one system of units to the other.

Emphasis will be placed on developing the student's ability to state a ratio in simplified form, and to solve basic problems dealing with direct and inverse proportions.

II. STUDENT PERFORMANCE OBJECTIVES:

The basic objectives are that the student will develop an understanding of the methods studied, demonstrate a knowledge of the facts presented and show an ability to use these in the solution of problems. To accomplish these objectives, exercises are assigned. Test questions will be of near equal difficulty to questions assigned in the exercises. The level of competency demanded is the level required to obtain an overall passing average on the tests. The material to be covered is listed below.

III. TOPICS TO BE COVERED:

1. Review of Whole numbers, Fractions, Decimals, Percent and their operations.
2. Metric and Imperial systems of measurement.
3. Ratio and Proportion.
4. Integers, algebraic expressions and linear equations in one variable.

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES;

REVIEW

TEXT: BASIC MATHEMATICAL
SKILLS
- James Streeter & Gerald
Alexander. SECOND EDITION

Exercises to be done without
the aid of a calculator.

1.0 WHOLE NUMBERS

- | | | |
|--|-----|-------------|
| 1.1 Determine the place value
of a digit
Write a numeral in words
Write a numeral, given its
word name | 1.1 | (pg.8-9) |
| 1.2 Add any group of whole
numbers | 1.5 | (pg.24-25) |
| 1.3 Round a whole number to
any place value
Estimate sums by rounding
Use the symbols < and > | 1.6 | (pg. 32-33) |
| 1.4 Subtract whole numbers
Estimate differences by
rounding | 1.8 | (pg. 42-44) |
| 1.5 Solve word problems
involving addition and
subtraction of whole
numbers | 1.9 | (pg. 51-52) |
| 1.6 Multiply any two whole
numbers | 2.4 | (pg. 75-76) |
| 1.7 Multiply by whole numbers
ending in zero
Estimate products by
rounding | 2.5 | (pg. 80-81) |
| 1.8 Solve word problems
involving multiplication
of whole numbers | 2.7 | (pg. 91-93) |

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

1.9	The order of operations Powers of whole numbers	2.6 2.8	(pg. 84) (pg. 98-99)
1.10	Divide whole numbers by single digit numbers	3.3	(pg. 119)
1.11	Divide whole numbers by two or three digit numbers	3.4	(pg. 126)
1.12	Evaluate expressions using the rules for the order of operations	3.6	(pg. 132-133)
1.13	Solve word problems involving division of whole numbers	3.7	(pg. 137-139)
1.14	Find the average of a group of whole numbers	3.8	(pg. 143)
2.0	<u>FRACTIONS</u>		Exercises to be done <u>without</u> the aid of a calculator.
2.1	Find the prime factors of a whole number	4.2	(pg. 158)
2.2	Find the lowest common multiple (LCM) of a group of numbers	4.4	(pg. 169)
2.3	Identify proper fractions, improper fractions and mixed numbers Convert from one type of fraction to another	5.2 5.3	(pg. 196-197) (pg. 201)
2.4	Simplify fractions by reducing to lowest terms	5.5	(pg. 210-211)

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

<p>2.5 Build fractions Compare the sizes of fractions</p>	<p>5.6 (pg- 218-219)</p>
<p>2.6 Multiply fractions</p>	<p>6.3 (pg- 239-241)</p>
<p>2.7 Divide fractions</p>	<p>6.4 (pg- 250-252)</p>
<p>2.8 Find the least common denominator (LCD) for a group of fractions</p>	<p>7.2 (pg- 266)</p>
<p>2.9 Add fractions</p>	<p>7.3 (pg- 270-272)</p>
<p>2.10 Subtract fractions</p>	<p>7.4 (pg- 277-278)</p>
<p>2.11 Add and subtract mixed numbers</p>	<p>7.5 (pg- 287-288)</p>
<p>2.12 Solve word problems involving fractions</p>	<p>7.6 (pg- 292-294)</p>
<p>3.0 DECIMALS</p>	<p>Exercises to be done without the aid of a calculator.</p>
<p>3.1 Identify place values in decimal fractions Write decimal fractions in words Write decimal fractions, given their word forms Compare the sizes of decimal fractions</p>	<p>8.1 (pg. 319-320)</p>
<p>3.2 Add decimals</p>	<p>8.2 (pg- 324-326)</p>
<p>3.3 Subtract decimals</p>	<p>8.3 (pg- 330-331)</p>
<p>3.4 Multiply decimals</p>	<p>8.4 (pg- 337-339) 8.5 (pg- 343-344)</p>
<p>3.5 Round a decimal to a specified decimal place Estimate decimals</p>	<p>8.6 (pg- 347-349)</p>

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IV. **LEARNING ACTIVITIES:**

REQUIRED RESOURCES:

3.6	Divide a decimal by a whole number	9.1	(pg. 358-360)
3.7	Divide a decimal by a decimal	9.2	(pg. 365-366)
3.8	Convert a common fraction to a decimal Compare the sizes of common fractions and decimals	9.4	(pg. 378-379)
3.9	Convert a decimal to a common fraction	9.5	(pg. 384)
4.0	<u>PERCENT</u>		Exercises to be done <u>without the aid of a calculator.</u>
4.1	Describe what is meant by "per cent"	11.1	(pg. 440-441)
4.2	Change a percent to a common fraction or mixed number Change a percent to a decimal	11.2	(pg. 445-446)
4.3	Change a decimal or a fraction to a percent	11.3	(pg. 450-451)
4.4	Identify and find the rate, base and amount in an application	11.4 11.5	(pg. 455-456) (pg. 464-466)
4.5	Solve word problems involving percentage	11.6	(pg. 476-479)

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IV. LEARNING ACTIVITIES:

REQUIRED RESOURCES:

5.0	<u>MEASUREMENT</u>	EXERCISES
5.1	Metric prefixes	Handout assignment
5.2	Metric units of length	13.1 (pg 554-557)
5.3	Convert between metric and imperial units of length	
5.4	Metric units of capacity	Handout assignment
5.5	Convert between metric and imperial units of capacity	13.3 (pg. 567-569)
5.6	Metric units of mass	13.2 (pg. 562-563)
5.7	Convert between metric and imperial units of mass	Handout assignment
6.0	RATIO AND PROPORTION	EXERCISES
6.1	Write the ratio of numbers or quantities in simplest form	Handout assignment
		10.1 (pg. 404-405)
6.2	Determine whether or not a proportion is a true statement	10.2 (pg. 410-411)
6.3	Solve a proportion for an unknown term	10.3 (pg. 417-419)
6.4	Solve word problems by using proportion	10.4 (pg. 424-427)

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IV. LEARNING ACTIVITIES;

REQUIRED RESOURCES:

7.0 INTEGERS

EXERCISES

7.1 Describe what is meant by an "integer"
Find the opposite and absolute value of a number

14.1 (pg. 597-598)

7.2 Add signed numbers

14.2 (pg. 607)

7.3 Subtract signed numbers

14.3 (pg. 611-612)

7.4 Multiply signed numbers

14.4 (pg. 618-619)

7.5 Divide signed numbers

14.5 (pg. 622-623)

8.0 ALGEBRAIC EXPRESSIONS AND EQUATIONS

EXERCISES

8.1 Evaluate algebraic expressions, given specified values for the variables

15.1 (pg. 633-634)

8.2 Solve equations in one variable

15.2 (pg. 646)
15.3 (pg. 657)

8.3 Translate a word phrase to an algebraic expression
Solve applications using algebraic equations in one variable

15.4 (pg. 666-668)

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V. METHOD OF EVALUATION:

The final grade will be derived from the results of topic tests each of which will constitute 20% of the final mark. The grading system used will be as follows:

A+	-	90	-	100%
A	⇒	80	-	89%
B	<i>m</i>	65	-	79%
C	»	55	-	64%
R	<i>a</i>	0	-	54%

A passing grade will be based on a minimum grading of 55%.

VI. REQUIRED STUDENT RESOURCES:

TEXTBOOK: BASIC MATH SKILLS, 2nd Edition, Streeter and Alexander.

An electronic calculator will be required for topics 2, 3 and 4.

VII. ADDITIONAL RESOURCE MATERIALS AVAILABLE IN THE COLLEGE LIBRARY BOOK SECTION:

Consult the clerks in the Learning Resource Centre and/or the Learning Assistance Centre.

VIII. SPECIAL NOTES:

Students with special needs (e.g. physical limitations, visual impairments, hearing impairments, learning disabilities) are encouraged to discuss required accommodations confidentially with the instructor.

Your instructor reserves the right to modify the course as he/she deems necessary to meet the needs of students.

Daily assignments and test for topic I are to be performed without the aid of an electronic calculator.