Rationale:

The Apprenticeship and Work Place Mathematics program is designed to prepare you for the mathematical understandings and critical-thinking skills required for successful entry into the work force and the majority of trades. Apprenticeship and Workplace Mathematics 10 itself will prepare you for Apprenticeship and Workplace Mathematics 11.

Material Covered:

The Apprenticeship and Workplace Mathematics course is divided into three main sections:

Working with Money
- Unit Pricing and Currency Exchange
- Earning an Income

Working with Measurements
- Length, Area and Volume
- Mass, Temperature and Volume

Working with Geometry
- Angles and Parallel Lines
- Similarity of Figures
- Trigonometry of Right Angle Triangles

Textbook:

The course uses the text *MathWorks 10.*   (ISBN 978-1-89576-651-6, Pacific Educational Press)

Notebook:

Your notebook should be neatly organized, as this will help you study for tests. Label the unit and topic headings clearly at the top of the page. Answer questions fully, so that the information makes sense and can be used later for studying. Show which textbook and which page number the information comes from so you can look it up again easily. There are 3 pages of formula sheets you are allowed to use on all tests.

Grading:

This course works on a mastery system. You must pass the mastery tests in each unit to the 80% level before you can go on. In addition, there are cumulative tests from time to time. These are tests you can only take once, so studying before them is essential to do well. Your final class mark for the course is based 60% on the mastery unit tests and 40% on the cumulative tests. Students are reminded that this course has a provincial exam that counts for 20% of the final mark while your class mark counts for 80%. **Be sure to write a practice provincial exam by going to the B.C. Ministry of Education website: www.bced.gov.bc.ca/exams, before you write the real thing.**

Goal:

The goal of this unit is to familiarize you with fractions, percents, ratios and rates as they relate to money.

Objectives:

By the end of this unit you should be able to:

- work with ratios and rates for practical applications and for comparison purposes
- solve problems involving unit pricing
- determine the best purchasing options consider unit pricing, quantity and quality
- work with percentages to calculate taxes, discounts and profits
- convert between different currencies using ratios, formulas, charts or tables

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems listed for each section in the table below. Be sure to tick off each section as you complete it.

MathWorks 10 Unit 1		
✓	Unit	Practice Questions
	1.1	p.21 #1, 2, 5- 8
	1.2	p.26 #1-5
	1.3	p.32 #1-5, 8
	1.4	p.37 #1-6, *Hint: read question 4 very carefully*
	1.5	p.47 # 1-6 *Hint: use Figure 1.2 on p. 45 for Exchange Rates*
	Review	p.50 #1-10

- When you are ready ask your teacher for the Unit 1 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to familiarize you with fractions, percents and rates as they relate to incomes.

Objectives:

By the end of this unit you should be able to:

- calculate income based on hourly wage, overtime, tips, commissions and bonuses
- convert hours and minutes to hours in decimal form
- calculate deductions such as Canadian Pension Plan (CPP), Employment Insurance (EI) and income tax
- explain the difference between gross pay and net pay
- determine net pay based on income and deductions
- interpret a variety of pay statements

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems on the pages in the table below. Be sure to tick off each section as you complete it.

MathWorks 10 Unit 2		
✓	Unit	Practice by doing these questions
	2.1	p.60 #1-9
	2.2	p.69 #2-7
	2.3	p.76 #1-8
	2.4	p.87 #1-7
	Review	p.124 #1-5, 7-8

- When you are ready ask your teacher for the Unit 2 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

- Go over your work from Units 1 and 2 in preparation for Cumulative Test #1. When you are ready to write it, ask your teacher. Remember, this test is one chance only, so do your best.

Goal:

The goal of this unit is to familiarize you with the Imperial System and Système international d'unités (SI) of measurement and to apply the systems to calculations of length, area and volume.

Objectives:

By the end of this unit you should be able to:

- distinguish between Imperial and SI with respect to length, area and volume
- convert between Imperial and SI units with respect to length, area and volume
- calculate perimeter, circumference and area in Imperial and SI units
- calculate surface area and volume of three dimensional objects in Imperial and SI units

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems on the pages in the table below. Be sure to tick off each section as you complete it.

MathWorks 10 Unit 3		
✓	Unit	Practice by doing these questions
	3.1	p. 102 #1-6, 8
	3.2	p. 111 #1-4, 6-8
	3.3	p. 121 #1-6
	3.4	p. 132 #1-6
	Review	p. 134 #1-6, 8, 9

- When you are ready ask your teacher for the Unit 3 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to further familiarize you with the Imperial System and Système international d'unités (SI) of measurement and to apply the systems to calculations of temperature, mass and volume.

Objectives:

By the end of this unit you should be able to:

- distinguish and convert between Imperial and Système international d'unités (SI) for temperature (Fahrenheit and Celcius)
- become familiar with the Imperial measurements of mass including ounce, pound and ton
- become familiar with the SI measurement of mass including gram, kilogram and tonne
- distinguish and convert between Imperial and SI units for mass
- perform conversion calculations when given conversion units

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems on the pages in the table below. Be sure to tick off each section as you complete it.

MathW<u>orks</u> 10 Unit 4		
✓	Unit	Practice by doing these questions
	4.1	p. 143 #1, 3, 4, 5
	4.2	P. 151 #1-6, 7
	4.3	p. 158 #1-7
	4.4	p. 165 #1-7
	Review	p. 169 #1-5, 7, 9

- When you are ready ask your teacher for the Unit 4 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

- Go over your work from Units 3 and 4 in preparation for Cumulative Test #2. When you are ready to write it, ask your teacher. Remember, this test is one chance only, so do your best.

Goal:

The goal of this unit is to familiarize you with measuring, drawing and describing angles and applying knowledge of angles and lines to problem-solving.

Objectives:

By the end of this unit you should be able to:

- measure, draw and describe angles including acute, right, obtuse and reflex angles
- estimate the measure of angles
- replicate and bisect angles with and without the use of a protractor
- use angles to determine if lines are parallel
- identify and describe parallel, non-parallel, perpendicular and transversal lines
- solve problems that involve angles and lines including parallel, non-parallel, perpendicular and transversal lines

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems on the pages in the table below. Be sure to tick off each section as you complete it.

MathWorks 10 Unit 5		
✓	Unit	Practice by doing these questions
	5.1	p. 184 #1-6
	5.2	p. 192 #1-3, 5-7
	5.3	p. 204 #1-4
	5.4	p. 214 #2-7
	Review	p. 220 #1-9

- When you are ready, ask your teacher for the Unit 5 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to familiarize you with identifying and applying similarity of figures to drawing and problem-solving.

Objectives:

By the end of this unit you should be able to:

- identify corresponding and congruent angles
- identify corresponding and proportional sides
- determine if polygons are similar (proportional) based on side-length ratios and/or angles
- explain how you know two or more polygons are or are not similar
- draw a polygon that is similar to a given polygon
- solve problems that involve similar figures

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems on the pages in the table below. Be sure to tick off each section as you complete it.

MathWorks 10 Unit 6		
✓	Unit	Practice by doing these questions
	6.1	p. 232 #1-7
	6.2	p. 243 #1-7
	6.3	p. 253 #1, 2, 4, 6, 7
	6.4	p. 261 #1-6
	Review	p. 265 #1-6, 8-10

- When you are ready ask your teacher for the Unit 6 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.

Goal:

The goal of this unit is to familiarize you with trigonometric ratios and how to apply them to solve a variety of problems.

Objectives:

- By the end of this unit you should be able to:
- use the Pythagorean Theorem to determine side lengths of right angle triangles
- define the sine (sin), cosine (cos) and tangent (tan) ratios
- use the trigonometric ratios to determine the side lengths of right angle triangles
- use the trigonometric ratios to determine the measure of angles within right angle triangles
- solve problems that involve right triangles and trigonometric ratios

What to Do in this Unit:

- Read and follow the example problems at the beginning of each section, then do the practice problems on the pages in the table below. Be sure to tick off each section as you complete it.

MathWorks 10 Unit 7		
✓	Unit	Practice by doing these questions
	7.1	p. 278 #1-5, 7
	7.2	p. 289 #1-6, 8
	7.3	p. 297 #1-4, 6, 7
	7.4	p. 305 #1, 2, 4-7
	7.5	p. 311 #1-7, 9
	Review	p. 316 #1-10

- When you are ready ask your teacher for the Unit 7 Test. Remember, you must get 80% to pass, so studying hard is essential to do well.
- Go over your work from Units 5, 6, and 7 in preparation for Cumulative Test #3. When you are ready to write it, ask your teacher. Remember, this test is one chance only, so do your best.

- **Students are strongly advised to write a practice provincial exam by going to the B.C. Ministry of Education website: www.bced.gov.bc.ca/exams, before you write the real thing.**

- **Congratulations! You've finished Math 10 Apprenticeship & Workplace!**