

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 10.

Material Covered:

The Apprenticeship and Workplace Mathematics 11 course is divided into three main sections:

- Working with Graphs
 - Slope and Rate of Change
 - Graphical Representations
- Working with Geometry
 - Surface Area, Volume and Capacity
 - Trigonometry of Right Triangle
 - Scale Representations
- Working with Money
 - Financial Services
 - Personal Budgets

Textbook:

The course uses the text *MathWorks 11*. (ISBN 978-1-8957669-2-9, 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.

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.

Goal:

The goal of this unit is to familiarize you with slope calculations and with creating and interpreting line graphs that are relevant to real world situations.

Objectives:

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

- identify rise, run and slope
- understand the relationship between rise, run and slope
- calculate the slope of physical objects such as ramps, roofs and roads
- express slope as a ratio, angle or percent
- apply your understanding of slope to calculate grade, angle of elevation and distance
- create line graphs
- apply your understanding of slope to interpret graphs and to calculate the rate of change

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.

| Math 11 Apprenticeship and Workplace Unit 1 | | |
|---|--------|--------------------|
| ✓ | Unit | Practice Questions |
| | 1.1 | p.19 #1-6, 8- 10 |
| | 1.2 | p.30 #1-9 |
| | 1.3 | p.46 #1-4, 6, 8-10 |
| | Review | p.52 #1, 3-8 |

- 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 different types of graphs as they apply to various workplaces and daily life.

Objectives:

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

- identify different types of graphs and explain the advantages and disadvantages of each for presenting various types of data
- create a variety of graphs with and without the aid of technology
- interpolate and extrapolate values from graphs
- describes the trends that a graph represents
- critically analyze data presented within graphs and draw accurate conclusions from graphs
- solve problems using graphs

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.

| Math 11 Apprenticeship and Workplace Unit 2 | | |
|---|--------|-----------------------------------|
| ✓ | Unit | Practice by doing these questions |
| | 2.1 | p.66 #2-4, 6 and 7 |
| | 2.2 | p.80 #1, 3, 5-8 |
| | 2.3 | p.90 #1, 2, 4-6, 8, 10 |
| | 2.4 | p.104 #1-6 |
| | Review | p.109 #1-3, 5, 7-11 |

- 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 calculating the volume and surface area of a variety of three dimensional objects.

Objectives:

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

- accurately measure the dimensions of a variety of objects using measuring tools such as rulers, tape measures, micrometers and callipers
- accurately measure the capacity of three dimensional objects using measuring tools such as graduated cylinders, measuring cups, measuring spoons and displacement
- explain the differences and relationships between nets, area, surface area, volume and capacity
- estimate and calculate surface area and volume of a variety of three dimensional objects
- convert volume from one unit of measure to another (such as cm^3 to m^3)
- describe the relationship between the volume of cones and cylinders with the same base and height
- describe the relationship between the volume of pyramids and prisms of the same base and height
- calculate how changing the dimensions of an object changes its surface area and volume

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.

| Math 11 Apprenticeship and Workplace Unit 3 | | |
|---|--------|--|
| ✓ | Unit | Practice by doing these questions |
| | 3.1 | p. 124 #1-5, 7 (hint: for question 7 you will need to think back to Chapter 1) |
| | 3.2 | p. 134 #1-4 |
| | 3.3 | p. 144 #1-4, 6-7 |
| | 3.4 | p. 156 #1-5, 8 (hint: for question 8 you will need to think back to Chapter 1) |
| | Review | p. 160 #1-3, 5-10 |

- 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 familiarize you with trigonometry calculations that are frequently used to calculate angles and distances in a variety of careers including engineering, carpentry, metal fabrication and landscape design.

Objectives:

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

- solve problems involving more than one right-angle triangle using the Pythagorean Theorem, sine, cosine and tangent ratios
- solve problems involving right-angle triangles in two and three dimensions
- solve problems involving the angle of elevation and the angle of depression

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.

| Math 11 Apprenticeship and Workplace Unit 4 | | |
|---|--------|-----------------------------------|
| ✓ | Unit | Practice by doing these questions |
| | 4.1 | p. 177 #1-3, 5-7, 9, 10 |
| | 4.2 | P. 195 #1-7 |
| | Review | p. 202 #1, 2,4-8, 10-12 |

- 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.

Goal:

The goal of this unit is to familiarize you with applying concepts such as fractions, ratios, proportions and measurement to scale models and diagrams such as might be encountered in fashion, graphic and interior design and in surveying, drafting and movie set design.

Objectives:

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

- identify a variety of situations where scaled representations are used
- use a scale representation to determine the true dimensions of a three-dimensional object
- create scaled representations (diagrams and models) of a three-

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.

| Math 11 Apprenticeship and Workplace Unit 5 | | |
|---|--------|-----------------------------------|
| ✓ | Unit | Practice by doing these questions |
| | 5.1 | p. 215 #1-8 |
| | 5.2 | p. 226 #3-8 |
| | 5.3 | p. 244 #1-6 |
| | Review | p. 248 #1-6 |

- 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.
- Go over your work from Units 3, 4 and 5 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 a variety of financial services, terms and options that you are likely to encounter in your daily life.

Objectives:

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

- describe banking options and their advantages and disadvantages
- solve simple interest and compound interest problems
- use the Rule of 72 to estimate the time needed for an investment to double
- describe different credit options and their advantages and disadvantages
- solve problems that involve credit cards, loans and sales promotions
- make informed financial decisions based on your knowledge of the above

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.
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| Math 11 Apprenticeship and Workplace Unit 6 | | |
|---|--------|-----------------------------------|
| ✓ | Unit | Practice by doing these questions |
| | 6.1 | p. 262 #1-4, 6 |
| | 6.2 | p. 272 #1-6 |
| | 6.3 | p. 284 #1-5, 7 |
| | 6.4 | p. 295 #1-3, 5 |
| | Review | p. 298 #1-7, 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 keeping financial records, creating and analyzing budgets.

Objectives:

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

- understand the concept of a balanced budget
- organize income and spending data into a personal budget
- make changes to an existing budget in order to balance it
- analyze spending in a budget using circle graphs
- adjust a budget in order to save for a future expense
- compare actual and budgeted amounts to determine if your next budget needs to be adjusted

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.
- When solving problems that involve formulae always **Show FSS** (**F**ormula used, **S**ubstitution of knowns, **S**olution for unknown). You will be required to **Show FSS** on tests for full marks.

| Math 11 Apprenticeship and Workplace Unit 7 | | |
|---|--------|-----------------------------------|
| ✓ | Unit | Practice by doing these questions |
| | 7.1 | p. 309 #1-6 |
| | 7.2 | p. 321 #1-5 |
| | 7.3 | p. 334 #1-5 |
| | Review | p. 340 #1-6, 9 |

- 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 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.

Congratulations! You've finished AW Mathematics 11!