

# Mathematics 12

## Workplace and Everyday Life

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### *Mathematics 12 Workplace and Everyday Life Teacher's Resource*

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## To the Teacher

Welcome to *Mathematics 12 Workplace and Everyday Life*, a program specifically designed for use with students in MEL4E. The material in the *Mathematics 12 Workplace and Everyday Life* student resource, this *Teacher's Resource*, and the *Teacher's CD* cover each of the expectations listed in the ministry guidelines for this course. A correlation at the beginning of this *Teacher's Resource* provides detailed information about where and how often each expectation has been handled.

Before you start planning, take a few minutes to review a sample section in the *Mathematics 12 Workplace and Everyday Life* student resource and the related notes in the *Teacher's Resource*.

- Note how each lesson in the student resource starts with a Warm Up that reviews skills necessary for that lesson.
- The Cumulative Review at the beginning of each *Teacher's Resource* section provides an ongoing review of concepts and skills.
- The Activity Planning Notes in the *Teacher's Resource* provide helpful teaching suggestions.
- Accommodations provide ideas for customizing the material for students with specific learning styles or learning difficulties.
- Speed Bumps outline difficulties some students may have with the material—and how to help them overcome these difficulties.
- Ongoing Assessment provides ideas for formative assessment.
- Challenge! question(s) at the end of each section provide an opportunity for higher level students to deepen and extend their understanding of the expectations.

Each chapter ends with a Chapter Review and Practice Test. These provide additional reinforcement for students who need it. The Final Test for the chapter uses the same instructions and similar questions as the Chapter Review and Practice Test. This plan allows students to deal with math concepts and skills without being distracted by literacy issues.

The student resource has a Chapter Task at the end of each chapter. This Task is scaffolded in related BLMs on the *Teacher's CD*. There is also a Task Rubric to assist you in assessing student work on the chapter concepts and skills.

All BLMs are in both Microsoft® Word and PDF format. You can customize the worksheets by adding or subtracting scaffolding and changing the numbers to provide additional questions or more/less challenging calculations, depending on the range of reading and learning levels of your particular class.

As you teach the course, refer to the Literacy Links throughout the *Teacher's Resource*. These activities can help students increase their vocabulary, practise dealing with various types of texts, write summaries, read web sites, and use organizers such as mind maps for brainstorming.

The Skills Practices in the student resource, and the related Skills Practice BLMs on the *Teacher's CD*, provide basic practice in important skills for students at this level. You can use the Skills Practice pages in the student resource to assess how well students understand a particular concept, and then use the related Skills Practice BLM to provide additional reinforcement.

These Skills Practice BLMs are on the *Teacher's CD*.

A set of masters for a course summative task and a related rubric are posted on the Online Learning Centre for this resource. This Online Learning Centre can be accessed at [www.mcgrawhill.ca/books/workplace12](http://www.mcgrawhill.ca/books/workplace12). This Online Learning Centre has valuable links to materials you and your class will need as you work through the activities in the student resource.

The first time you enter the site, use the following username and password:

Username: workplace12

Password: 12work

Once you log in, you will be prompted to create your own unique username and password.

We feel confident that these materials will assist you and your students in handling the *Mathematics 12 Workplace and Everyday Life* program.

The Author, Consultants, and Advisors

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## **Blackline Masters**

(Available on *Mathematics 12 Workplace and Everyday Life Teacher's Resource* CD-ROM.)

This package has generic masters, chapter-specific masters, Skills Practice masters, and Tech masters.

Blackline masters are provided in Microsoft® Word and PDF format. You may use each worksheet as is, or access the Microsoft® Word document and revise it to meet the specific needs of a particular student or of your entire class.

## **Generic Masters**

- Master 1 Budget Tracker
- Master 2 Chapter Summary
- Master 3 Fractions, Decimals, and Percents
- Master 4 Hundreds Grids
- Master 5 TVM Solver Template
- Master 6 Calendar Template
- Master 7 Cheque Templates
- Master 8 Fraction Strips
- Master 9 Fraction Circles
- Master 10 Quarter Inch Grid Paper
- Master 11 Centimetre Grid Paper
- Master 12 0.5 Centimetre Grid Paper
- Master 13 Isometric Dot Paper

## **Chapter-Specific Masters**

### **Chapter 1**

- BLM 1–1 Standard Deck of Cards
- BLM 1–2 Free Coffee Spinner
- BLM 1–3 Chapter 1 Word Puzzle
- BLM 1–4 Chapter 1 Test
- BLM 1–5 Chapter 1 Task Recording Chart
- BLM 1–6 Chapter 1 Task
- BLM 1–7 Chapter 1 Task Rubric
- BLM 1–8 Chapter 1 BLM Answers

### **Chapter 2**

- BLM 2–1 Practice Using the TVM Solver
- BLM 2–2 Household and Living Expenses
- BLM 2–3 Practice With Spreadsheets
- BLM 2–4 Sample Budget Tracker
- BLM 2–5 Budget Template 1
- BLM 2–6 Budget Template 2



BLM 2–7 Revised Budget Worksheet  
BLM 2–8 Life Changes That Affect a Budget  
BLM 2–9 Chapter 2 Word Search  
BLM 2–10 Chapter 2 Test  
BLM 2–11 Chapter 2 Task  
BLM 2–12 Chapter 2 Task Rubric  
BLM 2–13 Chapter 2 BLM Answer

### **Chapter 3**

BLM 3–1 Practice Researching Accommodations Online  
BLM 3–2 Moving Needs  
BLM 3–3 Practice Adding a Percent to a Number  
BLM 3–4 Chapter 3 Word Search  
BLM 3–5 Chapter 3 Test  
BLM 3–6 Chapter 3 Task  
BLM 3–7 Chapter 3 Task Rubric  
BLM 3–8 Chapter 3 BLM Answers

### **Chapter 4**

BLM 4–1 Practice Using the CRA Payroll Calculator  
BLM 4–2 Practice Using an Online Income Tax Calculator  
BLM 4–3 Hairstylist Spreadsheet  
BLM 4–4 Chapter 4 Word Puzzle  
BLM 4–5 Chapter 4 Test  
BLM 4–6 Chapter 4 Task  
BLM 4–7 Chapter 4 Task Rubric  
BLM 4–8 Chapter 4 BLM Answers

### **Chapter 5**

BLM 5–1 Types of Housing  
BLM 5–2 Practice Using the TVM Solver to Calculate Mortgage Payments  
BLM 5–3 Kara’s Mortgage Payment Schedule  
BLM 5–4 Amortization Period and Interest Rate  
BLM 5–5 Chapter 5 Word Puzzle  
BLM 5–6 Chapter 5 Test  
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### **Chapter 6**

BLM 6–1 Temperature Conversions  
BLM 6–2 Chapter 6 Word Puzzle  
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BLM 6–7 Chapter 6 BLM Answers

## **Chapter 7**

BLM 7–1 Using *The Geometer’s Sketchpad*® to Create a Scale Drawing  
BLM 7–2 Nets  
BLM 7–3 Calculating Volume  
BLM 7–4 Chapter 7 Word Search  
BLM 7–5 Chapter 7 Test  
BLM 7–6 Chapter 7 Task  
BLM 7–7 Chapter 7 Task Rubric  
BLM 7–8 Chapter 7 BLM Answers

## **Skills Practice Masters**

SP BLM 1 Fractions, Decimals, and Percents  
SP BLM 2 Equivalent Fractions  
SP BLM 3 Comparing Rental Prices  
SP BLM 4 Writing a Cheque for Rent  
SP BLM 5 Reading a Lease  
SP BLM 6 Reading a Utility Bill  
SP BLM 7 Identifying Tax Deductions and Tax Credits  
SP BLM 8 Completing a Tax Return  
SP BLM 9 Converting Between Imperial Measures  
SP BLM 10 Converting Between Metric Measures  
SP BLM 11 Using Ratio and Proportion to Convert Measurements  
SP BLM 12 The 3–4–5 Method of Checking for a 90° Angle  
SP BLM 13 Start Square and You’ll Finish Square  
SP BLM 14 Calculating Surface Area

## **Tech Masters**

Tech 1 Using a Random Number Generator in Fathom™  
Tech 2 Using the TVM Solver to Solve a Budget Problem  
Tech 3 Using a Spreadsheet in Corel Quattro® Pro 12  
Tech 4 Using the CRA Payroll Calculator  
Tech 5 Using the TVM Solver to Calculate Mortgage Payments  
Tech 6 Using TI-Nspire™ to Calculate Mortgage Payments

## Curriculum Correlation

Curriculum Expectation	<i>Mathematics 12 Workplace and Everyday Life</i>
<b>A. REASONING WITH DATA</b>	
<b>Overall Expectations</b>	
A.1 collect, organize, represent, and make inferences from data using a variety of tools and strategies, and describe related applications	Chapter 1 (pp. 3–44) <i>Contributing Expectations</i> Chapters 2–5 (pp. 51–186), Chapter 7 (pp. 233–280)
A.2 determine and represent probability, and identify and interpret its applications	Chapter 1 (pp. 3–44)
<b>Specific Expectations</b>	
<b>A.1 Interpreting and Displaying Data</b>	
A.1.1 read and interpret graphs obtained from various sources	1.3–1.4 (pp. 18–27) Skills Practice 6 (pp. 120–121) 5.2 (pp. 172–177)
A.1.2 explain the distinction between the terms population and sample, describe the characteristics of a good sample, and explain why sampling is necessary	1.4 (pp. 24–27), 1.6 (pp. 34–39) 7.3 (pp. 250–255)
A.1.3 collect categorical data from primary sources, through experimentation involving observation or measurement, or from secondary sources, and organize and store the data using a variety of tools	1.2–1.6 (pp. 10–13, 18–30, 34–39), Chapter 1 Task (p. 44) 2.3 (pp. 66–69) 5.1 (pp. 166–169), Chapter 5 Task (p. 186) 7.3 (pp. 250–255)
A.1.4 represent categorical data by constructing graphs using a variety of tools	1.1–1.5 (pp. 6–13, 18–30) Tech Tip: Using a Spreadsheet (pp. 64–65), 2.3 (pp. 66–69) 4.1 (pp. 128–133)
A.1.5 make inferences based on the graphical representation of data, and justify conclusions orally or in writing using convincing arguments	1.3–1.5 (pp. 18–33), Chapter 1 Task (p. 44) Tech Tip: Using a Spreadsheet (pp. 64–65), 2.3 (pp. 66–69) 4.1 (pp. 128–133)
A.1.6 make and justify conclusions about a topic of personal interest by collecting, organizing, representing, and making inferences from categorical data from primary sources or secondary sources	1.3–1.6 (pp. 18–30, 34–39), Chapter 1 Task (p. 44)
A.1.7 explain how the media, the advertising industry, and others use and misuse statistics to promote a certain point of view	1.5–1.6 (pp. 28–30, 34–39), Chapter 1 Task (p. 44) 2.1 (pp. 54–57) Skills Practice 3 (pp. 100–101)
A.1.8 gather, interpret, and describe information about applications of data management in the workplace and in everyday life	2.2–2.5 (pp. 58–63, 66–77), Chapter 2 Task (p. 82) 4.5 (pp. 154–157), Chapter 4 Task (p. 164) 5.3 (pp. 178–181), Chapter 5 Task (p. 186) Chapter 7 Task (p. 280)

Curriculum Expectation	<i>Mathematics 12 Workplace and Everyday Life</i>
<b>A.2 Investigating Probability</b>	
<b>A.2.1</b> determine the theoretical probability of an event, and represent the probability in a variety of ways	1.1–1.5 (pp. 6–13, 18–30), Chapter 1 Task (p. 44) 3.4 (pp. 108–111)
<b>A.2.2</b> identify examples of the use of probability in the media and various ways in which probability is represented	1.1 (pp. 6–9), 1.5–1.6 (pp. 28–39), Chapter 1 Task (p. 44) 3.4 (pp. 108–111)
<b>A.2.3</b> perform simple probability experiments, record the results, and determine the experimental probability of an event	1.2 (pp. 10–13), Tech Tip: Experimenting with a Random Number Generator (pp. 14–15), 1.3–1.5 (pp. 18–30), Chapter 1 Task (p. 44)
<b>A.2.4</b> compare, through investigation, the theoretical probability of an event with the experimental probability, and describe how uncertainty explains why they might differ	1.2–1.5 (pp. 10–13, 18–30), Chapter 1 Task (p. 44)
<b>A.2.5</b> determine, through investigation using class-generated data and technology-based simulation models, the tendency of experimental probability to approach theoretical probability as the number of trials in an experiment increases	1.2 (pp. 10–13), Tech Tip: Experimenting with a Random Number Generator (pp. 14–15), 1.3–1.5 (pp. 18–30)
<b>A.2.6</b> interpret information involving the use of probability and statistics in the media, and describe how probability and statistics can help in making informed decisions in a variety of situations	1.6 (pp. 34–39)
<b>B. PERSONAL FINANCE</b>	
<b>Overall Expectations</b>	
<b>B.1</b> gather, interpret, and compare information about owning or renting accommodation and about the associated costs	Chapter 3 (pp. 83–126), Chapter 5 (pp. 165–186) <i>Contributing Expectations</i> Chapter 2 (pp. 51–82)
<b>B.2</b> interpret, design, and adjust budgets for individuals and families described in case studies	Chapter 2 (pp. 51–82) <i>Contributing Expectations</i> Chapters 3–5 (pp. 83–186), Chapter 7 (pp. 233–280)
<b>B.3</b> demonstrate an understanding of the process of filing a personal income tax return, and describe applications of the mathematics of personal finance	Chapter 4 (pp. 127–164)
<b>Specific Expectations</b>	
<b>B.1 Renting or Owning Accommodation</b>	
<b>B.1.1</b> identify the financial implications and the non-financial implications associated with living independently	3.1 (pp. 86–91), 3.5 (pp. 114–117), Chapter 3 Task (p. 126) 5.3 (pp. 178–181), Chapter 5 Task (p. 186)
<b>B.1.2</b> gather and compare, through investigation, information about the costs and the advantages and disadvantages of different types of rental accommodation in the local community	Tech Tip: Research Accommodations (pp. 84–85), 3.1 (pp. 86–91), Chapter 3 Task (p. 126)
<b>B.1.3</b> gather and compare, through investigation, information about purchase prices of different types of owned accommodation in the local community	5.1–5.2 (pp. 166–169, 172–177), Chapter 5 Task (p. 186)

Curriculum Expectation	<i>Mathematics 12 Workplace and Everyday Life</i>
<b>B.1.4</b> gather, interpret, and compare information about the different types of ongoing living expenses associated with renting and owning accommodation and related costs	Chapter 2 Task (p. 82) 3.2–3.3 (pp. 92–99, 104–107), Skills Practice 3 (pp. 100–101), Skills Practice 5 (pp. 112–113), 3.5 (pp. 114–117), Skills Practice 6 (pp. 120–121), Chapter 3 Task (p. 126) Tech Tip: Using the TVM Solver to Calculate Mortgage Payments (pp. 170–171), 5.2–5.3 (pp. 172–181), Chapter 5 Task (p. 186)
<b>B.1.5</b> gather, interpret, and describe information about the rights and responsibilities of tenants and landlords	3.4 (pp. 108–111), Skills Practice 5 (pp. 112–113), Chapter 3 Task (p. 126)
<b>B.1.6</b> generate a checklist of necessary tasks associated with moving, and estimate the total cost involved under various conditions	3.2–3.3 (pp. 92–99, 104–107), Chapter 3 Task (p. 126)
<b>B.2 Designing Budgets</b>	
<b>B.2.1</b> categorize personal expenses as nondiscretionary or discretionary	2.2–2.5 (pp. 58–63, 66–77), Chapter 2 Task (p. 82) 3.4–3.5 (pp. 108–111, 114–117)
<b>B.2.2</b> categorize personal non-discretionary expenses as fixed or variable	2.2–2.5 (pp. 58–63, 66–77), Chapter 2 Task (p. 82) 3.4–3.5 (pp. 108–111, 114–117) 5.3 (pp. 178–181), Chapter 5 Task (p. 186) 7.3 (pp. 250–255)
<b>B.2.3</b> read and interpret prepared individual or family budgets, identify and describe the key components of a budget, and describe how budgets can reflect personal values	2.2–2.5 (pp. 58–63, 66–77), Chapter 2 Task (p. 82) 3.5 (pp. 114–117) 5.2–5.3 (pp. 172–181), Chapter 5 Task (p. 186) Chapter 7 Task (p. 280)
<b>B.2.4</b> design, with technology and without technology, explain, and justify a monthly budget suitable for an individual or family described in a given case study that provides the specifics of the situation	Tech Tip: Using the TVM Solver (pp. 52–53), 2.1 (pp. 54–57), Tech Tip: Using a Spreadsheet (pp. 64–65), 2.3–2.5 (pp. 66–77), Chapter 2 Task (p. 82) Chapter 5 Task (p. 186)
<b>B.2.5</b> identify and describe factors to be considered in determining the affordability of accommodation in the local community	2.4 (pp. 70–73) 3.5 (pp. 114–117), Chapter 3 Task (p. 126) Tech Tip: Using the TVM Solver to Calculate Mortgage Payments (pp. 170–171), 5.2 (pp. 172–177), Chapter 5 Task (p. 186)
<b>B.2.6</b> make adjustments to a budget to accommodate changes in circumstances, with technology	2.3–2.5 (pp. 66–77), Chapter 2 Task (p. 82) Chapter 3 Task (p. 126) 4.5 (pp. 154–157), Chapter 4 Task (p. 164) 5.2 (pp. 172–177), Chapter 5 Task (p. 186) 7.3 (pp. 250–255), Chapter 7 Task (p. 280)

Curriculum Expectation	<i>Mathematics 12 Workplace and Everyday Life</i>
<b>B.3 Filing Income Tax</b>	
<b>B.3.1</b> explain why most Canadians are expected to file a personal income tax return each year, and identify and describe the major parts of a personal income tax return	4.1–4.3 (pp. 128–145)
<b>B.3.2</b> gather, interpret, and describe the information and documents required for filing a personal income tax return, and explain why they are required	4.1–4.4 (pp. 128–145, 148–151), Chapter 4 Task (p. 164)
<b>B.3.3</b> gather, interpret, and compare information about common tax credits and tax deductions	4.2–4.3 (pp. 134–145), Skills Practice 7 (p. 146), Tech Tip: Using an Online Income Tax Calculator (p. 147), 4.4 (pp. 148–151), Chapter 4 Task (p. 164)
<b>B.3.4</b> complete a simple personal income tax return, with or without tax preparation software	4.2–4.3 (pp. 134–145), Tech Tip: Using an Online Income Tax Calculator (p. 147), 4.4 (pp. 148–151), Skills Practice 8 (pp. 152–153), Chapter 4 Task (p. 164)
<b>B.3.5</b> gather, interpret, and describe some additional information that a self-employed individual should provide when filing a personal income tax return	4.5 (pp. 154–157)
<b>B.3.6</b> gather, interpret, and describe information about services that will complete a personal income tax return and resources that will help with completing a personal income tax return, and compare the services and resources on the basis of the assistance they provide and their cost	4.4–4.5 (pp. 148–151, 154–157), Chapter 4 Task (p. 164)
<b>B.3.7</b> gather, interpret, and describe information about applications of the mathematics of personal finance in the workplace	4.5 (pp. 154–157), Chapter 4 Task (p. 164)
<b>C. APPLICATIONS OF MEASUREMENT</b>	
<b>Overall Expectations</b>	
<b>C.1</b> determine and estimate measurements using the metric and imperial systems, and convert measures within and between systems	Chapters 6–7 (pp. 189–280) <i>Contributing Expectations</i> Chapter 1 (pp. 3–44)
<b>C.2</b> apply measurement concepts and skills to solve problems in measurement and design, to construct scale drawings and scale models, and to budget for a household improvement	Chapters 6–7 (pp. 189–280)
<b>C.3</b> identify and describe situations that involve proportional relationships and the possible consequences of errors in proportional reasoning, and solve problems involving proportional reasoning, arising in applications from work and everyday life	Chapters 6–7 (pp. 189–280) <i>Contributing Expectations</i> Chapter 1 (pp. 3–44) Chapters 3–5 (pp. 83–186)
<b>Specific Expectations</b>	
<b>C.1 Measuring and Estimating</b>	
<b>C.1.1</b> measure, using a variety of tools, the lengths of common objects and the capacities of common containers, using the metric system and the imperial system	6.1 (pp. 190–195), 6.4–6.6 (pp. 211–215, 218–227) 7.1 (pp. 234–239), Skills Practice 12 (p. 240), Skills Practice 13 (pp. 241–242), 7.4 (pp. 259–263), Chapter 7 Task (p. 280)

<b>Curriculum Expectation</b>	<b><i>Mathematics 12 Workplace and Everyday Life</i></b>
<b>C.1.2</b> estimate lengths, distances, and capacities in metric units and in imperial units by applying personal referents	6.1–6.2 (pp. 190–201) Chapter 7 Task (p. 280)
<b>C.1.3</b> estimate quantities, and describe the strategies used	6.3 (pp. 202–207) 7.3–7.4 (pp. 250–255, 259–263), Chapter 7 Task (p. 280)
<b>C.1.4</b> convert measures within systems, as required within applications that arise from familiar contexts	Skills Practice 1 (pp. 4–5) 6.1–6.2 (pp. 190–201), Skills Practice 9 (pp. 208–209), Skills Practice 10 (p. 210), 6.4 (pp. 211–215), 6.6 (pp. 224–227), Chapter 6 Task (p. 232) 7.1–7.3 (pp. 234–239, 243–255)
<b>C.1.5</b> convert measures between systems, as required within applications that arise from familiar contexts	6.5–6.6 (pp. 218–227), Chapter 6 Task (p. 232)
<b>C.2 Applying Measurement and Design</b>	
<b>C.2.1</b> construct accurate right angles in practical contexts, and explain connections to the Pythagorean theorem	Skills Practice 12 (p. 240), Skills Practice 13 (pp. 241–242)
<b>C.2.2</b> apply the concept of perimeter in familiar contexts	6.4 (pp. 211–215) 7.2–7.3 (pp. 243–255), 7.6 (pp. 270–273), Chapter 7 Task (p. 280)
<b>C.2.3</b> estimate the areas and volumes of irregular shapes and figures, using a variety of strategies	7.5 (pp. 264–269), Chapter 7 Task (p. 280)
<b>C.2.4</b> solve problems involving the areas of rectangles, triangles, and circles, and of related composite shapes, in situations arising from real-world applications	7.2–7.3 (pp. 243–255), Skills Practice 14 (pp. 256–258), 7.5–7.6 (pp. 264–273), Chapter 7 Task (p. 280)
<b>C.2.5</b> solve problems involving the volumes and surface areas of rectangular prisms, triangular prisms, and cylinders, and of related composite figures, in situations arising from real-world applications	7.4–7.6 (pp. 259–273), Chapter 7 Task (p. 280)
<b>C.2.6</b> construct a two-dimensional scale drawing of a familiar setting on grid paper or using design or drawing software	7.1–7.2 (pp. 234–239, 243–249), 7.6 (pp. 270–273), Chapter 7 Task (p. 280)
<b>C.2.7</b> construct, with reasonable accuracy, a three-dimensional scale model of an object or environment of personal interest	7.4–7.6 (pp. 259–273)
<b>C.2.8</b> investigate, plan, design, and prepare a budget for a household improvement, using appropriate technologies	7.5–7.6 (pp. 264–273), Chapter 7 Task (p. 280)
<b>C.3 Solving Measurement Problems Using Proportional Reasoning</b>	
<b>C.3.1</b> identify and describe applications of ratio and rate, and recognize and represent equivalent ratios and equivalent rates, using a variety of tools	Skills Practice 2 (pp. 16–17), 1.6 (pp. 34–39) Skills Practice 9 (pp. 208–209), Skills Practice 10 (p. 210), 6.4 (pp. 211–215), Skills Practice 11 (pp. 216–217), Chapter 6 Task (p. 232) Skills Practice 12 (p. 240), Skills Practice 13 (pp. 241–242), 7.3–7.6 (pp. 250–255, 259–273), Chapter 7 Task (p. 280)

<b>Curriculum Expectation</b>	<b><i>Mathematics 12 Workplace and Everyday Life</i></b>
<b>C.3.2</b> identify situations in which it is useful to make comparisons using unit rates, and solve problems that involve comparisons of unit rates	1.3–1.5 (pp. 18–33) 3.2–3.3 (pp. 92–99, 104–107) 6.5–6.6 (pp. 218–227) 7.5 (pp. 264–269), Chapter 7 Task (p. 280)
<b>C.3.3</b> identify and describe real-world applications of proportional reasoning, distinguish between a situation involving a proportional relationship and a situation involving a non-proportional relationship in a personal and/or workplace context, and explain their reasoning	3.3 (pp. 104–107), Tech Tip: Adding Percent to a Number (pp. 118–119) 4.1 (pp. 128–133), 4.5 (pp. 154–157) 5.3 (pp. 178–181) 6.4 (pp. 211–215), Skills Practice 11 (pp. 216–217), 6.5–6.6 (pp. 218–227) 7.1 (pp. 234–239), 7.3–7.6 (pp. 250–255, 259–273)
<b>C.3.4</b> identify and describe the possible consequences of errors in proportional reasoning	6.5–6.6 (pp. 218–227), Chapter 6 Task (p. 232) Skills Practice 13 (pp. 241–242), 7.3 (pp. 250–255), Chapter 7 Task (p. 280)
<b>C.3.5</b> solve problems involving proportional reasoning in everyday life	Tech Tip: Adding Percent to a Number (pp. 118–119), Chapter 3 Task (p. 126) 4.1 (pp. 128–133), 4.5 (pp. 154–157) 5.3 (pp. 178–181), Chapter 5 Task (p. 186) 6.4 (pp. 211–215), Skills Practice 11 (pp. 216–217), 6.5–6.6 (pp. 218–227), Chapter 6 Task (p. 232) 7.1–7.6 (pp. 234–239, 243–255, 259–273), Chapter 7 Task (p. 280)
<b>C.3.6</b> solve problems involving proportional reasoning in work-related situations	4.1 (pp. 128–133) 6.6 (pp. 224–227) 7.1 (pp. 234–239), 7.3–7.4 (pp. 250–255, 259–263), 7.6 (pp. 270–273)



## ***Mathematics 12 Workplace and Everyday Life and the Ontario Skills Passport***

**Communication Skills:** Teachers working with *Mathematics 12 Workplace and Everyday Life* will readily see the close correlation between these materials and essential communication skills included in the Ontario Skills Passport (OSP). The chart below outlines some of these skills.

<b>Communication Skill</b>	<b>Explanation</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
Reading Text	Students work with a number of different texts, including textual material, instructions, ads, spreadsheets, tax forms, and online materials.	Proposed Samples (p. 37) Long-Term Weather Forecast (p. 39) Task: Play Klass Kasino (p. 44) Budget Template (p. 71) Sample Record of Expenses (p. 72) Ads (pp. 94, 100, 169, 255) Apartment Floor Plan (p. 95) Cheques (pp. 102–103) Landlord and Tenant Act (pp. 109, 111) Rental Lease (pp. 112–113) Utility Bill (pp. 120–121) Task: Leaving Town (p. 126) T4 (p. 134) T1 General (pp. 136–139, 150) Charitable Receipt (p. 143) Spreadsheet (p. 180) Dosage Chart (p. 227) Recipe (p. 266) Grocery Flyer (p. 267)
Writing	Students prepare written materials for various real life purposes, including long-term plans such as budgets, house-buying plans, and shopping lists.	Define Key Terms (pp. 1–2, 45–50, 187–188) Track Spending (pp. 66–69) Balanced Budget (pp. 75–77) Task: Out of Control (p. 82) Possible Places to Rent (p. 91) Write Ads (pp. 101, 168) Translate Lease to Everyday English (pp. 112–113) Task: Leaving Town (p. 126) Assess Tax Preparation Resources (pp. 148–149) Assess Tax Preparation Services (p. 151) Set Up a Spreadsheet (p. 155) Explain Abbreviation (p. 167) Task: Buying a Dream Home (p. 186) Sketch of Patio (p. 205) Task: Plan a Shopping Trip (p. 232) Design a Wrapper (p. 262) Task: Home Renovations (p. 280)

Communication Skill	Explanation	Examples in <i>Mathematics 12 Workplace and Everyday Life</i>
Document Use	Students read and/or develop a variety of documents, including labels, lists, signs, graphs, charts, tables, forms, and scale drawings.	<p>Tables/Charts (pp. 5, 7, 19–20, 22–23, 25–26, 30, 33, 61, 88, 100, 115–116, 133, 147, 156, 168–169, 173, 176, 190–195, 197–201, 212–214, 219, 262–263)</p> <p>Graphs (pp. 7–8, 11–13, 19, 21, 23, 26, 30, 63, 120)</p> <p>Spinners (p. 9)</p> <p>Tally Chart (pp. 11–13, 32, 38)</p> <p>Classify List (pp. 59, 71)</p> <p>Expenses Chart (pp. 62–63, 67)</p> <p>Budget Chart (pp. 75–77)</p> <p>Lists (pp. 72, 93, 96–98, 179, 181, 206, 252–253, 267)</p> <p>Accommodation Checklists (pp. 86, 87)</p> <p>Task: Tax Planning (p. 164)</p> <p>Task: Buying a Dream Home (p. 186)</p> <p>Estimate Number of Items in Picture (pp. 203–204)</p> <p>Scale Drawing (pp. 235–239, 244, 248–249, 251, 274)</p>
Computer Use	Students use computers to make calculations, draw graphs, develop spreadsheets, and check probability.	<p><i>Tech Tips in the Student Resource</i></p> <p>Tech Tip: Experimenting with a Random Number Generator (pp. 14–15)</p> <p>Tech Tip: Using the Random Number Generator in a TI-83/84 Graphing Calculator (p. 31)</p> <p>Tech Tip: Using the TVM Solver (pp. 52–53)</p> <p>Tech Tip: Using a Spreadsheet (pp. 64–65)</p> <p>Tech Tip: Research Accommodations (pp. 84–85)</p> <p>Tech Tip: Adding Percent to a Number (pp. 118–119)</p> <p>Tech Tip: Using the CRA Payroll Calculator (pp. 130–132)</p> <p>Tech Tip: Using an Online Income Tax Calculator (p. 147)</p> <p>Tech Tip: Using the TVM Solver to Calculate Mortgage Payments (pp. 170–171)</p> <p><i>Tech Masters</i></p> <p>Tech 1 Using a Random Number Generator in Fathom™</p> <p>Tech 2 Using the TVM Solver to Solve a Budget Problem</p> <p>Tech 3 Using a Spreadsheet in Corel Quattro® Pro 12</p> <p>Tech 4 Using the CRA Payroll Calculator</p> <p>Tech 5 Using the TVM Solver to Calculate Mortgage Payments</p> <p>Tech 6 Using TI-Nspire™ to Calculate Mortgage Payments</p> <p><i>Technology Links</i></p> <p>pp. 70, 91, 93, 98, 109, 111, 113, 115, 129, 130, 135, 141, 144, 146, 147, 148, 149, 151, 157, 167, 168, 177, 186, 220, 221, 222, 232, 244, 252</p>

<b>Communication Skill</b>	<b>Explanation</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
Oral Communication	Students interact with each other, interview various members of the community, and share their learning with peers.	<p>There are opportunities throughout every section and chapter for students to interact. Some of these include hands-on activities; others include working together on shopping lists, moving checklists, and renovation or landscaping plans. It is expected that students will routinely work in small groups or with a partner, sharing their ideas and strategies.</p> <p>Discuss/Work in Group (pp. 3, 13, 17, 38, 51, 83, 127, 165, 189, 233, 262)            Use Class Results (pp. 23, 26–27, 33)            Interview to Collect Data (pp. 36, 151, 179)            Survey (pp. 38, 140–141, 253)            Participate in Large Group Activity (p. 44)            Discuss with Partner and/or Peer (pp. 55, 66, 70, 141, 164, 181, 186, 203, 207, 219, 232, 239, 268)            Brainstorm (pp. 58, 77, 166, 178)            Develop Interview Questions (p. 84)            Compare Strategies (p. 203)</p>

**Numeracy Skills:** *Mathematics 12 Workplace and Everyday Life* also handles many of the numeracy skills included in the Ontario Skills Passport (OSP). The charts below provides some references for these skills.

<b>Money Math</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
<p><b>Level 1</b></p> <ul style="list-style-type: none"> <li>• Determining the total for simple bills</li> <li>• Making change</li> <li>• Receiving payments</li> </ul>	
<p><b>Level 2</b></p> <ul style="list-style-type: none"> <li>• Handling foreign currency in a cash transaction</li> <li>• Calculating prices using a formula (e.g., regular price minus a specific percentage for a discount)</li> <li>• Determining the total for accounts and/or bills that include calculation of one of the following: discount, tax, interest</li> </ul>	<p>Chapter 2 (pp. 51–82)            Chapter 4 (pp. 127–164)            Skills Practice 11: Using Ratio and Proportion to Convert Measurements (pp. 216–217)            6.5 (pp. 218–223)            Chapter 7 (pp. 233–280)</p>
<p><b>Level 3</b></p> <ul style="list-style-type: none"> <li>• Preparing pay cheques using rates of pay, deduction schedules, calculations of bonuses, and/or other factors</li> <li>• Determining the total for accounts and/or bills that include calculation of two or more of the following: discount(s), tax(es), interest</li> </ul>	<p>Chapters 2–4 (pp. 51–164)            Chapter 7 (pp. 233–280)</p>

<b>Money Math</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
<b>Level 4</b> <ul style="list-style-type: none"> <li>• Quickly and accurately making mental calculations that involve identifying and using numerous mathematical operations</li> </ul>	Chapters 1–2 (pp. 3–82) Chapters 6–7 (pp. 189–280)
<b>Level 5</b> <ul style="list-style-type: none"> <li>• Forecasting prices (e.g., of stocks) by taking into account various critical factors that must be estimated on the basis of past performance and projections of future trends</li> </ul>	
<b>Scheduling or Budgeting and Accounting</b>	
<b>Level 1</b> <ul style="list-style-type: none"> <li>• Recording costs in relation to categories of budgets</li> <li>• Monitoring schedules or budgets and reporting shortages or surpluses</li> <li>• Making entries in financial records</li> </ul>	Chapters 2–5 (pp. 51–186)
<b>Level 2</b> <ul style="list-style-type: none"> <li>• Determining the number of packages to buy, using the number of units required as a basis</li> <li>• Determining the number of workers required and amount of time needed to complete a job, using production rates per person as a basis</li> <li>• Preparing simple financial summaries</li> </ul>	Chapters 2–5 (pp. 51–186)
<b>Level 3</b> <ul style="list-style-type: none"> <li>• Adjusting established budgets and schedules to incorporate new information</li> <li>• Comparing two options with different cost structures</li> </ul>	Chapters 2–5 (pp. 51–186) Chapter 6 Task (p. 232) Chapter 7 Task (p. 280)
<b>Level 4</b> <ul style="list-style-type: none"> <li>• Planning and monitoring schedules and budgets for small or short-term projects</li> <li>• Auditing financial records to determine accuracy and appropriate use of financial procedures</li> </ul>	Chapter 2 Task (p. 82) Chapter 3 Task (p. 126) Chapter 5 Task (p. 186) Chapter 6 Task (p. 232) Chapter 7 Task (p. 280)
<b>Level 5</b> <ul style="list-style-type: none"> <li>• Planning and monitoring schedules and budgets for large or multi-phased projects</li> <li>• Comparing long-term investment alternatives where future rates of return are not known</li> </ul>	Chapter 5 Task (p. 186) Chapter 6 Task (p. 232) Chapter 7 Task (p. 280)
<b>Measurement and Calculation</b>	
<b>Level 1</b> <ul style="list-style-type: none"> <li>• Taking measurements in a one-step process and recording results</li> <li>• Measuring out quantities</li> <li>• Setting instruments to particular angles and other numeric settings</li> </ul>	Chapters 6–7 (pp. 189–280)

<b>Money Math</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
<b>Level 2</b> <ul style="list-style-type: none"> <li>• Calculating areas and volumes of simple, familiar shapes</li> <li>• Converting between measurement systems or converting quantities by doubling, halving, etc.</li> </ul>	Chapters 6–7 (pp. 189–280)
<b>Level 3</b> <ul style="list-style-type: none"> <li>• Calculating areas that are a combination of simple, familiar shapes</li> <li>• Making scale drawings</li> <li>• Taking precise measurements using specialized equipment</li> </ul>	Chapter 7 (pp. 233–280)
<b>Level 4</b> <ul style="list-style-type: none"> <li>• Calculating areas and volumes of complex irregular shapes</li> </ul>	7.6 Composite Shapes and Figures (pp. 270–273)
<b>Level 5</b> <ul style="list-style-type: none"> <li>• Devising estimates and making calculations of measurements that cannot be taken directly</li> </ul>	6.3 Estimating Large Numbers (pp. 202–207)
<b>Data Analysis</b>	
<b>Level 1</b> <ul style="list-style-type: none"> <li>• Making simple numerical comparisons (e.g., identifying the higher of two readings)</li> </ul>	
<b>Level 2</b> <ul style="list-style-type: none"> <li>• Calculating simple numerical summaries (e.g., monthly averages, average rates of return on investments)</li> </ul>	Chapter 2 (pp. 51–82)
<b>Level 3</b> <ul style="list-style-type: none"> <li>• Calculating averages across sets of readings, comparing them to acceptable ranges, and drawing conclusions from the findings (e.g., using statistics for quality control, applying principles of probability)</li> </ul>	Chapter 1 (pp. 3–44)
<b>Level 4</b> <ul style="list-style-type: none"> <li>• Calculating appropriate descriptive statistics (e.g., using statistics from financial statements to compare a company’s performance with that of similar companies)</li> <li>• Analysing differences in rates (e.g., rates of population growth)</li> </ul>	Chapter 2 (pp. 51–82) Chapter 5 (pp. 165–186)

<b>Money Math</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
<p><b>Level 5</b></p> <ul style="list-style-type: none"> <li>• Conducting analyses and testing hypotheses by using mathematical models</li> <li>• Taking into account the impact of different variables when doing analyses and making calculations (e.g., using information on interest rates, political events, and the global economy when analysing investments)</li> <li>• Making projections using appropriate data (e.g., determining rates of return in a pension plan using data on annual contributions)</li> </ul>	Chapter 5 (pp. 165–186)
<b>Numerical Estimation</b>	
<p><b>Level 1</b></p> <ul style="list-style-type: none"> <li>• Providing an estimate in a situation in which errors can be easily and quickly corrected with minimal expense</li> <li>• Taking into consideration only one factor about which all relevant information is known</li> <li>• Using a given formula and procedure in making the estimate</li> </ul>	Chapter 7 (pp. 233–280)
<p><b>Level 2</b></p> <ul style="list-style-type: none"> <li>• Providing an estimate in a situation in which errors can be corrected but at some inconvenience and expense</li> <li>• Taking into consideration only a few factors about which most relevant information is known</li> <li>• Using a given formula and procedure in making the estimate, while taking into consideration other factors</li> </ul>	Chapters 2–3 (pp. 51–126)
<p><b>Level 3</b></p> <ul style="list-style-type: none"> <li>• Providing an estimate in a situation in which errors have significant consequences but can be corrected</li> <li>• Taking into consideration many factors about which some information is not known for certain</li> <li>• Using a procedure that has been developed for making the estimate (no formula available)</li> </ul>	Chapters 4–5 (pp. 127–186)
<p><b>Level 4</b></p> <ul style="list-style-type: none"> <li>• Providing an estimate in a situation in which errors have significant consequences and cannot be corrected or can only be corrected at great expense</li> <li>• Taking into consideration many factors about which a lot of information is not known</li> <li>• Developing a formula or procedure for making the estimate</li> </ul>	
<b>Job/Task Planning and Organizing</b>	
<p><b>Level 1</b></p> <ul style="list-style-type: none"> <li>• Performing tasks that are done in an established order</li> <li>• Performing tasks that are rarely disrupted</li> <li>• Performing tasks that do not require coordination with the work of others</li> </ul>	Chapter 1 (pp. 3–44)

<b>Money Math</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
<p><b>Level 2</b></p> <ul style="list-style-type: none"> <li>• Planning and organizing their work within a limited framework</li> <li>• Performing tasks according to the priority assigned to various categories of tasks by someone else</li> <li>• Performing tasks that may be disrupted but the day’s work plan is not changed</li> <li>• Coordinating some of their work with the work of others</li> </ul>	Throughout the course
<p><b>Level 3</b></p> <ul style="list-style-type: none"> <li>• Planning and organizing their work following general guidelines</li> <li>• Establishing the order in which their tasks are completed, subject to the supervisor’s approval</li> <li>• Making adjustments to the order in which their tasks are done, or rescheduling tasks or people</li> <li>• Coordinating and integrating their work with that of others</li> </ul>	All chapter tasks 3.2 Preparing to Move (pp. 92–99)
<p><b>Level 4</b></p> <ul style="list-style-type: none"> <li>• Planning and organizing their work with complete authority</li> <li>• Establishing the order in which tasks are completed</li> <li>• Frequently making adjustments to the order of tasks, rescheduling tasks or people, or setting new priorities</li> <li>• Creating and maintaining links with the work of others</li> </ul>	Chapter 7 Task (p. 280)
<b>Decision Making</b>	
<p><b>Level 1</b></p> <ul style="list-style-type: none"> <li>• Making a decision in a situation in which all relevant information is known; in which limited judgement is needed; and in which decisions can be easily reversed</li> <li>• Following a standard procedure in which exceptions are clearly defined</li> <li>• Using similar decisions from the past as models</li> </ul>	Chapter 1 (pp. 3–44)
<p><b>Level 2</b></p> <ul style="list-style-type: none"> <li>• Making a decision in a situation in which most relevant information is known; in which some judgement is needed; in which errors have minor consequences; and in which decisions can be reversed with only some inconvenience and/or expense</li> <li>• Following a standard procedure in which exceptions require some interpretation</li> <li>• Using comparable decisions from the past as models</li> </ul>	Chapters 2–3 (pp. 51–126) Chapters 6–7 (pp. 189–280)

Money Math	Examples in <i>Mathematics 12 Workplace and Everyday Life</i>
<p><b>Level 3</b></p> <ul style="list-style-type: none"> <li>• Making a decision in a situation in which some information is uncertain; in which considerable judgement is needed; in which errors have significant consequences but can be corrected; and in which decisions can be reversed only with considerable difficulty</li> <li>• Following a standard procedure that allows a lot of room for personal interpretation</li> <li>• Using somewhat similar decisions from the past as models</li> </ul>	<p>Chapters 4–5 (pp. 127–186)</p>
<p><b>Level 4</b></p> <ul style="list-style-type: none"> <li>• Making a decision in a situation in which important information is not known; in which excellent judgement is needed; in which errors have significant consequences and either cannot be corrected or can only be corrected at great cost; and in which the decision cannot be reversed or can only be reversed with great difficulty and/or at great expense</li> <li>• Making the decision in a situation in which there are no established procedures or models of similar decisions to guide decision making</li> </ul>	<p style="background-color: black; color: black;">[Redacted]</p>
Problem Solving	
<p><b>Level 1</b></p> <ul style="list-style-type: none"> <li>• Dealing with simple problems that are easily identified and have a limited number of factors</li> <li>• Selecting the prescribed solution for a problem</li> <li>• Checking that the problem has been solved</li> </ul>	<p>Chapter 1 (pp. 3–44)</p>
<p><b>Level 2</b></p> <ul style="list-style-type: none"> <li>• Dealing with problems that are of moderate difficulty and that have several factors, most of which are clearly defined</li> <li>• Identifying the problem and selecting the most appropriate solution</li> <li>• Determining whether the solution was successful</li> </ul>	<p>Chapters 6–7 (pp. 189–280)</p>
<p><b>Level 3</b></p> <ul style="list-style-type: none"> <li>• Dealing with difficult problems that have a broad range of factors, some of which are difficult to define</li> <li>• Selecting the best procedure for identifying the problem, and modifying an existing solution, if necessary</li> <li>• Determining whether the solution was successful, and identifying the need for any further action</li> </ul>	<p>Chapters 2–3 (pp. 51–126)</p>



<b>Money Math</b>	<b>Examples in <i>Mathematics 12 Workplace and Everyday Life</i></b>
<p><b>Level 4</b></p> <ul style="list-style-type: none"> <li>• Dealing with very difficult problems that have a broad range of factors, some of which are unpredictable or conflict with other factors</li> <li>• Designing the procedure for identifying the problem, and providing an original solution</li> <li>• Identifying criteria for determining whether the solution was successful, and assessing the solution in relation to these criteria</li> </ul>	<p>Chapters 4–5 (pp. 127–186)</p>
<b>Finding Information</b>	
<p><b>Level 1</b></p> <ul style="list-style-type: none"> <li>• Consulting established sources (e.g., telephone book, airline flight schedule, software manual or hotline) that are provided for the worker</li> <li>• Using information only in the form in which it is obtained (e.g., telephone numbers, flight times, instructions in a word processing package)</li> </ul>	<p>Tech Tip: Experimenting with a Random Number Generator (pp. 14–15)  Tech Tip: Using the Random Number Generator in a TI-83/84 Graphing Calculator (p. 31)  Tech Tip: Using the TVM Solver (pp. 52–53)  Tech Tip: Using a Spreadsheet (pp. 64–65)  Tech Tip: Adding Percent to a Number (pp. 118–119)  Tech Tip: Using the CRA Payroll Calculator (pp. 130–132)  Tech Tip: Using an Online Income Tax Calculator (p. 147)  Tech Tip: Using the TVM Solver to Calculate Mortgage Payments (pp. 170–171)</p>
<p><b>Level 2</b></p> <ul style="list-style-type: none"> <li>• Identifying and consulting specific sources that are easily located (e.g., supervisor, co-workers, brochures, websites)</li> <li>• Selecting information according to established criteria (e.g., compiling a list of books, contacting suppliers to obtain specific information)</li> </ul>	<p>Tech Tip: Research Accommodations (pp. 84–85)  Use of Technology Links through the student edition</p>
<p><b>Level 3</b></p> <ul style="list-style-type: none"> <li>• Conducting a search for specific information (e.g., locating witnesses to a crime, collecting samples for environmental tests, researching scientific articles)</li> <li>• Analysing and using the information found (e.g., information from manuals and/or charts, information from injured persons about their medical history and current condition)</li> </ul>	<p>Chapter 3 (pp. 83–126)</p>
<p><b>Level 4</b></p> <ul style="list-style-type: none"> <li>• Gathering information from several different sources (e.g., technical manuals, maps, government regulations) OR doing original research (e.g., developing a new vaccine)</li> <li>• Conducting complex analysis and/or synthesis (e.g., analysing information from a variety of sources) in order to develop a solution to a problem</li> </ul>	<p>Chapter 5 Task (p. 186)  Chapter 6 Task (p. 232)  Chapter 7 Task (p. 280)</p>

