

What Is the Purpose of the Workbook?

For students

The Workbook supports students in their learning journey with independent or small-group practice opportunities for

- building on their understanding through a variety of questions, tasks, games, and challenges connecting foundational concepts;
- organizing and representing their thinking and understanding; and
- connecting math concepts to their lived experiences.

For teachers

The Workbook helps you support students by

- offering intentional independent and small-group practice ideas, aligned with your curriculum;
- providing additional assessment opportunities and ways to support learning; and
- allowing parents and caregivers an opportunity to see what their child is learning.

Go to [Mathology.ca](https://www.mathology.ca) for comprehensive lesson notes supporting a deep understanding of student thinking and assessment opportunities that help determine the best next steps for your learners.

How To Use the Workbook

After working through lessons with students

- Identify the practice units that correlate with the lessons you've taught.
- Use the Workbook flexibly, as in-class practice (small-group, collaborative, or independent work).
- Discuss the practice tasks and ensure clarity.
- Identify the open-ended tasks and discuss ways for students to represent their understanding.
- Debrief the tasks and ask students to share their strategies.
- Observe students' level of understanding and build on it through additional tasks.

Reaching All Learners (Differentiated Instruction)

Consider the variety of learners in your classroom and how the Workbook can best support them.

Key questions to reflect on include:

- Are there certain questions that I want all students to complete?
- Do some students need accommodations?
- Which students might benefit from small-group conversations before starting tasks?
- How can I encourage the use of manipulatives and models (e.g., Math Mats, Base Ten Blocks)?
- How can students use the Workbook to recognize their strengths and build a math identity (e.g., self-reflection)?

Curriculum Support

Go to www.pearson.com/ca/en/k-12-education/mathology.html for a detailed alignment of this resource with your curriculum.

How Is the Workbook Organized?

Each unit connects the learning across several lessons.

Unit 9 Data Management

What I Know

Match each type of graph to its use.

Graph Type	Use
Bar graph	To compare two sets of discrete data Example: Favourite sports of Grades 5 and 6 students
Double-bar graph	To show discrete data (small numbers), grouped in categories Example: Favourite fruit of students in my class
Stacked-bar graph	To show discrete data, grouped in categories Example: Pets Grade 6 students have at home
Pictograph	To show data values proportionally Example: The percent of smoothies of different flavours sold at different locations

Checking In

Exploring Line Graphs and Histograms

1 a) This table shows the monthly cell phone data usage for a Grade 6 student last year. Graph the data.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Data Usage (GB)	6.6	10.2	9.5	7.6	8.5	9.0	10.3	8.6	7.9	9.7	8.3	11.7

1 GB is a unit of data storage that can hold a single typed letter. A gigabyte (GB) is roughly equivalent to 1 billion bytes.

What I Know

- activates prior knowledge of major concepts
- provides pre-assessment of students' understanding and knowledge
- helps you identify students who may need additional support

Checking In

- provides opportunities for students to apply their knowledge and understanding of concepts, make connections to math in the real world, reflect and discuss their thinking and strategies, and show what they know

Bringing It Together

- allows students to work together to discuss thinking and strategies
- helps students show what they know
- presents many open-ended tasks or games

Connections prompts

- enable students to create their own notes on connections made visible in the moment

What I Learned

- allows students to reflect on what they have learned and record their understanding
- prompts students to focus on the major understandings and concepts
- provides a snapshot of students' learning

Connecting and Reflecting

- connects the learning across a practice cluster with students' lived experiences

Sample student answers are included throughout the resource.

Bringing It Together

11 CHALLENGE: Make It Work

A 20-year-old has a full-time job and a part-time job:

- Working in a factory from 9 to 4 on weekdays: \$650/week net pay (paid on Days 14 and 28)
- Working as a server in a restaurant: \$15/h + \$30/day in tips.

They can choose their own hours.

They have \$1750 in their chequing account.

This table shows their expenses for a month. Create a plan to ensure the monthly expenses are paid on time. Be sure there is enough money to pay next month's rent.

Expense	Date Due
Rent: \$1200	Day 1
Groceries: \$140/2 weeks	Days 14 and 28
Internet and cell phone: \$125	Day 25
Bus pass: \$140	Day 15
Miscellaneous: \$50	Days 15 and 30

CONNECTIONS

In question 11, how does what you know about operations help you plan your monthly expenses?

For example: I multiply the hourly rate by the number of hours worked to get the earnings. I add income to get the new balance. I subtract expenses to get the remaining balance.

For example:
 Day 1: Pay rent from chequing account. Balance: \$550
 Days 8 and 9: Work in restaurant 4 h per day + \$30 tips each day: \$180
 Balance: \$550 + \$180 = \$730
 Day 14: Get paid and buy groceries: \$730 + \$650 - \$140 = \$1240
 Day 15: Buy bus pass and misc. expenses: \$1240 - \$140 - \$50 = \$1050
 Days 22 and 23: Work in restaurant again: \$1050 + \$180 = \$1230
 Day 25: Pay Internet/phone: \$1230 - \$125 = \$1105
 Day 28: Get paid and buy groceries: \$1105 + \$650 - \$140 = \$1615
 Day 30: Pay misc. expenses: \$1615 - \$50 = \$1565
 There is enough to pay the rent on the first of the next month.

What I Learned

What is one thing you learned that will help you with your finances as an adult? Explain.

For example: I learned that I should only use a credit card when I know that I will be able to pay the bill in full when it comes in. If I were to buy an expensive item using a credit card and not be able to pay the bill, I would have to start paying interest as well.

Connecting and Reflecting: Data and Financial Literacy

According to a research study done in 2022, the food preferences of Canadians vary from province to province. The results show the items people in each province are more likely to have in their shopping carts compared to the rest of Canada.

Use what you have learned about data, measures of central tendency, and financial literacy to describe what you see.

For example:
 I notice that people in some provinces like a food item a lot more than people in other provinces. For example, people in Newfoundland and Labrador are 647% more likely to buy Vienna sausage than people in the rest of Canada. The same is true for Manitoba and rye bread (236%), Quebec and frozen raspberries (370%), and PEI and prepared chicken tenders (316%).
 Some food items are more likely in other provinces but not a lot more likely. For example, in Ontario, all 3 food items are less than 50% more likely. This might mean that the population is very diverse, and no items stand out as being a lot more likely than in the rest of the country.
 I might infer that because Manitoba is a prairie province, they may grow a lot of rye and that could be why rye bread is so popular there.

Quebec

- French-Style Buns (+200%)
- Fried Onion Rings (+170%)
- Fried Chicken Breasts (+170%)

Nova Scotia

- Coffee Creamers (+62%)
- Peppers (+33%)
- Frozen Chicken Breasts (+87%)

Alberta

- Cream Cheese (+160%)
- Heavy Whipping Cream (+160%)

Saskatchewan

- Cheese Dips (+113%)
- Canned Beans (+113%)
- Canned Pasta (+113%)

British Columbia

- Sourdough Bread (+170%)
- Canned Beans (+170%)
- Pork Chop (+122%)

New Brunswick

- Canned Peas (+200%)
- Canned Pasta Meals (+177%)

Manitoba

- Rye Bread (+236%)
- Prepared Chicken Tenders (+316%)
- Whole Chicken (+197%)
- Chicken Wings (+197%)

Newfoundland and Labrador

- Vienna Sausage (+647%)
- Evaporated Milk (+161%)
- Frozen Raspberries (+180%)

Ontario

- Back Bacon (+45%)
- Heavy Cream (+39%)
- Pizza Dough (+29%)

Prince Edward Island

- Prepared Chicken Tenders (+486%)
- Whole Chicken (+197%)
- Chicken Wings (+197%)

Contents

Patterns and Place Value	1
Unit 1: Patterning	2
Unit 2: Number Relationships and Place Value	9
Unit 3: Fluency with Whole Numbers	15
Connecting and Reflecting	21
Shape and Space	22
Unit 4: 2-D Shapes and Angles	23
Unit 5: Grids and Transformations	30
Unit 6: Coding	37
Connecting and Reflecting	43
Part-Whole Relationships	44
Unit 7: Fractions, Decimals, Percents, and Integers	45
Unit 8: Operations with Fractions, Decimals, Percents, and Integers	
Part A: Addition and Subtraction	52
Connecting and Reflecting	59
Data and Financial Literacy	60
Unit 9: Data Management	61
Unit 10: Probability	67
Unit 11: Financial Literacy	73
Connecting and Reflecting	79
Multiplication, Division, and Equality	80
Unit 12: Operations with Fractions, Decimals, Percents, and Integers	
Part B: Multiplication and Division	81
Unit 13: Perimeter, Area, Volume, and Capacity	88
Unit 14: Variables and Equations	96
Connecting and Reflecting	103
Reproducibles	104
Word Wall	105

Bringing It Together

14 GAME: Rolling Ratios!

Take turns to roll 2 number cubes to make a ratio.
Create an equivalent ratio, then shade both new terms on the game board.

- If you can shade only one term, shade it.
- If you cannot shade either term, you lose your turn.

Continue until all the numbers have been shaded.
The player with more numbers shaded wins!

2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
24	25	26	27	28	30	32
33	34	35	36	38	39	40
42	44	45	46	48	49	50



I rolled a 3 and a 5 to make the ratio 3:5. An equivalent ratio is 12:20, so I shade 12 and 20 on the game board.

Before being declared the winner, answer one of these skill-testing questions:

$$12 + 4 \times 2 = \dots\dots\dots$$

$$4 \times 3 - (2 + 1) = \dots\dots\dots$$

$$3 \times (20 + 30) + 20 \div 5 = \dots\dots\dots$$

$$(6 + 3)^2 + 18 \div 2 = \dots\dots\dots$$

What I Learned

How do you use fractions when working with ratios and rates?
Use questions 5 and 9 to help explain.

Bringing It Together

14 GAME: Rolling Ratios!

Take turns to roll 2 number cubes to make a ratio.
Create an equivalent ratio, then shade both new terms on the game board.

- If you can shade only one term, shade it.
- If you cannot shade either term, you lose your turn.

Continue until all the numbers have been shaded.
The player with more numbers shaded wins!

2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
24	25	26	27	28	30	32
33	34	35	36	38	39	40
42	44	45	46	48	49	50



I rolled a 3 and a 5 to make the ratio 3:5. An equivalent ratio is 12:20, so I shade 12 and 20 on the game board.

Before being declared the winner, answer one of these skill-testing questions:

$$12 + 4 \times 2 = \underline{20}$$

$$4 \times 3 - (2 + 1) = \underline{9}$$

$$3 \times (20 + 30) + 20 \div 5 = \underline{154}$$

$$(6 + 3)^2 + 18 \div 2 = \underline{90}$$

What I Learned

How do you use fractions when working with ratios and rates?
Use questions 5 and 9 to help explain.

For example: In question 9, the ratio of cats to animals, 3:7, is a part-to-whole ratio. I can write this as $\frac{3}{7}$, where 3 represents the part (cats) and 7 the whole (all animals). In question 5, I can write a rate as a fraction, then simplify it until the denominator is 1. For example: $\frac{120 \text{ km}}{2 \text{ h}} = \frac{60 \text{ km}}{1 \text{ h}}$.