

## INTRODUCTION

In Grade 3 math, students build on what they have learned in Grade 2 and are introduced to several new concepts. Students should develop **social emotional skills** while learning **content**. Activities and applications of the content help to reinforce student learning.

### CONTENT

In this book, the Grade 3 math content is organized under eight areas, as described below.

Under **Number Concepts**, students work with place value, composing and decomposing numbers, and comparing, ordering, rounding, and writing numbers in expanded form, for whole numbers up to 1000.

Under **Adding and Subtracting**, students learn the use of mental math skills for addition and subtraction, as well as adding and subtracting numbers up to 3-digits.

Under **Multiplying and Dividing**, students are introduced to multiplication as repeated addition, with the use of skip counting. Dividing is introduced as repeated subtraction, by skip counting backwards. Fractions and fair share division are also introduced.

**Financial Literacy** includes understanding coins and bills, as well as calculating costs and change.

Under **Patterns and Equations**, students work with different types of patterns and learn to recognize pattern rules. Students also work with placeholders, variables, equations, and story problems.

Under **Measurement**, students work with length, distance, perimeter, area, and time. Mass and capacity are introduced.

Under **Shapes and Objects**, students work with different shapes and objects, nets, and moving from one location to another. Students will identify spheres, cubes, prisms, cones, and cylinders and will be able to point out faces, edges, and vertices.

Under **Data and Likelihood**, students will learn about collecting and sorting information, one-to-one and many-to-one correspondences, tables and graphs, and

likelihood and chance.

Each content area begins with a concise description of the concept, followed by examples with clear step-by-step solutions. Students are then provided with exercises that contain questions that range from easy to advanced.

Each chapter contains a set of practice questions to help review key concepts and the chapter ends with a test. Answers to all exercises and chapter tests are provided at the end of the book.

## **SOCIAL EMOTIONAL LEARNING SKILLS**

**Social-emotional learning** skills help students build a solid foundation in mathematics by connecting and applying ideas in different ways. This area reflects the skills, strategies, and processes that students develop over time. Chapter 9 provides more detail about each skill area. Each set of examples is followed by a set of exercises.

### **Communicating and Representing**

- Communicating and representing involves the use of mathematical terms and language to talk about math and to represent mathematical ideas in different ways.

### **Connecting and Reflecting**

- Connecting and reflecting involves connecting math ideas to each other and sharing the mathematical thinking of ourselves and others.

### **Reasoning and Analyzing**

- Reasoning and analyzing involves using reasoning to explore and make connections; and estimating by comparing to something familiar.

### **Understanding and Solving**

- Understanding and solving involves developing, demonstrating, and applying mathematical understanding through play, inquiry, and problem solving, and engaging in problem solving experiences.

## **CODING**

Learning how to understand how computers follow instructions is an important part of coding in mathematics. It involves writing a set of instructions that a computer understands. Chapter 10 will help to strengthen the coding knowledge that students already have. It will also introduce the idea of using loops.

# Table of Contents

## Ontario Grade 3

|   | <b>Page</b> |
|---|-------------|
| <b>Introduction</b>                                     | i           |
| <b>Chapter 1 – Number Concepts</b>                      |             |
| 1.1 Reading and Writing Numbers Using Place Value       | 2           |
| 1.2 Composing and Decomposing Whole Numbers             | 15          |
| 1.3 Comparing Numbers                                   | 19          |
| 1.4 Ordering Numbers                                    | 25          |
| 1.5 Rounding Numbers                                    | 29          |
| 1.6 Expanding Numbers                                   | 36          |
| <b>Chapter 2 – Adding and Subtracting</b>               |             |
| 2.1 Mental Math for Adding                              | 50          |
| 2.2 Mental Math for Subtracting                         | 55          |
| 2.3 Adding Numbers                                      | 58          |
| 2.4 Subtracting Numbers                                 | 61          |
| 2.5 Estimating Sums and Differences with Story Problems | 64          |
| <b>Chapter 3 – Multiplying and Dividing</b>             |             |
| 3.1 Skip Counting                                       | 76          |
| 3.2 Understanding Multiplication                        | 81          |
| 3.3 Understanding Division                              | 90          |
| 3.4 Fractions   | 95          |
| 3.5 Fair Share Division                                 | 99          |
| <b>Chapter 4 – Financial Literacy</b>                   |             |
| 4.1 Coins and Bills                                     | 109         |
| 4.2 Calculating Change                                  | 118         |
| 4.3 Total Cost and Making Payments                      | 121         |
| <b>Chapter 5 – Patterns and Equations</b>               |             |
| 5.1 Patterns  | 132         |
| 5.2 Patterns with Numbers                               | 135         |
| 5.3 More about Patterns                                 | 140         |
| 5.4 Missing Values and Patterns                         | 145         |
| 5.5 Are They the Same?                                  | 148         |
| 5.6 Story Problems                                      | 150         |

|  | <b>Page</b> |
|--|-------------|
| <b>Chapter 6 – Measurement</b>                   |             |
| 6.1 Length and Distance                          | 159         |
| 6.2 Distance Around                              | 164         |
| 6.3 Space Covered                                | 166         |
| 6.4 Mass   | 172         |
| 6.5 Estimating Length                            | 175         |
| 6.6 Capacity                                     | 177         |
| 6.7 Time and Clocks                              | 182         |
| <b>Chapter 7 – Shapes and Objects</b>            |             |
| 7.1 Shapes                                       | 198         |
| 7.2 Objects                                      | 205         |
| 7.3 Nets   | 212         |
| 7.4 Location and Movement                        | 217         |
| <b>Chapter 8 – Data and Likelihood</b>           |             |
| 8.1 Collecting Data                              | 232         |
| 8.2 One-to-One and Many-to-One Correspondence    | 244         |
| 8.3 Pictographs                                  | 248         |
| 8.4 Tables and Bar Graphs                        | 253         |
| 8.5 Mode and Mean                                | 259         |
| 8.6 Likelihood and Chance                        | 264         |
| <b>Chapter 9 – Social and Emotional Learning</b> |             |
| 9.1 Communicating and Representing               | 285         |
| 9.2 Connecting and Reflecting                    | 289         |
| 9.3 Reasoning and Analyzing                      | 292         |
| 9.4 Understanding and Solving                    | 296         |
| <b>Chapter 10 – Coding</b>                       |             |
| 10.1 The Structure of Coding                     | 303         |
| 10.2 Making the Code Simpler                     | 309         |
| 10.3 Loops                                       | 313         |
| 10.4 Code Blocks                                 | 317         |
| 10.5 Writing Code Using a Coding Platform        | 323         |
| <b>Answers to Exercises and Chapter Tests</b>    | 325         |