



TABLE OF CONTENTS

Start Quick and Ramp It Up! 3rd Grade Thinking Through the Operations

Thinking Through the Operations	PAGES
Table of Standards	5
3.O.1 Quick Start: Telling the Difference Between Addition & Subtraction	7
3.O.2 Quick Start: Telling the Difference Between Multiplication & Division	13
3.O.3 Ramp Up: Solving 1-Step Problems Using All Operations	19
3.O.4 Ramp Up: Solving 1-Step Problems Using All Operations	30
3.O.5 Ramp Up: Learning to Solve 2-Step Problems with Addition & Subtraction	35
3.O.6 Ramp Up: Solving 1- and 2-Step Problems with Addition & Subtraction	42
3.O.7 Ramp Up: Learning to Solve 2-Step Problems with Multiplication & Division	48
3.O.8 Ramp Up: Solving 1- & 2-Step Multiplication & Division Problems	55
3.O.9 Ramp Up: Solving 1- & 2-Step Problems with All Operations	59
3.O.10 Ramp Up: Solving 1- & 2-Step Problems with All Operations	64
3.O.11 Ramp Up: Finding & Correcting Mistakes—Addition and Subtraction	69
3.O.12 Ramp Up: Finding & Correcting Mistakes—I- & 2-Step Problems with All Operations	77
3.O.13 Ramp Up: Finding & Correcting Mistakes—All Operations	85



TABLE OF CONTENTS

Start Quick and Ramp It Up! 3rd Grade Thinking Through the Operations

Content and Instruction Extras	PAGES
MEANING BEHIND THE MATH	
Explanation of Addition and Subtraction Problem Types, Part 1 (3.1B)	8
Explanation of Different Kinds of Multiplication and Division Problem Types (3.1B)	14
Teaching Children to Attack Multi-Step Problems (3.1B)	36
Explanation of Addition and Subtraction Problem Types, Part 2 (3.1B)	43
How Do You Decide Which Operation to Use? What are the Clues? (3.1A, 3.1B)	49
Multiplication Fact Practice Without Tears	55
READING, WRITING, AND SPEAKING TO IMPROVE CRITICAL THINKING	
Five Key Elements for ELL Success in the Math Classroom	20
What Makes a Team Response so Powerful?	31
Deepening Dialogue #1: Piggybacking (3.1G)	31
The Academic Vocabulary of Multiplication & Division (3.1G)	60
The Math–ELAR Connection	60
Justification (3.1G)	65
Deepening Dialogue #2: Repetition (3.1G)	70
The Academic Vocabulary of Addition & Subtraction (3.1D)	78
Word Walls Are More Than Words on a Wall (3.1D)	78
Beyond Key Words (3.1B)	86
WORKING THE CLASSROOM	
Teaching Students to Find Their Own Mistakes (3.1C, 3.1F)	70



TABLE OF STANDARDS

The activities in this 3rd grade Thinking Through the Operations book address the following standards.

Where are we going? Focus Standards		Activity
(3.4)	Number and operations. The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy. The student is expected to:	
3.4A	solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction; Readiness Standard	1, 3, 4, 5, 6, 11, 12, 13
3.4B	round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems; Supporting Standard	1, 5, 6
3.4G	use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties; Supporting Standard	3, 4, 8, 9, 10, 12, 13
3.4K	solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts. Readiness Standard	2, 3, 4, 7, 8, 9, 10, 12, 13

What kind of mathematical thinking will we use? Process Standards		Activity
(3.1)	Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	
3.1A	apply mathematics to problems arising in everyday life, society, and the workplace;	1-13 (all)
3.1B	use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;	1-13 (all)
3.1C	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;	1-13 (all)
3.1D	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;	1-13 (all)
3.1E	create and use representations to organize, record, and communicate mathematical ideas;	1-13 (all)
3.1G	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.	1-13 (all)