

CONTENTS

Foreword <i>by Deborah Ball</i>	ix
Acknowledgments	xv
Introduction	1

PART I THE MATHEMATICAL TASKS FRAMEWORK

1 Analyzing Mathematics Instructional Tasks	11
Defining Levels of Cognitive Demand of Mathematical Tasks	12
Matching Tasks with Goals for Student Learning	14
Differentiating Levels of Cognitive Demand	15
Gaining Experience in Analyzing Cognitive Demands	18
Moving Beyond Task Selection and Creation	22
2 Using Cognitively Complex Tasks in the Classroom	24
The Evolution of Tasks During a Lesson	24
Patterns of Task Setup and Implementation	26
3 Learning from Cases	33
Theoretical Considerations	33
Moving on to Considerations of One's Own Practice	35
Advantages to Guided Reflection	37

PART II THE CASES

4 Introduction to the Cases	41
The Cases and Supporting Materials	41
How to Orchestrate Teacher Learning from the Cases	43
5 Linking Fractions, Decimals, and Percents Using an Area Model	47
The Case of Ron Castleman	47
Discussion Questions	56
Teaching Notes	56
Possible Solution Strategies	61

6 Multiplying Fractions with Pattern Blocks	65
The Case of Fran Gonman and Kevin Cooper	65
Discussion Questions	76
Teaching Notes	76
7 Giving Meaning to Measures of Central Tendency	81
The Case of Trina Naruda and Ursula Hernandez	81
Discussion Questions	90
Teaching Notes	91
8 Using Algebra Tiles to Multiply Monomials and Binomials	96
The Case of Monique Butler	96
Discussion Questions	104
Teaching Notes	105
9 Organizing Data	110
The Case of Nicole Clark	110
Discussion Questions	117
Teaching Notes	117
10 Solving Problems	121
The Case of Jerome Robinson	121
Discussion Questions	127
Teaching Notes	127
Possible Solution Strategies	130
References	137
Index	141
About the Authors	145