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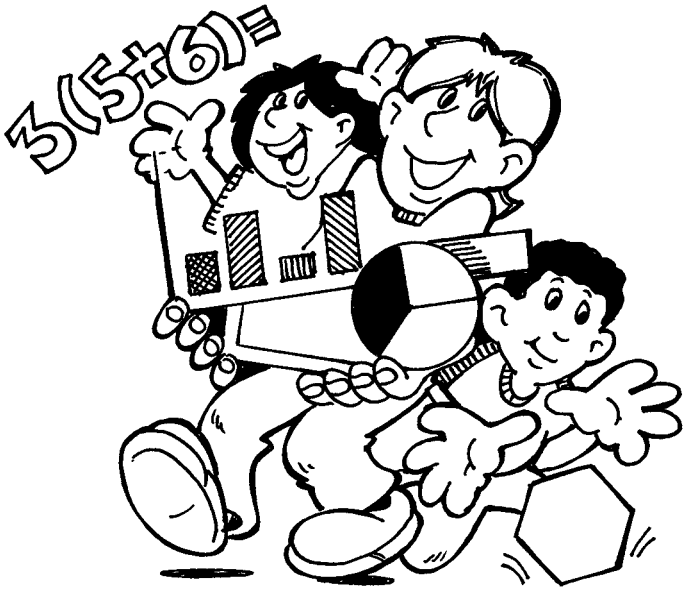

Introduction

The focus of *Middle-Grade Math Minutes* is math fluency—teaching students to solve problems effortlessly and rapidly. The problems in this book provide students with practice in every key area of middle-grade math instruction, including

- basic multiplication and division facts
- money
- graphing
- problem solving
- measurement
- fractions
- place value
- time
- pre-algebra
- the vocabulary of mathematics
- geometry

Use this comprehensive resource to improve your students' overall math fluency, which will promote greater self-confidence in their math skills as well as provide the everyday practice necessary to succeed in a testing situation.

Middle-Grade Math Minutes features 100 "Minutes." Each Minute consists of ten classroom-tested problems for students to complete in one minute. Each Minute includes questions of varying degrees of difficulty, integrating problem solving and basic math skills. This unique format offers students an ongoing opportunity to improve their own fluency in a manageable, nonthreatening format. The quick, one-minute format combined with instant feedback makes this a challenging and motivational assignment students will look forward to each day. Students become active learners as they discover mathematical relationships and apply acquired understanding to complex situations and to the solution of realistic problems in each Minute.

How to Use This Book

Middle-Grade Math Minutes is designed to be implemented in numerical order. Students who need the most support will find the order of skills as introduced most helpful in building and retaining confidence and success. For example, the first time that students are asked to provide the value of pi to the hundredths place, the digits in the ones and tenths places are provided. The second time, the digit in the ones place is provided. It is not until the third time that students are asked the value of pi that they must recall the number without additional support.

Middle-Grade Math Minutes can be used in a variety of ways. Use one Minute a day for warm-up activities, bell-work, review, assessment, or a homework assignment. Keep in mind that students will get the most benefit from their daily Minute if they receive immediate feedback. If you assign the Minute as homework, correct it in class as soon as students are settled at the beginning of the day.

If you use the Minutes as a timed activity, place the paper facedown on the students' desks or display it as a transparency. Use a clock or kitchen timer to measure one minute. Encourage students to concentrate on completing each problem successfully and not to dwell on problems they cannot complete. At the end of the minute, have students stop working. Then, read the answers from the answer key (pages 108–112) or display them on a transparency. Have students correct their own work and record their score on the Minute Journal reproducible (page 6). Then, have the class go over each problem together to discuss the solution(s). Spend more time on problems that were clearly challenging for most of the class. Tell students that difficult problems will appear on future Minutes and they will have another opportunity for success.

Teach students strategies for improving their scores, especially if you time their work on each Minute. Include strategies such as

- leave more time-consuming problems for last
- come back to problems they are unsure of after they have completed all other problems
- make educated guesses when they encounter problems they are unfamiliar with
- rewrite word problems as number problems
- use mental math wherever possible

Students will learn to apply these strategies to other timed-test situations.

The Minutes are designed to improve math fluency and should not be included as part of a student's overall math grade. However, the Minutes provide an excellent opportunity for you to see which skills the class as a whole needs to practice or review. This knowledge will help you plan the content of future math lessons. A class that consistently has difficulty with reading graphs, for example, may make excellent use of your lesson in that area, especially if they know they will have another opportunity to achieve success in this area on a future Minute. Have students file their Math Journal and Minutes for that week in a location accessible to you both. You will find that math skills that require review will be revealed during class discussions of each problem. However, you may find it useful to review the Minutes on a weekly basis before sending them home with students at the end of the week.

While you will not include student Minute scores in your formal grading, you may wish to recognize improvements by awarding additional privileges or offering a reward if the entire class scores above a certain level for a week or more. Showing students that you recognize their efforts provides additional motivation to succeed.

Minute Journal

Name _____

Minute	Date	Score	Minute	Date	Score	Minute	Date	Score	Minute	Date	Score
1			26			51			76		
2			27			52			77		
3			28			53			78		
4			29			54			79		
5			30			55			80		
6			31			56			81		
7			32			57			82		
8			33			58			83		
9			34			59			84		
10			35			60			85		
11			36			61			86		
12			37			62			87		
13			38			63			88		
14			39			64			89		
15			40			65			90		
16			41			66			91		
17			42			67			92		
18			43			68			93		
19			44			69			94		
20			45			70			95		
21			46			71			96		
22			47			72			97		
23			48			73			98		
24			49			74			99		
25			50			75			100		

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Scope and Sequence

Skill	Skill First Appears
Measurement	1
Number Comparison	1
Number Sense	1
One-step Algebra	1
Patterns	1
Problem Solving/Real-life Problems	1
Whole Numbers (add, subtract, multiply, and divide)	1
Order of Operations	2
Vocabulary/Communication	2
Algebraic Substitution	4
Exponents	6
Fractions (numerator, denominator, multiply)	7
Decimals (add, subtract, compare)	17
Ordering Decimals	18
Estimating Whole Numbers and Decimals	20
Rounding Decimals	20
Rounding Whole Numbers	20
Multiplying by 10 and Powers of 10	24
Scientific Notation	24
Absolute Value	26
Central Tendency (mean, median, mode, range)	27
Bar Notation	29
Probability	31
Square Roots	34
Geometric Shapes	35
Rules of Divisibility	36
Parallel/Perpendicular	38
Primes/Composites	43
Factors	44
Percents	47
Multiples	51
Ratios	53
Area (squares, rectangles, triangles)	66
Arithmetic/Geometric Sequences	66
Fractions (add, subtract, mixed, reciprocals)	66
Perimeter	66
Circles (diameter, radius)	67
Integers	68
Geometry (degrees, symmetry, coordinate graphs, angles)	75
Volume of Boxes	82

Minute 1

Name _____

1. 6 x 3 =

2. How many ears do eight dogs have in all? _____

3. If $n + 2 = 7$, then $n =$

4. There were eight bugs on the ground. Now there are six.
How many flew away? _____

5. 2 x 3 x 2 =

6. 4 x 6 + _____ = 31

7. 3, 6, 9, 12, _____, _____, _____

8. Seven bicycles have _____ wheels in all.

Use <, >, or = to complete questions 9 and 10.

9. 3 weeks _____ 20 days

10. 1 cm _____ 1 in.

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Minute 2

Name _____

1. $3 \cdot 5 =$

2. Four dollars equal _____ pennies.

3. $2 + 5 \cdot 2 =$

4. $5 + 8 - 3 =$

5. $\frac{6}{2} =$

6. 0, 4, 8, 12, _____, _____, _____

7. $0 \times 5{,}132 =$

8. $2\frac{1}{2}$

9. The <u>product</u> of four and three is _____.

10. The <u>sum</u> of five and four is _____.

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