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# Contents

|  |            |
|--|------------|
| <b>Introduction .....</b>  | <b>4</b>   |
| <b>Add and Subtract Whole Hundreds .....</b>                     | <b>7</b>   |
| <b>Practice With Whole Hundreds .....</b>                        | <b>9</b>   |
| <b>Completing The Next Hundred .....</b>                         | <b>12</b>  |
| <b>Adding Whole Tens .....</b>                                   | <b>15</b>  |
| <b>Subtracting Whole Tens .....</b>                              | <b>18</b>  |
| <b>Patterns and Problems .....</b>                               | <b>21</b>  |
| <b>Adding 3-Digit Numbers in Columns .....</b>                   | <b>24</b>  |
| <b>Regrouping 10 Tens as a Hundred .....</b>                     | <b>26</b>  |
| <b>Add in Columns: Regrouping Twice .....</b>                    | <b>30</b>  |
| <b>Review: Regrouping in Addition .....</b>                      | <b>34</b>  |
| <b>Regrouping One Ten As Ten Ones with 3-Digit Numbers .....</b> | <b>38</b>  |
| <b>Regrouping One Hundred As 10 Tens .....</b>                   | <b>41</b>  |
| <b>Review: Regrouping in Subtraction.....</b>                    | <b>45</b>  |
| <b>Regrouping Twice in Subtraction .....</b>                     | <b>48</b>  |
| <b>Regrouping Twice in Subtraction, Part 2 .....</b>             | <b>52</b>  |
| <b>Regrouping with Zero Tens .....</b>                           | <b>55</b>  |
| <b>Regrouping with Zero Tens, Part 2 .....</b>                   | <b>58</b>  |
| <b>Mental Addition .....</b>                                     | <b>61</b>  |
| <b>Review: Mental Subtraction .....</b>                          | <b>64</b>  |
| <b>More Mental Subtraction .....</b>                             | <b>67</b>  |
| <b>Ordinal Numbers and Roman Numerals .....</b>                  | <b>70</b>  |
| <b>More Mental Addition .....</b>                                | <b>73</b>  |
| <b>Mental Subtraction with Three-Digit Numbers .....</b>         | <b>76</b>  |
| <b>Rounding 3-Digit Numbers to the Nearest Ten .....</b>         | <b>79</b>  |
| <b>The Connection with Addition and Subtraction .....</b>        | <b>82</b>  |
| <b>Mileage Chart .....</b>                                       | <b>86</b>  |
| <b>Order of Operations .....</b>                                 | <b>88</b>  |
| <b>Graphs .....</b>  | <b>90</b>  |
| <b>Review .....</b>  | <b>93</b>  |
| <b>Answers .....</b>   | <b>95</b>  |
| <b>More from Math Mammoth .....</b>                              | <b>114</b> |

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# Introduction

*Math Mammoth Add and Subtract 3* has to do with adding and subtracting 3-digit numbers. The book is suitable to study after the student has learned to add and subtract with 2-digit numbers, and has learned numbers till 1,000. The goal is to teach the student to add and subtract *both mentally* and *in columns* within 0-1000.

Since students usually learn three-digit numbers in second grade, some of the topics in this book suit second grade, some suit third grade.

The first section of the book explores some mental math with three-digit numbers, and is suitable for second grade. We study adding and subtracting whole hundreds, whole tens, and ones within 0-1000, often comparing to similar problems within 0-100. In most of these lessons, the addition or subtraction is first illustrated with a visual model. You can use manipulatives instead, if you prefer.

The next part (the middle part) deals with adding and subtracting in columns with regrouping. If you want to follow the grade levels, these lessons are intended for both second and third grade this way: the lessons are for second grade, until the topics of regrouping twice in subtraction and regrouping over zero tens in subtraction, which are for third grade.

The processes of regrouping in addition and subtraction are first practiced using visual models, to ensure the student understands the concept (the “why”), and does not only learn the procedure (the “how”).

Regrouping in subtraction with three-digit numbers includes three different cases:

1. Regrouping 1 ten as 10 ones, such as is needful for  $546 - 229$ .
2. Regrouping 1 hundred as 10 tens, such as is needful for  $728 - 441$ .
3. Regrouping two times (1 ten as 10 ones, and 1 hundred as 10 tens), such as is needful for  $725 - 448$ .
4. Regrouping with zero tens, such as is needful for  $405 - 278$ . Here, first we regroup 1 hundred as 10 tens, then 1 ten as 10 ones.

In the last section, the book includes addition and subtraction topics for third grade, starting with mental addition and subtraction. Through it all, students solve lots of word problems and practice some algebra in disguise, where they use a symbol or a ? for the unknown thing in the problem. We also study ordinal numbers, rounding and estimating, and order of operations.

Then we study the connection between addition and subtraction with bigger numbers, which also aims to help children think algebraically. Lastly, students get to practice their adding and subtracting skills in a practical way through reading a mileage chart and other types of graphs.

*I wish you success with math teaching!*

*Maria Miller, the author*

# Helpful Resources on the Internet

Use these free online resources to supplement the “bookwork” as you see fit.

## Button Beach Challenge

Figure out what number the various colored buttons represent.

<http://www.amblesideprimary.com/ambleweb/mentalmaths/buttons.html>

## Mr. Martini's Classroom: Long Addition

Practice regrouping in addition online. Click the x's to set the number of digits in the problems.

<http://www.thegreatmartinicompany.com/longarithmetic/longaddition.html>

## Speed Grid Addition

Find numbers on the grid that add up to the given number. This uses both single-digit and two-digit numbers.

<http://www.oswego.org/ocsd-web/games/SpeedGrid/Addition/urikares.html>

## Random Stop 1000

Place digits strategically into the addition problem so that the sum is as close to as 1000 as possible.

<http://www.primarygames.co.uk/pg4/SpeedStop/randomstop.html>

## Base Blocks Addition

A virtual manipulative that shows regrouping in addition. You can either solve addition problems that are provided, or create your own. “Lasso” with a mouse ten units, ten tens, or ten hundreds to regroup them. Choose “Columns = 3” to restrict the work to three-digit numbers.

[http://nlvm.usu.edu/en/nav/frames\\_asid\\_154\\_g\\_1\\_t\\_1.html?from=category\\_g\\_1\\_t\\_1.html](http://nlvm.usu.edu/en/nav/frames_asid_154_g_1_t_1.html?from=category_g_1_t_1.html)

## Base Blocks Subtraction

A virtual manipulative that helps teach borrowing in subtraction. Choose “Create Problem”, then click on the red and blue blocks to create a problem. The number to be subtracted (the subtrahend) is illustrated by the RED blocks whereas the minuend is by the BLUE blocks. Click BEGIN problem to start solving.

Drag a red block on top of a blue to “subtract” —they cancel each other. Drag bigger place values to the column on their right to “break them up”—in other words regroup or borrow. Choose “Columns = 3” to restrict the work to three-digit numbers.

[http://nlvm.usu.edu/en/nav/frames\\_asid\\_155\\_g\\_1\\_t\\_1.html?from=category\\_g\\_1\\_t\\_1.html](http://nlvm.usu.edu/en/nav/frames_asid_155_g_1_t_1.html?from=category_g_1_t_1.html)

## Regrouping in vertical addition

Shows hundreds, tens, ones as pictures, and asks you to regroup if needed.

<http://www.harcourtschool.com/justforkids/math/elab/samplepages/g3a02.htm>

## Number Puzzles

Place the numbers in the puzzle so that each side adds up to the given sum. Practices mental addition and logical thinking.

[http://nlvm.usu.edu/en/nav/frames\\_asid\\_157\\_g\\_2\\_t\\_1.html](http://nlvm.usu.edu/en/nav/frames_asid_157_g_2_t_1.html)

## Speedy Sums

Click on numbers that add to the target sum. The more numbers you use, the more you score.

[http://www.mathplayground.com/speedy\\_sums.html](http://www.mathplayground.com/speedy_sums.html)

### **Thinking Blocks**

Thinking Blocks is an interactive math tool that lets students build diagrams similar to the bar diagrams used in this chapter. Choose the Addition and Subtraction section.

<http://www.mathplayground.com/thinkingblocks.html>

### **Callum's Addition Pyramid**

Add the pairs of numbers to get a number on the next level and finally the top number. Three difficulty levels.

<http://www.amblesideprimary.com/ambleweb/mentalmaths/pyramid.html>

### **Thatquiz.org Quiz for Graphs**

A 10-question quiz involving bar graphs and pictographs.

<http://www.thatquiz.org/tq-5/?-j40v0h-11-p0>

### **Roman Numerals Tutorial**

Good explanations of how numbers are formed using Roman numerals, such as when to "add" or "subtract" the symbols. The page allows interactivity where the student can self-check his/her understanding.

<http://www.beaconlearningcenter.com/weblessons/romannumerals/default.htm>

### **Roman Matching Game**

Drag the Roman numerals to the corresponding Arabic numerals. If you win the next game will be faster. See if you can beat the clock!

<http://sln.fi.edu/time/keepers/Silverman/html/RomanMatch.html>

### **Roman Numerals Worksheets**

Generate worksheets for converting Roman numerals to normal (Arabic) ones, or normal numbers to Roman numerals, or do easy addition and subtraction problems with Roman numerals.

[http://www.homeschoolmath.net/worksheets/roman\\_numerals.php](http://www.homeschoolmath.net/worksheets/roman_numerals.php)

### **Roman Numerals - Wikipedia**

An article explaining the usage, origin, and a chart of Roman numerals.

[http://en.wikipedia.org/wiki/Roman\\_numerals](http://en.wikipedia.org/wiki/Roman_numerals)

### **Quia: Easy Roman Numerals**

Translate Roman numerals into Arabic (covers I, V, and X only). Matching game, concentration, or word search.

<http://www.quia.com/jg/66123.html>

### **Roman Numerals - A Maths Webquest**

A set of web pages where you can learn all about Roman numerals: how they originated, how to read and write the numerals, and places we still use the Roman number system today.

[www.greatmathsgames.com/roman\\_numerals/roman\\_numerals.htm](http://www.greatmathsgames.com/roman_numerals/roman_numerals.htm)

### **Roman Sequence Game**

See how fast you can put these Roman numerals in the correct sequence.

<http://www.fi.edu/time/keepers/Silverman/html/RomanSequence.html>