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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 in teaching math!

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

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

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

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

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-l1-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

Roman Numerals - Wikipedia
An article explaining the usage, origin, and a chart of 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

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

Free worksheets for order of operations

Generate printable & customizable worksheets for order of operations. Choose from five operations and parentheses. You can choose the number range used, number of problems, and more.

http://www.homeschoolmath.net/worksheets/order_of_operations.php

My Dear Aunt Sally

A fun game you can play online for free, or purchase as an app. Choose whole numbers, integers, fractions, decimals, or rational numbers, and then which of the five operations to use. In the game, you need to place the given numbers into two expressions so that the operations make the two expressions have the same value.

http://www.mydearauntsally.com