

Math Mammoth

Grade 1-A Worktext

Grade 1-A Worktext


Addition concept and facts within 0 - 10

Subtraction within 0 - 10

Connection between addition and subtraction

Graphs

Two-digit numbers and place value within 0 - 100



L
i
g
h
t
B
l
u
e
S
e
r
i
e
s

By Maria Miller

Copyright 2017 - 2020 Maria Miller
ISBN 978-1-942715-00-9

Edition 1/2020

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, or by any information storage and retrieval system, without permission in writing from the author.

Copying permission: For having purchased this book, the copyright owner grants to the teacher-purchaser a limited permission to reproduce this material for use with his or her students. In other words, the teacher-purchaser MAY make copies of the pages, or an electronic copy of the PDF file, and provide them at no cost to the students he or she is actually teaching, but not to students of other teachers. This permission also extends to the spouse of the purchaser, for the purpose of providing copies for the children in the same family. Sharing the file with anyone else, whether via the Internet or other media, is strictly prohibited.

No permission is granted for resale of the material.

The copyright holder also grants permission to the purchaser to make electronic copies of the material for back-up purposes.

If you have other needs, such as licensing for a school or tutoring center, please contact the author at <https://www.MathMammoth.com/contact.php>

Contents

Foreword	5
Chapter 0: Kindergarten Math Review	
Introduction	6
Equal Amounts; Same and Different	7
Writing Numbers	8
Counting	10
Position Words, Colors, and Shapes	12
Patterns	14
Chapter 1: Addition Within 0-10	
Introduction	15
Two Groups and a Total	19
Learn the Symbols “ + ” and “ = ”	22
Addition Practice 1	25
Which Is More?	27
Missing Items	29
Sums with 5	34
Sums with 6	36
Adding on a Number Line	38
Sums with 7	42
Sums with 8	45
Adding Many Numbers	48
Addition Practice 2	51
Sums with 9	53
Sums with 10	57
Comparisons	61
Review of Addition Facts	64

Chapter 2: Subtraction Within 0-10

Introduction	68
Subtraction Is “Taking Away”	71
Count Down to Subtract	74
Subtraction and Addition in the Same Picture	78
When Can You Subtract?	82
Two Subtractions from One Addition	86
Two Parts—One Total	89
Fact Families	92
How Many More?	96
“How Many More” Problems and Differences	99
“How Many More” Problems and Subtraction	103
Review Chapter 2	107

Chapter 3: Place Value Within 0-100

Introduction	108
Counting in Groups of 10	112
Naming and Writing Numbers	114
The Teen Numbers	118
Building Numbers 11 - 40	121
Building Numbers 41 - 100	123
A 100 - Chart	125
Add and Subtract Whole Tens	127
Practicing with Numbers	129
Which Number Is Greater?	131
Numbers Past 100	134
More Practice with Numbers	136
Skip-Counting Practice	138
Bar Graphs	141
Tally Marks	143
Review Chapter 3	145

Foreword

Math Mammoth Grade 1 comprises a complete math curriculum for the first grade mathematics studies. The curriculum meets and exceeds the Common Core standards.

The main areas of study for first grade are:

1. The concepts of addition and subtraction, and strategies for addition and subtraction facts;
2. Developing understanding of place value up to 100;
3. Developing understanding and some basic strategies for two-digit addition and subtraction.

Additional topics we study in the first grade are telling time (whole and half hours), geometric shapes, measurement, and counting coins.

This book, 1-A, covers the concepts of addition and subtraction (chapters 1 and 2) and place value with two-digit numbers (chapter 3). The book 1-B covers strategies for addition and subtraction facts, clock, shapes and measuring, adding and subtracting two-digit numbers, and counting coins.

Some important points to keep in mind when using the curriculum:

- These two books (parts A and B) are like a “framework”, but you still have a lot of liberty in planning your child’s studies. While addition and subtraction topics are best studied in the order they are presented, feel free to go through the sections on shapes, measurement, clock, and money in any order you like.

This is especially advisable if your child is either “stuck” or is perhaps getting bored with some particular topic. Sometimes the concept the child was stuck on can become clear after a break from the topic.

- Math Mammoth is mastery-based, which means it concentrates on a few major topics at a time, in order to study them in depth. However, you can still use it in a *spiral* manner, if you prefer. Simply have your child study in 2-3 chapters simultaneously. This type of flexible use of the curriculum enables you to truly individualize the instruction for your child.
- Don’t automatically assign all the exercises. Use your judgment, trying to assign just enough for your child’s needs. You can use the skipped exercises later for review. For most children, I recommend to start out by assigning about half of the available exercises. Adjust as necessary.
- For review, the curriculum includes a worksheet maker (Internet access required), mixed review lessons, additional cumulative review lessons, and the word problems continually require usage of past concepts. Please see more information about review (and other topics) in the FAQ at <https://www.mathmammoth.com/faq-lightblue.php>

I heartily recommend that you view the full user guide for your grade level, available at <https://www.mathmammoth.com/userguides/>

And lastly, you can find free videos matched to the curriculum at <https://www.mathmammoth.com/videos/>

I wish you success in teaching math!

Maria Miller, the author

Chapter 0: Kindergarten Math Review

Introduction

This chapter is optional and can be used to review the most important concepts of kindergarten math:

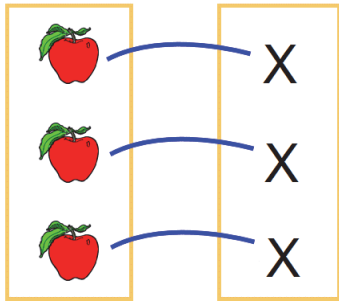
- writing the numerals 0 to 9;
- counting up to 20;
- position words, color words, and some shapes (circle, triangle, square)
- simple patterns

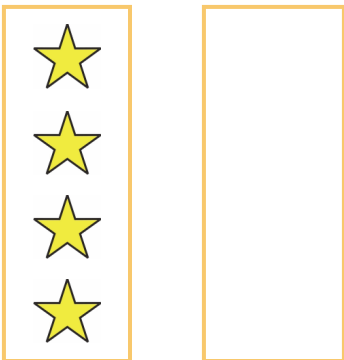
The Lessons in Chapter 0

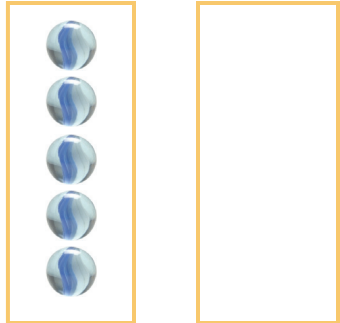
	page	span
Equal Amounts; Same and Different	7	<i>1 page</i>
Writing Numbers	8	<i>2 pages</i>
Counting	10	<i>2 pages</i>
Position Words, Colors, and Shapes	12	<i>2 pages</i>
Patterns	14	<i>1 page</i>


Equal Amounts; Same and Different

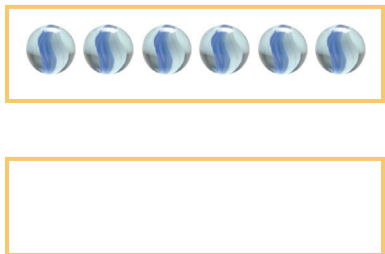
1. Write an X for each thing in the other box.

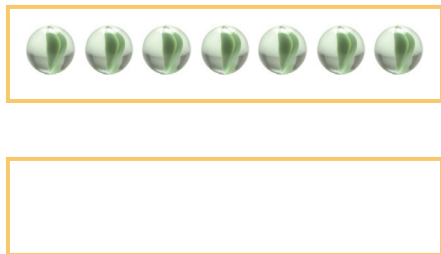
a. 

b. 

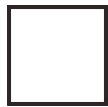
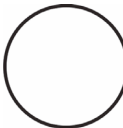

















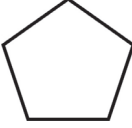

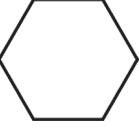

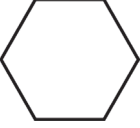









c. 

d. 

e. 

f. 

2. Color the shapes that are the same as the first shape.

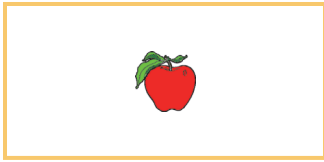
	      
	       
	      
	      

Writing Numbers

1. Write the number.



0



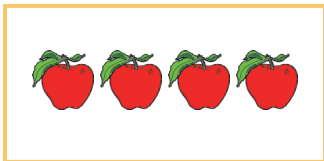
1



2

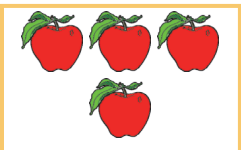
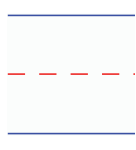


3


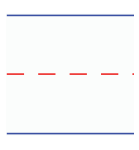


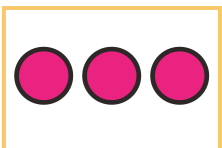
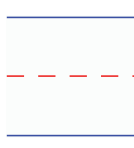
4

2. Count and write the number.

a.  

b.  

c.  

d.  

e.  

f.  

Chapter 1: Addition Within 0-10

Introduction

The first chapter of *Math Mammoth Grade 1-A* concentrates on the concept of addition and addition facts within 0-10.

Keep in mind that the specific lessons in the chapter can take several days to finish. They are not “daily lessons.” Instead, use the general guideline that first graders should finish 1-2 pages daily or 7-9 pages a week. Please see the user guide at <https://www.mathmammoth.com/userguides/> for more guidance on pacing the curriculum.

This chapter starts out with very easy and visual addition problems within 0-5, where children can simply count the objects to add. You can easily adapt these early lessons to be done with manipulatives (concrete objects such as blocks, beads, *etc.*).

If the student does not know the symbols “+” and “=” yet, you can introduce them *orally* at first. Use blocks or other objects to make addition problems and say: “Three blocks and four blocks makes seven blocks. Three blocks *plus* four blocks *equals* seven blocks.” Then ask the child to make an addition with the objects, using those words. Play like that until the child can use the words “plus” and “equals” in his or her own speech. This will also make it easier to learn to use the written symbols.

In the lesson *Which Is More?*, the symbols “<” and “>” are introduced as being like a “hungry alligator’s mouth.” In this lesson, children only compare numbers, such as $5 < 7$. In later lessons, children will also learn to compare expressions, such as $2 + 3 < 4 + 4$.

Soon we introduce “missing addend” problems, or problems such as $1 + \underline{\quad} = 5$. First, we use pictures, and then gradually use only symbols. These problems are very important, as they lead the child to learn the connection between addition and subtraction.

Children might confuse the missing addend problem $1 + \underline{\quad} = 5$ with $1 + 5 = \underline{\quad}$. To help the child see the difference, you can word these problems like this: “One and how many more make five?”

You can model missing addend problems by drawing. In our example problem ($1 + \underline{\quad} = 5$), the teacher would first draw one ball and then tell the student, “We need a total of five balls. Draw more balls until there are five of them.” The number of balls that the child needs to draw in order to make five is the number that goes on the empty line. So you can say, “First there was one ball, then you needed to add (draw) some more to make 5. How many more did you draw?”

Then we come to the lesson *Sums with 5*. It practices the number combinations that add up to 5, which are 0 and 5, 1 and 4, and 2 and 3. After that we study sums with 6, sums with 7, and so on. The goal of these lessons is to help the child to memorize addition facts within 10. However, your child does not need to fully memorize them yet. All of these lessons are building toward that goal, but the final mastery of addition facts does not have to happen this early in first grade.

My approach to memorizing the basic addition facts within 10 is many-fold:

1. Structured drill, such as is used in the lessons *Sums with 5*, *Sums with 6*, and so on, are not random drills, because they use the pattern or the structure in the facts. This will connect the facts to a context, and help the child to better understand them on a conceptual level, instead of merely memorizing them at random. In each of these lessons, the child learns the number combinations that add up to the specific number. This understanding is the basis for the drills.

2. Using addition facts in games, in math problems, in every day life, or anywhere else are especially useful because most children like games a lot.
3. Random drilling may also be used, sparingly, as one tool among others.
4. Memory helpers, can be silly mnemonics or writing math facts on a poster and hanging it on the wall. Not all children need these, but feel free to use them if you like.

These same addition facts are studied again in the following chapter about subtraction. They are also used constantly in all later math work. I recommend that children become fluent with addition facts within 0-10 by the end of first grade (as is also mentioned in the Common Core Standards).

Another important thread running through the chapter is to develop children’s understanding of the symbols +, <, and >. Children need to get used to equations like $9 = 5 + 4$ and inequalities like $2 < 5 + 4$. They need to understand the equation $2 + \underline{\quad} = 6$ correctly as an unknown addend problem, and not as the addition problem $2 + 6$. We need to prevent the misconception of the equal sign being an “operator,” as if it means that you need to add/subtract/multiply/divide, or “operate” on the numbers in the equation. A child with this misconception will treat the equation $9 = \underline{\quad} + 4$ as an addition problem $9 + 4$.

The chapter involves a lesson about addition on a number line, which is an important way to model addition. Children also encounter addition tables, number patterns, word problems, and get used to a symbol for the unknown number (such as in $\square + 5 = 10$). So, while it may look on the surface that all we do is add small numbers, actually a lot happens in this chapter!

Please also see the following page for a few games that I recommend while studying this chapter. Games are important at this level, as they help children practice the addition facts and also make math fun. And don’t forget to check out the free videos matched to the curriculum at <https://www.mathmammoth.com/videos/>.

The Lessons in Chapter 1

	page	span
Two Groups and a Total	19	3 pages
Learn the Symbols “ + ” and “ = ”	22	3 pages
Addition Practice 1	25	2 pages
Which Is More?	27	2 pages
Missing Items	29	5 pages
Sums with 5	34	2 pages
Sums with 6	36	2 pages
Adding on a Number Line	38	4 pages
Sums with 7	42	3 pages
Sums with 8	45	3 pages
Adding Many Numbers	48	3 pages
Addition Practice 2	51	2 pages
Sums with 9	53	4 pages
Sums with 10	57	4 pages
Comparisons	61	3 pages
Review of Addition Facts	64	4 pages

Games for Addition and Subtraction Facts

10 Out (or 5 Out or 6 Out, etc.)

You need: Lots of number cards with numbers 1-10, such as regular playing cards (without the face cards), or any other cards that have numbers on them.

Rules: Deal seven cards to each player. Place the rest face down in a pile in the middle of the table. On beginning his turn, each player may first take one card from the pile. Then that player may ask for one card from the player to his right (as in “Go Fish”), and the player on the right, if he has it, must give it to the player who asked. Then the player whose turn it is may discard the card 10 or any two cards in his hand that add up to 10. The player who first discards all the cards from his hand is the winner.

Variations:

- * Deal more than seven cards.
- * Deal fewer cards if there are a lot of players or the players are very young.
- * Allow players to discard *three* cards that add up to 10.
- * Instead of ten, players discard cards that add up to 9, 8, 11, or some other number.
Use the face cards Jack, Queen, and King for 11, 12, and 13 respectively.

Some Went Hiding

You need: The same number of small objects as the sum you are studying. For example, to study the sums with 5, you need 5 objects (marbles, blocks, or whatever).

Rules: The first player shows the objects but quickly hides some of them behind his back without showing how many. Then he shows the remaining objects to the next player, who has to say how many “went hiding.” If the player gives the right answer, it is then his turn to hide some and ask the next player to answer. If he gives a wrong answer, he forfeits his turn. This game appeals best to young children.

Variation: Instead of getting a turn to hide objects, the player who answers correctly may gain points or other rewards for the right answer.

Addition (or Subtraction) Challenge

You need: A standard deck of playing cards from which you remove the face cards and perhaps also some of the other higher-numbered cards, such as tens, nines, and eights. Alternatively, a set of dominoes works well for children who do not yet know their numbers beyond 12.

Rules: In each round, each player is dealt two cards face up, and has to calculate the sum or difference (add/subtract). The player with the highest sum or difference gets all the cards from the other players. After enough rounds have been played to use all of the cards, the player with the most cards wins.

If two or more players have the same sum, then those players get an additional two cards and use those to resolve the tie.

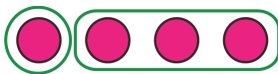





Variations:

- * This game is easily adapted for subtraction, multiplication, and fractions.
- * You can also use dominoes instead of two playing cards.










Any **board game** where you move the piece by rolling two dice also works to practice addition.

Two Groups and a Total

1. Make two groups.

<p>a. 4</p>  <p>1 and 3</p>	<p>b. 4</p>  <p>2 and 2</p>	<p>c. 4</p>  <p>3 and 1</p>
<p>d. 5</p>  <p>3 and 2</p>	<p>e. 5</p>  <p>2 and 3</p>	<p>f. 5</p>  <p>1 and 4</p>



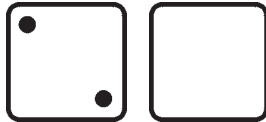
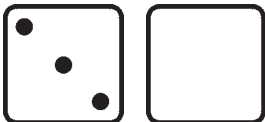
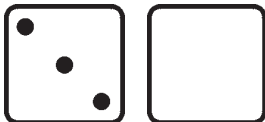

2. Make two groups. Write how many are in the second group.

<p>a. 4</p>  <p>1 and _____</p>	<p>b. 4</p>  <p>2 and _____</p>	<p>c. 4</p>  <p>3 and _____</p>
<p>d. 5</p>  <p>4 and _____</p>	<p>e. 5</p>  <p>3 and _____</p>	<p>f. 5</p>  <p>2 and _____</p>
<p>g. 5</p>  <p>1 and _____</p>	<p>h. 5</p>  <p>5 and _____</p>	<p>i. 5</p>  <p>0 and _____</p>

3. Draw as many dots as the number shows. Then divide them into two groups.
 (There are many ways to do this.) Write how many are in each group.

<p>a. 3</p> <p>_____ and _____</p>	<p>b. 5</p> <p>_____ and _____</p>	<p>c. 4</p> <p>_____ and _____</p>
<p>d. 2</p> <p>_____ and _____</p>	<p>e. 6</p> <p>_____ and _____</p>	<p>f. 8</p> <p>_____ and _____</p>

4. The number at the top is the total. Draw the missing dots on the face of the blank dice.
 Write on the lines how many dots are on the face of each dice.

<p>a. 3</p>  <p>_____ and _____</p>	<p>b. 6</p>  <p>_____ and _____</p>	<p>c. 5</p>  <p>_____ and _____</p>
<p>d. 4</p>  <p>_____ and _____</p>	<p>e. 6</p>  <p>_____ and _____</p>	<p>f. 5</p>  <p>_____ and _____</p>