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# Contents

<b>Introduction .....</b>	<b>4</b>
<b>Add Using “Just One More” .....</b>	<b>7</b>
<b>A “Trick” with Nine and Eight .....</b>	<b>9</b>
<b>Adding within 20 .....</b>	<b>12</b>
<b>Subtract to Ten .....</b>	<b>16</b>
<b>Subtract Using Addition .....</b>	<b>18</b>
<b>Review: Completing the Next Whole Ten .....</b>	<b>21</b>
<b>Review: Going Over Ten .....</b>	<b>23</b>
<b>Adding with 9 .....</b>	<b>25</b>
<b>Adding with 8 .....</b>	<b>27</b>
<b>Adding with 7 .....</b>	<b>29</b>
<b>Adding with 6 .....</b>	<b>31</b>
<b>Review - Facts with 6, 7, and 8 .....</b>	<b>33</b>
<b>Difference and How Many More .....</b>	<b>35</b>
<b>Number Rainbows - 11 and 12 .....</b>	<b>38</b>
<b>Fact Families with 11 .....</b>	<b>40</b>
<b>Fact Families with 12 .....</b>	<b>41</b>
<b>Number Rainbows - 13 and 14 .....</b>	<b>43</b>
<b>Fact Families - 13 and 14 .....</b>	<b>44</b>
<b>Fact Families with 15 .....</b>	<b>47</b>
<b>Fact Families with 16 .....</b>	<b>49</b>
<b>Fact Families - 17 and 18 .....</b>	<b>51</b>
<b>Review .....</b>	<b>53</b>
<b>Answers .....</b>	<b>56</b>
<b>More from Math Mammoth .....</b>	<b>72</b>

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# Introduction

*Math Mammoth Add & Subtract 2-A* deals with two main themes:

- strategies for adding and subtracting within 0-20; such as adding just one more, a trick with nine and eight, and subtracting using addition;
- memorizing the basic addition and subtraction facts of single-digit numbers.

In the first several lessons we study basic strategies for adding and subtracting within 0-20. After those, we study the idea of completing ten and going over. For example, the child adds  $8 + 5$  by first adding  $8 + 2$  (which makes 10), and then adding the 3 that was “left over”. These lessons prepare the student for the next part of the book, which has to do with memorizing the basic addition facts.

The next lessons in the book, *Adding with 9*, *Adding with 8*, *Adding with 7*, and *Adding with 6*, provide lots of practice for learning and memorizing the basic addition facts. There are 20 such facts:

from  $9 + 2$  till  $9 + 9$ : 8 facts (lesson *Adding with 9*)  
from  $8 + 3$  till  $8 + 8$ : 6 facts (lesson *Adding with 8*)  
from  $7 + 4$  till  $7 + 7$ : 4 facts (lesson *Adding with 7*)  
from  $6 + 5$  till  $6 + 6$ : 2 facts (lesson *Adding with 6*)

Some children will accomplish this quicker, needing less practice. Some will need more practice. You can also add in some internet-based games (a list of online games is provided below).

After those lessons, we study subtraction. First, the child subtracts to ten. This means subtracting from 14, 15, 16, etc. so that the answer is 10, for example  $16 - \underline{\quad} = 10$ . In the next step, we study subtractions with an answer less than 10, such as  $16 - 7$ . The student practices these by subtracting in two parts: First subtracting to ten, then the rest. For example,  $16 - 7$  becomes  $16 - 6 - 1$ , or  $14 - 6$  becomes  $14 - 4 - 2$ .

The last part of the book includes various lessons titled *Number Rainbows* and *Fact Families with ...*, which give lots of practice and reinforcement for the basic addition and subtraction facts. These lessons also include many word problems. They emphasize the connection between addition and subtraction to solve basic subtraction facts such as  $13 - 8$  or  $15 - 6$ . Alongside them, you can also use games or flashcards to reinforce the learning of the facts.

Learning and memorizing the basic addition and subtraction facts of single-digit numbers is very important for later study. For example, regrouping (carrying/borrowing) in addition and in subtraction requires that the student be able to recall all the sums of single-digit numbers and corresponding subtraction facts efficiently and fluently. The goal is to memorize these facts, or at least become so fluent with them that an outsider cannot tell if the student remembers the answer or uses some mental math strategy to get the answer.

Please see also my videos at [http://www.youtube.com/watch?v=XSVlrkBf\\_Ns](http://www.youtube.com/watch?v=XSVlrkBf_Ns) and <http://www.youtube.com/watch?v=jdIzuGPRhRQ> (Or go to [www.youtube.com/mathmammoth](http://www.youtube.com/mathmammoth) and find the videos about addition and subtraction facts). These two videos explain several strategies for learning addition and subtraction facts, many of which are studied in this book.

*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. You can access an up-to-date online version of this list at [www.mathmammoth.com/weblinks/add-subtract-2A.htm](http://www.mathmammoth.com/weblinks/add-subtract-2A.htm)

### Strategies for Addition and Subtraction Facts - Video from Math Mammoth

Learn several strategies such as the 9-trick or number rainbows for memorizing basic addition and subtraction facts.

<http://www.youtube.com/mathmammoth#p/a/u/3/825G-Ntbsdk>

### Number Cracker

Help Mr. Cracker obtain the secret code before the insidious Prof. Soup catches him by guessing what number comes next in a series of numbers.

<http://www.funbrain.com/cracker/index.html>

### Number Jump

Move the ball along the number line to smash the flies.

<http://www.carstensstudios.com/mathdoodles/numberjump.htm>

### Connect Sums

Click on the neighboring die-faces/numbers/coins so that the points add up to the given target sum.

<http://www.carstensstudios.com/mathdoodles/connectsums.html>

### Space Jumps

Adding two single-digit numbers, first jump to ten, then the rest to the spaceship. Practices addition that goes over ten.

<http://www.ictgames.com/spacejumps.html>

### Bridging Shuttle

Bridging Through Ten means the same as adding to ten first, then the rest. Get a “flight plan”, then first add to ten by typing the number needed in the oval, and press the red button. Then type the rest that the shuttle needs to go in the other oval, and press the red button.

<http://www.ictgames.com/bridging.html>

### Speedy Sums

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

<http://www.schooltimegames.com/Mathematics/AddLikeMad.html>

### Math Magician Games

Flashcard problems in all 4 operations, including subtraction. Answer 20 questions in 1 minute.

<http://www.oswego.org/ocsd-web/games/Mathmagician/mathssub.html>

### Aplus Math Games

Matho (math and bingo combined), concentration, hidden picture, and Planet Blaster games for the basic operations.

<http://www.aplusmath.com/games/>

### Addition Surprise

Draw the answer square in the addition table.

<http://www.hbschool.com/activity/add/add.html>

### Fun 4 the Brain

Practice your basic facts with these kid-appealing simple games.

<http://www.fun4thebrain.com/>

**Sample worksheet from**  
[www.mathmammoth.com](http://www.mathmammoth.com)

### **Power Lines Puzzle**

Arrange the numbers into the pattern so that the numbers on the “lines” add up to the given sum.

<http://www.primarygames.co.uk/pg2/powerlines/powerlines1.html>

### **Online Addition Flashcards**

<http://www.thegreatmartinicompany.com/additionfill.html>

### **Number Bond Machines**

Practice which two numbers add up to a given number. Set the number to be 11, 12, ... 18 to practice basic facts.

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

### **Froggy Hop**

Find 10 more or 1 more of a given number.

<http://www.ictgames.com/frog.html>

### **Math Carts**

A downloadable racing game for young students to memorize addition and subtraction facts. Children choose various animal themed carts and unlock new carts and race tracks as they progress through the facts. There are three difficulty levels.

**Price: Free**

<http://sandbox.yoyogames.com/games/163070-math-carts>

### **Tux Math**

A versatile arcade game for math facts with many options. Includes all operations. You need to shoot falling comets that can damage penguins' igloos.

See also my review: <http://homeschoolmath.blogspot.com/2011/05/tux-math.html>

**Price: Free**

<http://sourceforge.net/projects/tuxmath>

### **Video: Strategies for Subtraction Facts**

I recommend the usage of FACT FAMILIES in order to learn the basic subtraction facts. That way, when children have a subtraction problem, such as  $7 - 5 = \underline{\quad}$ , they will learn to think through addition and fact families: 5 and 2 and 7 form a fact family, OR that  $5 + 2 = 7$ , so  $7 - 5 = 2$ .

<http://www.youtube.com/mathmammoth#p/u/3/DUiA06UdJl0>

### **Video: Strategies for Addition Facts**

I list several strategies to learn addition facts for first and second grade math. I show the pattern of “Sums with 7”, which also is used with other sums, then the 9-trick, the 8-trick, the doubles, doubles plus one more, and how to do random drill using the structure of the addition table.

<http://www.youtube.com/mathmammoth#p/u/14/jdIzuGPRhRQ>

### **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](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>

**Sample worksheet from**

[www.mathmammoth.com](http://www.mathmammoth.com)