

MATH MAMMOTH

Grade 2-A

Complete Worktext

- Halves, fourths, and other parts
- Clock
- Addition and subtraction facts
- Carrying
- Borrowing
- Coins



By Maria Miller

www.MathMammoth.com

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EDITION 2.0

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Please visit www.MathMammoth.com for more information about Maria Miller's math books.

Create free math worksheets at www.HomeschoolMath.net/worksheets/

Contents

Foreword	5
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Chapter 1: Getting Started

Introduction	6
Some Review	8
Adding and Subtracting Within 0-100	10
Ordinal Numbers	13
Fact Families	15
Doubling	17
One-Half	19
Fourths	21

Chapter 2: Clock

Introduction	23
Review - Whole and Half Hours	25
The Minutes	26
The Minutes, Part 2	29
Past and Till in Five-Minute Intervals	31
How Many Hours Pass?	34
The Calendar: Weekdays and Months	36
The Calendar: Dates	39
Review	42

Chapter 3: Addition and Subtraction Facts Within 0-18

Introduction	43
Review: Completing the Next Whole Ten	46
Review: Going Over Ten	48
Adding with 9	50
Adding with 8	52
Adding with 7	54
Adding with 6	56
Review - Facts with 6, 7, and 8	57
Subtract to Ten	59
Subtraction and the Difference	61

Number Rainbows - 11 and 12	63
Fact Families with 11	65
Fact Families with 12	66
Number Rainbows - 13 and 14	68
Fact Families - 13 and 14	69
Fact Families - 15	72
Fact Families - 16	74
Fact Families - 17 and 18	76
Review	79

Chapter 4: Adding and Subtracting with Two-Digit Numbers

Introduction	81
Adding with Whole Tens	84
Subtracting Whole Tens	87
Regrouping with Tens	89
Going Over to the Next Ten	92
Add with Two-Digit Numbers Ending in 9	95
Add in Columns Practice	97
Add with Two-Digit Numbers Ending in 8 or 7	99
Addition Practice	101
Many Addends	103
Subtracting in Columns	106
Regrouping (Borrowing), Part 1	107
Regrouping (Borrowing), Part 2	110
Regrouping (Borrowing), Part 3	113
Graphs and Problems	115
Mental Subtraction Methods	118
Euclid's Game	121
Review 1	124
Review 2	125

Chapter 5: Counting Money

Introduction	126
Counting Coins Review	128
Change	131
Dollars	134
Counting Change	137

Foreword

The Math Mammoth Grade 2-A and Grade 2-B worktexts comprise a complete math curriculum for the second grade mathematics studies.

The main topics during second grade, as in first grade, are the study of addition and subtraction and place value up to 1000.

In the second grade, children learn to add and subtract two and three-digit numbers mentally and in columns (under each other). They learn to carry to tens and to hundreds (also called regrouping), and how to borrow either from the tens or from the hundreds. The topics of borrowing two times and borrowing over zero tens are in this curriculum left for the third grade.

Mental math is very important, as it builds number sense and solidifies the understanding of place value. Children learn by heart the common addition and subtraction facts, and understand how to use them when adding two-digit numbers. They practice many kinds of mental math with three-digit numbers as well (in the 2B book).

Other topics studied are reading the clock to the five-minute intervals; measuring length, weight, and volume; shapes and a few simple geometry concepts; and money topics. These topics are important as well, since they are everyday applications of mathematics.

When you use these books as your only or main mathematics curriculum, they can be like a “framework”, but you still have liberty in planning your child's studies. While addition, subtraction, and place value topics are best studied in the order they are presented, you can choose to study clock, coins, and geometry topics in a different order. This does not totally apply to the chapter on measuring, as it uses 3-digit numbers.

Changing the topic might even be advisable if your child is “stuck” on some concept. Sometimes the brain mulls it over in the background, and the concept they were stuck on becomes clear after a break.

This curriculum aims to concentrate on a few major topics at a time and study them in depth. This is totally opposite to the continually spiraling step-by-step curricula, in which each lesson typically is about a different topic from the previous or next lesson, and includes a lot of review problems from past topics.

This does not mean that your child wouldn't need an occasional review. However, when each major topic is presented in its own chapter, this gives you more freedom to plan the course of study *and* choose the review times yourself. In fact, I totally encourage you to plan your mathematics school year as a set of certain topics, instead of a certain book or certain pages from a book.

For review, I have included an html page called *Make_extra_worksheets_grade2.htm* that you can use to make additional worksheets for computation or for number charts. You can also always simply reprint some pages that were already studied .

I wish you success in your math teaching!

Maria Miller, the author

Chapter 1: Getting Started

Introduction

The first chapter of the *Math Mammoth Grade 2-A Complete Worktext* has addition and subtraction review from the first grade, plus a few new topics that should be easy. The chapter starts out with review. Ordinal numbers are probably familiar from common language. The lesson *Fact Families* practices addition/subtraction connection, and introduces missing subtrahend problems such as $__ - 5 = 4$ where the total is missing. This is an early prelude to algebraic thinking.

The last two lessons introduce some easy parts, such as one-half, one-fourth, two-fourths and three-fourths. These lessons also practice finding half of a number or a fourth of a number. This is done for a good reason: First of all, the idea of finding part of a number is of paramount importance throughout elementary mathematics. Second, it prevents the fixation that half is “half of a pie” or that one-fourth is “one-fourth of a pie”, when halves and fourths apply to all kinds of “totals”. Third, the child will soon encounter the idea of a quarter of an hour when studying the clock, which is just one-fourth of an hour.

The Lessons in Chapter 1

	page	span	(hours)
Some Review	8	2 pages	
Adding and Subtracting Within 0-100	10	3 pages	
Ordinal Numbers	13	2 pages	
Fact Families	15	2 pages	
Doubling	17	2 pages	
One-Half	19	2 pages	
Fourths and Other Parts	21	2 pages	

Helpful Resources on the Internet

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

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>

Squigly

Squigly is hiding in one of the apples. Click on the ordinal number that tells the order of Squigly's apple.

<http://www.primarygames.com/squigly/start.htm>

MathBlox

Click on two falling blocks that add up to the given number and they disappear. With various levels and number ranges.

<http://www.funbrain.com/com/L3?Area=Mathblox>

Sample worksheet from
www.mathmammoth.com

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>

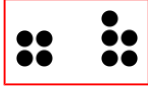
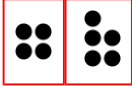
Sum Stacker

Drag dies from stack to stack until the sums of each stack equal the sums given.




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

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Fact Families

<p>When you have two addition and two subtraction facts that use the same numbers, it is called a “<i>fact family</i>”.</p>		
<p>Sometimes in a subtraction problem, the <i>total</i> is asked:</p> $\square - 8 = 20$ <p>You know 20 and 8 are the “parts”, and the total is missing. To find the total, just add the “parts”:</p> $20 + 8 = \underline{28}$	<p>4 + 5 = 9</p> <p>5 + 4 = 9</p> <p>9 - 5 = 4</p> <p>9 - 4 = 5</p> <p>Notice the TOTAL. The subtraction sentences <u>start</u> with the total.</p>	<p>4 + 5 = 9</p> <p>5 + 4 = 9</p> <p>9 - 5 = 4</p> <p>9 - 4 = 5</p> <p>Notice the PARTS. The two parts make up the total.</p>

1. Write two addition and two subtraction sentences - a fact family!

<p>a. </p> <p>_____ + _____ = _____</p> <p>_____ + _____ = _____</p> <p>_____ - _____ = _____</p> <p>_____ - _____ = _____</p>	<p>b. T </p> <p>_____ + _____ = _____</p> <p>_____ + _____ = _____</p> <p>_____ - _____ = _____</p> <p>_____ - _____ = _____</p>	<p>c. T T  T T</p> <p>_____ + _____ = _____</p> <p>_____ + _____ = _____</p> <p>_____ - _____ = _____</p> <p>_____ - _____ = _____</p>
--	---	--

2. Fill in the missing numbers. The four problems form a fact family.

<p>a.</p> $2 + \square = 8$ $\square + 2 = 8$ $8 - 2 = \square$ $8 - \square = 2$	<p>b.</p> $\square + \square = 10$ $\square + \square = 10$ $10 - 7 = \square$ $10 - \square = 7$	<p>c.</p> $\square + \square = \square$ $\square + \square = \square$ $9 - \square = 6$ $\square - \square = \square$
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3. Write a matching addition sentence for the subtraction sentence. There are two possibilities.

<p>a. $\underline{\quad} + \underline{\quad} = \underline{\quad}$ $8 - 2 = 6$</p>	<p>b. $\underline{\quad} + \underline{\quad} = \underline{\quad}$ $20 - 7 = 13$</p>	<p>c. $\underline{\quad} + \underline{\quad} = \underline{\quad}$ $60 - 20 = 40$</p>
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<p>When the first number is missing in a subtraction, it is the TOTAL that is missing.</p> <p>You can find the TOTAL by adding the two numbers (those are the “parts”).</p>	$\square - 6 = 2$ <p>The total is missing. 6 and 2 are the “parts”. So we add them. $2 + 6 = 8$. The missing number is 8!</p>
<p>It's like “adding backwards”:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> $\boxed{8} - 6 = 2$ <p style="font-size: small; margin: 0;">← Add. +</p> </div> <div style="text-align: center;"> $\boxed{23} - 3 = 20$ <p style="font-size: small; margin: 0;">← Add. +</p> </div> </div>	

4. The total is missing from the subtraction sentence. Solve.

<p>a. $\square - 5 = 4$</p>	<p>b. $\square - 7 = 2$</p>	<p>c. $\square - 7 = 10$</p>
--	--	---

5. Find the missing numbers.

<p>a. $\square - 2 = 4$</p> <p>$\square - 50 = 50$</p> <p>$\square - 8 = 20$</p>	<p>b. $\square - 7 = 80$</p> <p>$60 + 4 = \square$</p> <p>$16 + \square = 20$</p>	<p>c. $9 - \square = 5$</p> <p>$77 + \square = 78$</p> <p>$\square - 9 = 60$</p>
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<h2 style="margin: 0; color: #ff00ff;">Puzzle Corner</h2>	<p>Find the missing numbers. This time adding backwards will NOT work!</p>	
<p>a. $50 - \square = 10$</p> <p>$33 - \square = 31$</p>	<p>b. $100 - \square = 91$</p> <p>$76 - \square = 72$</p>	<p>c. $10 - \square - 2 = 1$</p> <p>$9 - \square - 5 = 2$</p>

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Chapter 2: Clock Introduction

The second chapter of the *Math Mammoth Grade 2-A Complete Worktext* deals with reading the clock to the five-minute intervals, and finding simple time intervals.

It is helpful to have a practice clock, such as an alarm clock, where the child can turn the clock hands.

First we practice telling time in the *hours:minutes* form (such as 10:20), and then using the colloquial phrases “ten after”, “quarter till”, and so on.

Also studied are simple time intervals, or how much time passes. When practicing these, tell the child to imagine moving the minute (or hour) hand on a clock. He/she can initially use a practice clock for this.

The section also has one lesson about the calendar. Of course the calendar and the months are best learned just in the context of everyday life, as the months pass. Hang a wall calendar on the wall and instruct your child to look at it every day, and to cross out days as they pass.

The Lessons in Chapter 2

	page	span
Review - Whole and Half Hours	25	1 page
The Minutes	26	3 pages
The Minutes, Part 2	29	2 pages
Past and Till in Five-Minute Intervals	31	3 pages
How Many Hours Pass?	34	2 pages
The Calendar: Weekdays and Months	36	3 pages
The Calendar: Dates	39	3 pages
Review	42	1 page

Helpful Resources on the Internet

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

Analog and Digital Clocks

These clocks show you the current time, side by side. Useful for illustration.

http://nlvm.usu.edu/en/nav/frames_asid_316_g_2_t_4.html

What Time Will it Be?

Move the hands on the clock to show what time it will be after a certain amount of minutes.

http://nlvm.usu.edu/en/nav/frames_asid_318_g_2_t_4.html

Match Clocks

Make the digital clock to show the time given with the analog clock.

http://nlvm.usu.edu/en/nav/frames_asid_317_g_2_t_4.html

Time Flies

Practice telling time with two types of watches. In the second part, practice what you have learned by selecting the digital time that matches the time displayed.

<http://www.alfy.com/Games/playgame.aspx?gameID=354&gameName=Time+Flies>

Flashcard Clock

Read the analog and type in the time in digital form. Very clear clock and good fast response!

http://www.teachingtreasures.com.au/maths/FlashcardClock/flashcard_clock.htm

Telling Time Practice

Interactive online practice: you drag the hands of the clock to show the correct time.

<http://www.worsleyschool.net/socialarts/telling/time.html>

Teaching Time

Analogue/digital clock games and worksheets. Also an interactive "class clock" to demonstrate time.

<http://www.teachingtime.co.uk/>

Time-for-time

Resource site to learn about time: worksheets, games, quizzes, time zones.

<http://www.time-for-time.com/default.htm>

A Matter of Time

Lesson plans for telling time, interactive activities, and some materials to print.

<http://www.fi.edu/time/Journey/JustInTime/contents.html>

Elapsed Time Line

This interactive tool shows 2 clocks that have draggable fingers to set a "from" and "to" time, and a number line. You can demonstrate how to use a number line to calculate elapsed time.

www.teacherled.com/2008/10/05/elapsed-time-line/

Clockwise

Plug in a time, and the clock runs till it, or clock runs to a time and you type it in.

<http://www.shodor.org/interactivate/activities/clock2/index.html>

Clock (evaluation version words across the screen)

Use the buttons to advance the clock in 5, 10, 15, 30 minute increments or drag the hands. Shows digital time also. For illustrations only, does not have any quiz or questions.

<http://www.interactive-resources.co.uk/mathspack1/clock/clock.html>

The Right Time

A couple of interactive exercises about reading the clock.

<http://www.pitara.com/activities/math/time/time.asp?QNum=3>

What Time Is It?

Look at the analog clock and pick the digital clock that shows the same time.

<http://www.primarygames.com/time/start.htm>

That Quiz: Time

Online quizzes for all time-related topics: reading the clock, time passed, adding/subtracting with time, conversion of time units, and time zones practice. The quizzes have many levels, can be timed or not, and include lots of options for customization. Easy to use and set up.

www.thatquiz.org/tq-g/math/time

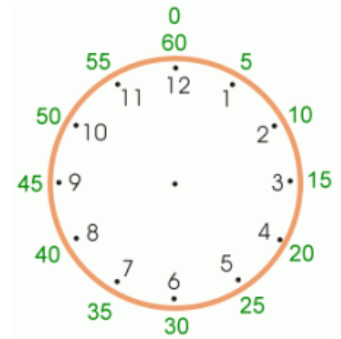
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The Minutes

When the hour hand moves from one number to the next (from 1 to 2, or from 6 to 7, etc.), it takes one hour to do that.

In that same one hour of time, the *minute hand* travels **from 0 to 60 minutes**. So one hour is 60 minutes. A half-hour is 30 minutes.

When you read the minute hand, you use the green numbers (marked outside the clock face of the clock on the right). They go by fives, and are not normally marked on clocks. You need to know them. Just skip-count by fives!



1 hour = 60 minutes.
1/2 hour = 30 minutes.



The hour hand is past 8.
The minute hand is at 15.
The time is 8:15.

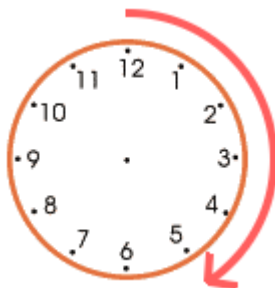


The hour hand is past 2.
The minute hand is at 25.
The time is 2:25.



The hour hand is past 11.
The minute hand is at 10.
The time is 11:10.

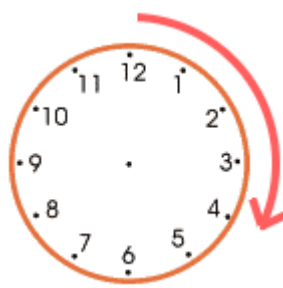
1. The arrow shows how much the minute hand travels. How many minutes of time passes?



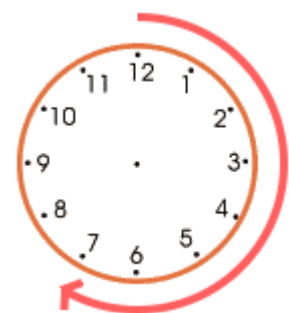
a. _____ minutes



b. _____ minutes




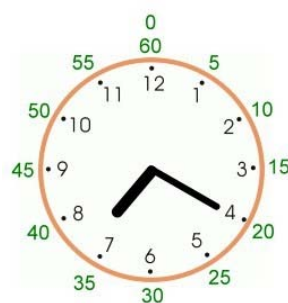

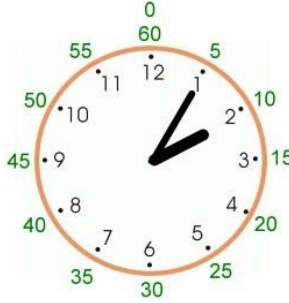




c. _____ minutes











d. _____ minutes

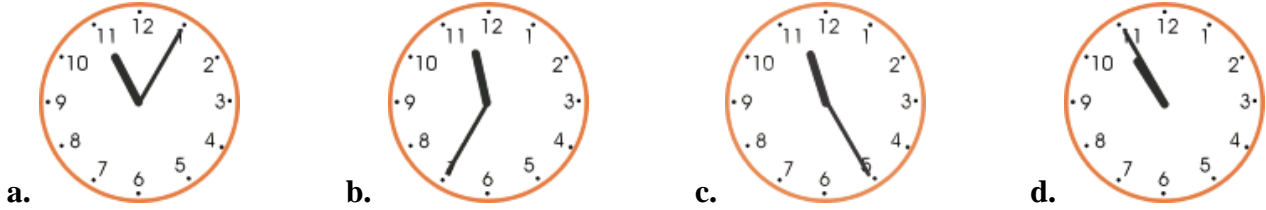
2. Write the time using the special clock that shows the numbers for hours and for minutes.

 <p>a. _____ : _____</p>	 <p>b. _____ : _____</p>	 <p>c. _____ : _____</p>	 <p>d. _____ : _____</p>
 <p>e. _____ : _____</p>	 <p>f. _____ : _____</p>	 <p>g. _____ : _____</p>	 <p>h. _____ : _____</p>

3. Write the time using the normal clock. Remember, the numbers for the minute hand are not shown, and they go by fives!

 <p>a. _____ : _____</p>	 <p>b. _____ : _____</p>	 <p>c. _____ : _____</p>	 <p>d. _____ : _____</p>
 <p>e. _____ : _____</p>	 <p>f. _____ : _____</p>	 <p>g. _____ : _____</p>	 <p>h. _____ : _____</p>

4. Find the clock that shows 11:25 and the clock that shows 11:05.



5. Write the time.

 a. _____ : _____	 b. _____ : _____	 c. _____ : _____	 d. _____ : _____
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6. Write the time that the clock shows, and the time 5 minutes later. Imagine the minute hand moving one “step” further. You can use your practice clock.

	 a. _____ : _____	 b. _____ : _____	 c. _____ : _____	 d. _____ : _____
5 min. later →	_____ : _____	_____ : _____	_____ : _____	_____ : _____
	 e. _____ : _____	 f. _____ : _____	 g. _____ : _____	 h. _____ : _____
5 min. later →	_____ : _____	_____ : _____	_____ : _____	_____ : _____

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Chapter 3: Addition and Subtraction Facts

Within 0-18

Introduction

The third chapter of the *Math Mammoth Grade 2-A Complete Worktext* provides lots of practice for learning and memorizing the basic addition facts of single-digit numbers where the answer is between 10 and 18, and learning to use them with subtraction.

Completing the ten - concept

This concept is important to learn. The child learns what number is needed to complete the next whole ten. For example, what number do you add to 23 to get 30, or $23 + \underline{\quad} = 30$. The next step is to study what happens when the sum goes over the next ten.

In the lesson “Going Over Ten”, the child learns to add $8 + 5$ by first adding $8 + 2$ (which completes the ten) and then the “leftover” 3. These prepare the child for addition facts where the sum is more than 10.

Memorizing the facts

The National Council of Teachers of Mathematics (NCTM) recommends in their Grade 2 Curriculum Focal Points that children “...develop quick recall of basic addition facts and related subtraction facts”.

Mathematics builds upon previously learned concepts and facts. Learning addition and subtraction facts is essential for later study. For example, the child will soon study double-digit addition and subtraction, and needs to be able to add and subtract small numbers efficiently.

The next lessons in the book provide lots of practice for learning and memorizing the addition facts. There are 20 such facts:

$9 + 2$ till $9 + 9$: 8 facts

$8 + 3$ till $8 + 8$: 6 facts

$7 + 4$ till $7 + 7$: 4 facts

$6 + 5$ till $6 + 6$: 2 facts

After those lessons, we reverse the process and practice subtracting. First, the child subtracts TO ten with problems such as $16 - \underline{\quad} = 10$. Then come subtraction problems which “cross” the ten the other direction, such as $16 - 7$. Again the student first practices these by subtracting in two parts: First subtracting to ten, then the rest. For example, $16 - 7$ becomes $16 - 6 - 1$.

The various lessons about **the fact families** give lots of practice and further reinforce memorizing the facts. These lessons also include many word problems. You can choose to skip some of these lessons or problems, or use them later for review. They do not contain any new concepts.

Alongside this book, you can also use math games or flashcards to reinforce the addition and subtraction facts. You can find a list of some free online games at

www.homeschoolmath.net/addition_subtraction.php

http://www.homeschoolmath.net/online/math_facts.php

The Lessons in Chapter 3

	page	span
Review: Completing the Next Whole Ten	46	2 pages
Review: Going Over Ten	48	2 pages
Adding with 9	50	2 pages
Adding with 8	52	2 pages
Adding with 7	54	2 pages
Adding with 6	56	1 page
Review - Facts with 6, 7, and 8	57	2 pages
Subtract to Ten	59	2 pages
Subtraction and the Difference	61	2 pages
Number Rainbows- 11 and 2	63	2 pages
Fact Families with 11	65	1 page
Fact Families with 12	66	2 pages
Number Rainbows - 13 and 14	68	1 page
Fact Families - 13 and 14	69	3 pages
Fact Families - 15	72	2 pages
Fact Families - 16	74	2 pages
Fact Families - 17 and 18	76	3 pages
Review	79	2 pages

Helpful Resources on the Internet

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

Math Games at Sheppard Software

A bunch of different games to practice addition, subtraction, multiplication, and division facts: Fruit Shoot, Pop Up Math, Math MahJong, Matching games, Make 24, and many more. The site also has games for place value, coins, fractions, and other topics.

www.sheppardsoftware.com/math.htm

ArithmeTick

Solve math problems against the clock! Four difficulty levels, can tick or untick all four operations.

www.pompuzzle.com/ArithmeTick

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>

Sample worksheet from
www.mathmammoth.com

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 into the oval, and press the red button. Then type the rest that the shuttle needs to go, into 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.mathplayground.com/speedy_sums.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>

AplusMath 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>

Math Fact Bubble Blast

Click and burst the bubble showing the right answer to math questions. Choose addition, subtraction, or multiplication. Various levels and speeds.

www.lickitysplitlearning.com/free-online-math-fact-game.html

Exuberant Eye Games

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

<http://www.games.exuberanteye.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>

Online Math Flashcards

Addition, subtraction, and multiplication interactive online flashcards. A variety of number ranges, both timed and untimed versions.

<http://www.mathflashcardssoftware.info>

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 as in this chapter.

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

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Adding with 8

Imagine that 8 wants to be a 10! It takes two from the other number (from 3).
So, 8 becomes 10, and only 1 is left over.

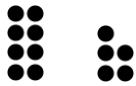
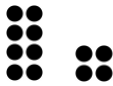
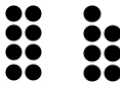
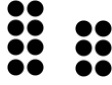
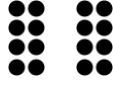
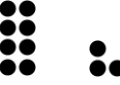
$8 + 3 = 10 + 1 = 11$

8 wants to be a 10! So, it takes two from the other number (from 5).
So, 8 becomes 10, and 3 are left over.

$8 + 5 = 10 + 3 = 13$

Use the list on the right to practice. Don't write the answers there.
Just point to different problems and say the answer aloud.

1. Add. First, circle the ten.

 a. $8 + 5$ $10 + 3 = \underline{\quad}$	 b. $8 + 4$ $10 + \underline{\quad} = \underline{\quad}$	 c. $8 + \underline{\quad}$ $10 + \underline{\quad} = \underline{\quad}$
 d. $8 + \underline{\quad} =$ $10 + \underline{\quad} = \underline{\quad}$	 e. $8 + \underline{\quad} =$ $10 + \underline{\quad} = \underline{\quad}$	 f. $8 + \underline{\quad} =$ $10 + \underline{\quad} = \underline{\quad}$

$8 + 1 = \square$
 $8 + 2 = \square$
 $8 + 3 = \square$
 $8 + 4 = \square$
 $8 + 5 = \square$
 $8 + 6 = \square$
 $8 + 7 = \square$
 $8 + 8 = \square$
 $8 + 9 = \square$

2. It is good to memorise the doubles, also. Fill in.

$2 + 2 = \underline{\quad}$	$5 + 5 = \underline{\quad}$	$8 + 8 = \underline{\quad}$
$3 + 3 = \underline{\quad}$	$6 + 6 = \underline{\quad}$	$9 + 9 = \underline{\quad}$
$4 + 4 = \underline{\quad}$	$7 + 7 = \underline{\quad}$	$10 + 10 = \underline{\quad}$

Addition facts with eight. Do not write the answers down, but just practice the sums.

$8 + 0 = \square$	$8 + 5 = \square$	$8 + 8 = \square$	$8 + 9 = \square$
$8 + 3 = \square$	$8 + 7 = \square$	$8 + 1 = \square$	$8 + 4 = \square$
$8 + 10 = \square$	$8 + 1 = \square$	$8 + 6 = \square$	$8 + 2 = \square$

3. Add and fill in what is missing.

<p>a. $8 + 4 = \underline{\quad}$</p> <p>$8 + 6 = \underline{\quad}$</p> <p>$8 + 2 = \underline{\quad}$</p>	<p>b. $8 + 8 = \underline{\quad}$</p> <p>$8 + 5 = \underline{\quad}$</p> <p>$8 + 7 = \underline{\quad}$</p>	<p>c. $8 + \underline{\quad} = 14$</p> <p>$8 + \underline{\quad} = 16$</p> <p>$8 + \underline{\quad} = 17$</p>
<p>d. $8 + \underline{\quad} = 13$</p> <p>$8 + \underline{\quad} = 12$</p> <p>$8 + \underline{\quad} = 11$</p>	<p>e. $5 + 8 = \underline{\quad}$</p> <p>$8 + 7 = \underline{\quad}$</p> <p>$3 + 8 = \underline{\quad}$</p>	<p>f. $6 + 8 = \underline{\quad}$</p> <p>$8 + 9 = \underline{\quad}$</p> <p>$8 + 8 = \underline{\quad}$</p>

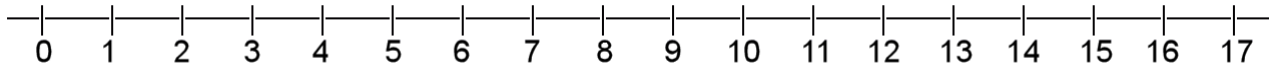
4. Find the pattern and continue it.

<p>a.</p> <p>$8 + 2 = \underline{\quad}$</p> <p>$8 + 4 = \underline{\quad}$</p> <p>$8 + 6 = \underline{\quad}$</p> <p>$8 + \underline{\quad} = \underline{\quad}$</p> <p>$\underline{\quad} + \underline{\quad} = \underline{\quad}$</p> <p>$\underline{\quad} + \underline{\quad} = \underline{\quad}$</p> <p>$\underline{\quad} + \underline{\quad} = \underline{\quad}$</p>	<p>b.</p> <p>$18 + 2 = \underline{\quad}$</p> <p>$18 + 4 = \underline{\quad}$</p> <p>$18 + 6 = \underline{\quad}$</p> <p>$18 + \underline{\quad} = \underline{\quad}$</p> <p>$\underline{\quad} + \underline{\quad} = \underline{\quad}$</p> <p>$\underline{\quad} + \underline{\quad} = \underline{\quad}$</p> <p>$\underline{\quad} + \underline{\quad} = \underline{\quad}$</p>	<p>c.</p> <p>$\frac{1}{2}$ of 0 is $\underline{\quad}$.</p> <p>$\frac{1}{2}$ of 2 is $\underline{\quad}$.</p> <p>$\frac{1}{2}$ of 4 is $\underline{\quad}$.</p> <p>$\frac{1}{2}$ of $\underline{\quad}$ is $\underline{\quad}$.</p> <p>$\frac{1}{2}$ of $\underline{\quad}$ is $\underline{\quad}$.</p> <p>$\frac{1}{2}$ of $\underline{\quad}$ is $\underline{\quad}$.</p> <p>$\frac{1}{2}$ of $\underline{\quad}$ is $\underline{\quad}$.</p>
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Subtraction and the Difference

The difference of two numbers on the number line means how far apart they are from each other. The difference of 7 and 3 is 4, because 7 and 3 are four steps apart.



We can solve the difference of two numbers by subtracting *or* adding:

1. Subtract the numbers. OR
2. Write a “*how many more*” addition (missing addend).

Find the difference of 12 and 8 in two ways:

1. Subtract: $12 - 8 = \underline{\quad}$. OR
2. Think: “8 and *how many more* make 12?”
You can write an addition $8 + \underline{\quad} = 12$

Either way, the answer is **4**.

1. Write a subtraction to find the difference of the numbers.

Numbers		Subtraction		Difference
7	2	$7 - 2$	=	5
10	4	$\underline{\quad} - \underline{\quad}$	=	
9	5	$\underline{\quad} - \underline{\quad}$	=	

Numbers		Subtraction		Difference
6	3	$\underline{\quad} - \underline{\quad}$	=	
10	5	$\underline{\quad} - \underline{\quad}$	=	
9	6	$\underline{\quad} - \underline{\quad}$	=	

2. Think of adding more to find the differences of two numbers.

The difference of 10 and 6 a. $6 + \underline{\quad} = 10$	The difference of 7 and 12 b. $7 + \underline{\quad} = 12$	The difference of 9 and 4 c. $4 + \underline{\quad} = 9$
The difference of 15 and 8 d. $8 + \underline{\quad} = 15$	The difference of 5 and 12 e. $5 + \underline{\quad} = 12$	The difference of 9 and 17 f. $9 + \underline{\quad} = 17$
The difference of 6 and 12 g. $\underline{\quad} + \underline{\quad} = 12$	The difference of 8 and 18 h. $\underline{\quad} + \underline{\quad} = 18$	The difference of 9 and 13 i. $\underline{\quad} + \underline{\quad} = 13$

3. Subtract. Think of the *differences* or “*how many more*”.

$\begin{array}{r} +3 \\ \curvearrowright \\ 15 - 12 = \underline{\quad} \end{array}$ <p>12 and <i>how many more</i> makes 15?</p>	$\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 11 - 9 = \underline{\quad} \end{array}$ <p>9 and <i>how many more</i> makes 11?</p>	$\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 16 - 11 = \underline{\quad} \end{array}$ <p>11 and <i>how many more</i> makes 16?</p>
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4. Solve these subtraction problems by thinking of the *differences* or “*how many more*”.

a. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 14 - 11 = \underline{\quad} \end{array}$	b. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 20 - 19 = \underline{\quad} \end{array}$	c. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 17 - 15 = \underline{\quad} \end{array}$	d. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 13 - 10 = \underline{\quad} \end{array}$
e. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 20 - 15 = \underline{\quad} \end{array}$	f. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 15 - 11 = \underline{\quad} \end{array}$	g. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 12 - 8 = \underline{\quad} \end{array}$	h. $\begin{array}{r} + \underline{\quad} \\ \curvearrowright \\ 18 - 14 = \underline{\quad} \end{array}$

5. Subtract by thinking how far apart the two numbers are (the difference).

a. $20 - 16 = \underline{\quad}$	b. $40 - 38 = \underline{\quad}$	c. $65 - 61 = \underline{\quad}$	d. $33 - 31 = \underline{\quad}$
e. $100 - 99 = \underline{\quad}$	f. $87 - 84 = \underline{\quad}$	g. $53 - 50 = \underline{\quad}$	h. $79 - 78 = \underline{\quad}$

6. Solve the word problems.

<p>a. Jane is on page 20 and Boyd is on page 17 of the same book. How many more pages has Jane read?</p>
<p>b. Mom has one dozen eggs plus five in another carton. A dozen means 12. How many eggs does mum have?</p>
<p>c. Barb is reading a 50-page book. She is on page 42. How many more pages does she have left to read?</p>

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Chapter 4: Adding and Subtracting with Two-Digit Numbers

Introduction

The fourth chapter of the *Math Mammoth Grade 2-A Complete Worktext* deals with addition and subtraction within 0-100, both mentally and in columns, especially concentrating on how to carry when adding in columns (trading) and how to borrow when subtracting in columns (regrouping).

Mental math

Mental math is important because it builds number sense. Chapter 4 includes many lessons that practice mental math. For example, the child practices adding and subtracting 2-digit numbers when one of the numbers is a whole ten (problems such as $30 + 14$, or $66 - 20$).

Also studied are problems such as $36 + 8$ or $45 + 9$. These problems connect with the idea of going over ten as in problems $6 + 8$ and $5 + 9$. So, just as the child knows that $6 + 8$ fills the first ten and is 14, he/she will learn that $36 + 8$ fills the next whole ten (40) and is 44.

Carrying to tens

Simultaneously with this, the child learns adding two-digit numbers in columns, and “carrying” to tens, which is illustrated and explained in detail with the help of pictures. Some people call it trading, as in trading 10 ones into 1 ten.

As a “stepping stone” into the usual way of adding in columns with a carry, you can show the child the method below. This can be used if the child does not readily understand why the little “1” that is carried corresponds to a ten. In the process below, the ones are added, and the answer is written using both columns. Then, the tens are added and the answer is written under the sum from ones. Lastly, both sums are added.

<table style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 0 5px;">tens</td><td style="padding: 0 5px;">ones</td></tr> <tr><td style="padding: 0 5px;">3</td><td style="padding: 0 5px;">6</td></tr> <tr><td style="padding: 0 5px;">+</td><td style="padding: 0 5px;">8</td></tr> <tr><td colspan="2" style="border-top: 1px solid black;"></td></tr> <tr><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">4</td></tr> </table> <p>add ones first →</p>	tens	ones	3	6	+	8			1	4	<table style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 0 5px;">tens</td><td style="padding: 0 5px;">ones</td></tr> <tr><td style="padding: 0 5px;">3</td><td style="padding: 0 5px;">6</td></tr> <tr><td style="padding: 0 5px;">+</td><td style="padding: 0 5px;">8</td></tr> <tr><td colspan="2" style="border-top: 1px solid black;"></td></tr> <tr><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">4</td></tr> <tr><td colspan="2" style="border-top: 1px solid black;"></td></tr> <tr><td style="padding: 0 5px;">4</td><td style="padding: 0 5px;">0</td></tr> </table> <p>add tens here →</p>	tens	ones	3	6	+	8			1	4			4	0	<table style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 0 5px;">tens</td><td style="padding: 0 5px;">ones</td></tr> <tr><td style="padding: 0 5px;">3</td><td style="padding: 0 5px;">6</td></tr> <tr><td style="padding: 0 5px;">+</td><td style="padding: 0 5px;">8</td></tr> <tr><td colspan="2" style="border-top: 1px solid black;"></td></tr> <tr><td style="padding: 0 5px;">1</td><td style="padding: 0 5px;">4</td></tr> <tr><td colspan="2" style="border-top: 1px solid black;"></td></tr> <tr><td style="padding: 0 5px;">4</td><td style="padding: 0 5px;">0</td></tr> <tr><td colspan="2" style="border-top: 1px solid black;"></td></tr> <tr><td style="padding: 0 5px;">5</td><td style="padding: 0 5px;">4</td></tr> </table> <p>total →</p>	tens	ones	3	6	+	8			1	4			4	0			5	4
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The lesson *Add in Columns Practice* contains problems where the sum is more than 100.

Borrowing or regrouping

The next lessons teach subtracting in columns. First we only deal with the easy problems where you don't need to regroup (borrow). Then the following lessons practice in detail the process of regrouping (borrowing). You can use either term with your child, or even choose not to use either if you feel it is confusing. You can alternatively use the phrase “breaking a ten into ten ones”.

First, the lesson *Regrouping* practices breaking down a ten into ten ones because we cannot subtract from the ones. It is crucial that the child understands what happens here. Otherwise, he/she might end up learning the procedure of borrowing as a memorized algorithm only, and will probably at some point misremember how it was done. That is why this lesson deals with the regrouping process in detail with

plenty of visual exercises.

If you notice that the child does not understand the concept of borrowing, he/she may need more practice with concrete manipulatives or visual exercises before proceeding.

More mental math

After learning regrouping, we practice mental subtraction in three separate lessons. One of them expounds on several methods for mental subtracting. Another is about Euclid's game - a fun game that also practices subtraction of two-digit numbers.

The Lessons

	page	span
Adding with Whole Tens	84	3 pages
Subtracting Whole Tens	87	2 pages
Regrouping with Tens	89	3 pages
Going Over to the Next Ten	92	3 pages
Add with Two-Digit Numbers Ending in 9	95	2 pages
Add in Columns Practice	97	2 pages
Add with Two-Digit Numbers Ending in 8 or 7.....	99	2 pages
Addition Practice	101	2 pages
Many Addends	103	3 pages
Subtracting in Columns	106	1 page
Regrouping (Borrowing), Part 1	107	3 pages
Regrouping (Borrowing), Part 2	110	3 pages
Regrouping (Borrowing), Part 3	113	2 pages
Graphs and Problems	115	3 pages
Mental Subtraction Methods	118	3 pages
Euclid's Game.....	121	3 pages
Review 1	124	1 page
Review 2	125	1 page

Helpful Resources on the Internet

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

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 = 2” to restrict the work to two-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.

http://nlvm.usu.edu/en/nav/frames_asid_155_g_1_t_1.html?from=category_g_1_t_1.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>

Techno Tortoise

Practice adding 2 two-digit numbers into parts on a number line.

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

Mr. Martini's Classroom: Addition and Subtraction Inequalities

Compare expressions that involve addition and subtraction of one and two-digit numbers.

<http://www.thegreatmartinicompany.com/inequalities/number-comparison.html>

and

<http://www.thegreatmartinicompany.com/inequalities/add-subtract-comparison.html>

Mr. Martini's Classroom: Long Addition

Practice adding two-digit numbers in columns online.

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

Simple Kids Math

Online practice of math problems.

<http://www.simplekidsmath.com/Default.aspx?level=2> - addition

<http://www.simplekidsmath.com/Default.aspx?level=3> - subtraction

Mathionare Addition Quiz

Answer increasingly more difficult addition questions (one and two-digit numbers), and win a million!

<http://www.mathsisfun.com/games/mathionaire-addition-quiz.html>

Button Beach Challenge

Figure out what number the various colored buttons represent.

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

Teaching Treasures - Year 2 Math Worksheets

Simple online addition and subtraction worksheets where the student types in the answer and can check it.

http://www.teachingtreasures.com.au/maths/maths_level2.html

Count on Convict

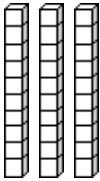
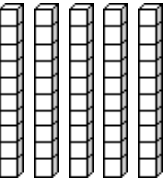
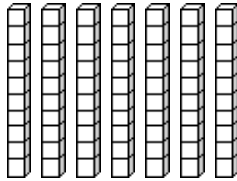
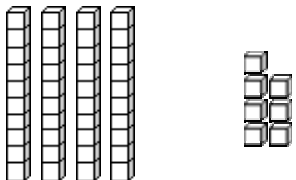
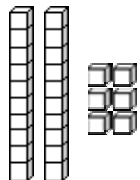
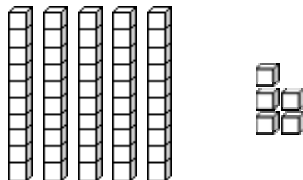
Practice "adding up" strategy for mental subtraction. First type the amount to move on to the next whole ten, then count on tens, then the rest.

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

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Subtracting Whole Tens

1. Cross out as many ten-pillars as the problem indicates. What is left?

<p>a. </p> <p>$30 - 10 = \underline{\hspace{2cm}}$</p>	<p>b. </p> <p>$50 - 30 = \underline{\hspace{2cm}}$</p>	<p>c. </p> <p>$70 - 40 = \underline{\hspace{2cm}}$</p>
<p>d. </p> <p>$47 - 20 = \underline{\hspace{2cm}}$</p>	<p>e. </p> <p>$26 - 10 = \underline{\hspace{2cm}}$</p>	<p>f. </p> <p>$55 - 30 = \underline{\hspace{2cm}}$</p>
<p>What can you notice?</p>		

2. Count by tens backwards.

a. 76, 66, _____, _____, _____, _____, _____

b. _____, _____, 52, 42, _____, _____, _____

c. _____, _____, _____, _____, 27, 17, _____

3. Subtract.

<p>a.</p> <p>$23 - 10 = \underline{\hspace{2cm}}$</p> <p>$23 - 20 = \underline{\hspace{2cm}}$</p>	<p>b.</p> <p>$48 - 20 = \underline{\hspace{2cm}}$</p> <p>$48 - 30 = \underline{\hspace{2cm}}$</p>	<p>c.</p> <p>$56 - 10 = \underline{\hspace{2cm}}$</p> <p>$56 - 30 = \underline{\hspace{2cm}}$</p>
<p>d.</p> <p>$75 - 10 = \underline{\hspace{2cm}}$</p> <p>$75 - 20 = \underline{\hspace{2cm}}$</p>	<p>e.</p> <p>$31 - 10 = \underline{\hspace{2cm}}$</p> <p>$31 - 20 = \underline{\hspace{2cm}}$</p>	<p>f.</p> <p>$81 - 40 = \underline{\hspace{2cm}}$</p> <p>$81 - 50 = \underline{\hspace{2cm}}$</p>

4. Find the pattern and continue it.

<p>a. $88 - 10 = \underline{\hspace{2cm}}$</p> <p>$88 - 20 = \underline{\hspace{2cm}}$</p> <p>$88 - 30 = \underline{\hspace{2cm}}$</p> <p>$88 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$88 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$88 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$88 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p>	<p>b. $100 - 60 = \underline{\hspace{2cm}}$</p> <p>$90 - 50 = \underline{\hspace{2cm}}$</p> <p>$80 - 40 = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p>	<p>c. $34 - 10 = \underline{\hspace{2cm}}$</p> <p>$44 - 20 = \underline{\hspace{2cm}}$</p> <p>$54 - 30 = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p> <p>$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$</p>
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5. Use rounded numbers to solve these problems.

- a. Three suitcases weigh 29 kg, 18 kg, and 31 kg.
About how much is their total weight?
- b. Chairs cost \$29 apiece. Can Dale buy three of them with \$80?
- c. Henry received \$50 for his birthday.
 If he buys three books that cost \$9 each,
about how much will he have left?

Puzzle Corner	Find numbers for the puzzles.	<table style="margin: auto;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">+</td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="padding: 0 10px;">=</td><td style="padding: 0 10px;">90</td></tr> <tr><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">-</td><td style="border: 1px solid black; width: 30px; height: 30px; background-color: #ff00ff;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">-</td><td colspan="2"></td></tr> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">+</td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="padding: 0 10px;">=</td><td style="padding: 0 10px;">30</td></tr> <tr><td style="padding: 5px 0 5px 10px;">=</td><td style="padding: 5px 0 5px 10px;">30</td><td style="padding: 5px 0 5px 10px;">=</td><td style="padding: 5px 0 5px 10px;">30</td><td></td></tr> </table>		+		=	90	-		-				+		=	30	=	30	=	30		<table style="margin: auto;"> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">-</td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="padding: 0 10px;">=</td><td style="padding: 0 10px;">40</td></tr> <tr><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">+</td><td style="border: 1px solid black; width: 30px; height: 30px; background-color: #ff00ff;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">+</td><td colspan="2"></td></tr> <tr><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="border: 1px solid black; width: 30px; height: 30px; text-align: center;">-</td><td style="border: 1px solid black; width: 30px; height: 30px;"></td><td style="padding: 0 10px;">=</td><td style="padding: 0 10px;">30</td></tr> <tr><td style="padding: 5px 0 5px 10px;">=</td><td style="padding: 5px 0 5px 10px;">80</td><td style="padding: 5px 0 5px 10px;">=</td><td style="padding: 5px 0 5px 10px;">10</td><td></td></tr> </table>		-		=	40	+		+				-		=	30	=	80	=	10	
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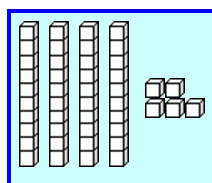
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Regrouping (Borrowing), Part 1

We will now study regrouping (“borrowing”) in subtraction.

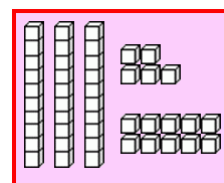
As a first step, we study breaking a ten-pillar into ten little cubes.

This is called *regrouping*, because one ten “changes groups” from the tens group into the ones.



4 tens 5 ones

Break
a ten.
→

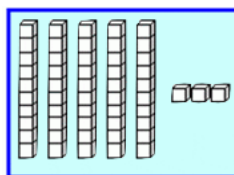


3 tens 15 ones

First we have 45. We “break” one ten-pillar into little cubes.

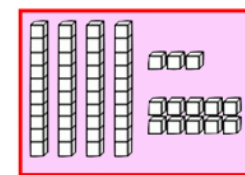
Now we have 3 tens and 15 ones. It is still 45, but written in a different way.

Here is another example. First we have 5 tens 3 ones. We “break” one ten-pillar into 10 little cubes. We end up with 4 tens 13 ones.



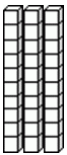
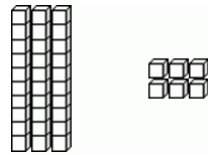
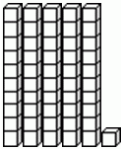
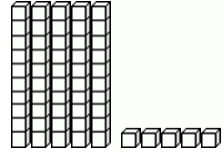
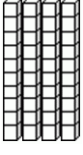
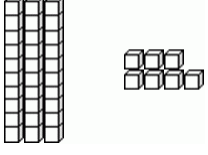
5 tens 3 ones

Break
a ten.
→



4 tens 13 ones

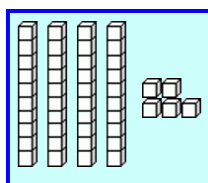
1. Break a ten into 10 ones. What do you get? Draw or use manipulatives to help.

<p>a.  →</p> <p>3 tens 0 ones → ___ tens ___ ones</p>	<p>b.  →</p> <p>___ tens ___ ones → ___ tens ___ ones</p>
<p>c.  →</p> <p>___ tens ___ ones → ___ tens ___ ones</p>	<p>d.  →</p> <p>___ tens ___ ones → ___ tens ___ ones</p>
<p>e.  →</p> <p>___ tens ___ ones → ___ tens ___ ones</p>	<p>f.  →</p> <p>___ tens ___ ones → ___ tens ___ ones</p>

Let's study subtraction. The pictures on the right illustrate $45 - 17$.

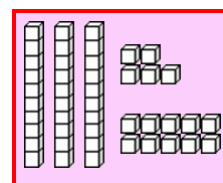
First, a ten is broken into 10 ones.
So, 4 tens 5 ones becomes
3 tens 15 ones.

After that, cross out (subtract)
1 ten 7 ones.



4 tens 5 ones

Break
a ten.
→



3 tens 15 ones

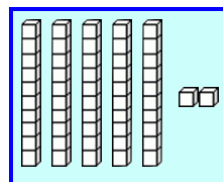
Cross out 1 ten 7 ones (from the *second* picture).

What is left? ____ tens ____ ones

The pictures on the right illustrate $52 - 39$.

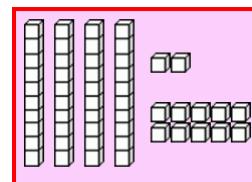
First, a ten is broken into 10 ones.
So, 5 tens 2 ones becomes
4 tens 12 ones.

After that, cross out (subtract)
3 tens 9 ones.



5 tens 2 ones

Break
a ten.
→

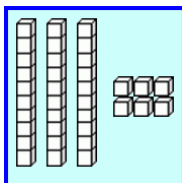


4 tens 12 ones

Cross out 3 tens 9 ones (from the *second* picture).

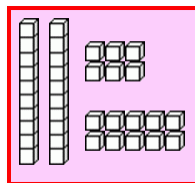
What is left? ____ tens ____ ones

2. Fill in. Always subtract (cross out some) from the *second* picture.



3 tens 6 ones

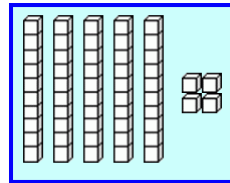
Break
a ten.
→



2 tens 16 ones

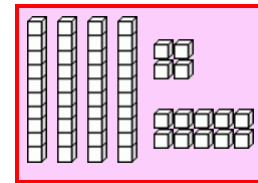
a. Subtract 8 ones (from the *second* picture).

What is left? ____ tens ____ ones



____ tens ____ ones

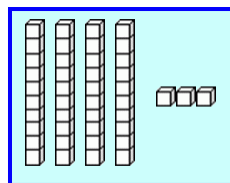
Break
a ten.
→



____ tens ____ ones

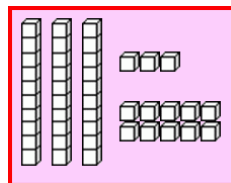
b. Subtract 2 tens 7 ones.

What is left? ____ tens ____ ones



____ tens ____ ones

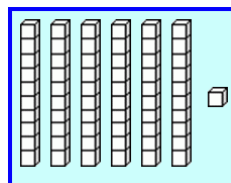
Break
a ten.
→



____ tens ____ ones

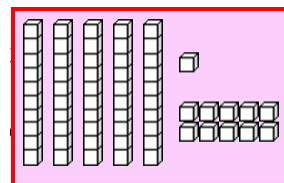
c. Cross out 2 tens 5 ones.

What is left? ____ tens ____ ones



____ tens ____ ones

Break
a ten.
→



____ tens ____ ones

d. Cross out 4 tens 4 ones.

What is left? ____ tens ____ ones

3. First, break a ten. Then subtract ones and tens separately. Look at the example.

<p>a. 5 tens 5 ones \Rightarrow $\begin{array}{r} 4 \text{ tens } 15 \text{ ones} \\ - 3 \text{ tens } 5 \text{ ones} \\ \hline 3 \text{ tens } 8 \text{ ones} \end{array}$</p>	<p>b. 7 tens 2 ones \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 3 \text{ tens } 5 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>
<p>c. 6 tens 0 ones \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 2 \text{ tens } 7 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>	<p>d. 6 tens 4 ones \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 3 \text{ tens } 8 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>
<p>e. 7 tens 6 ones \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 4 \text{ tens } 7 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>	<p>f. 5 tens 0 ones \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 2 \text{ tens } 2 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>
<p>g. 8 tens 1 one \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 6 \text{ tens } 5 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>	<p>h. 6 tens 3 ones \Rightarrow $\begin{array}{r} \square \text{ tens } \square \text{ ones} \\ - 2 \text{ tens } 8 \text{ ones} \\ \hline \square \text{ tens } \square \text{ ones} \end{array}$</p>

4. Jessica had 37 colored pencils. Then she gave 12 colored pencils to her brother, and 6 pencils to her sister.

- How many pencils does Jessica have now?
- How many more pencils does Jessica have than her brother?
- How many more pencils does Jessica have than her sister?

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Chapter 5: Counting Money

Introduction

The fifth chapter of the *Math Mammoth Grade 2-A Complete Worktext* covers counting quarters, dimes, nickels, and pennies. Also, the one-dollar bill and the five-dollar bill are introduced.

Counting Coins

The main goal of this chapter is to be able to count coins and find the amount of money in cents or dollars.

Also practiced is finding change by counting up. Only small money amounts are used.

In one lesson, the one-dollar bill and the five-dollar bill are introduced, and the student learns to write money amounts using dollars and cents, with the decimal point in between.

The latter part of second grade also includes a lesson about adding money amounts.

You can make free worksheets for counting coins at www.homeschoolmath.net/worksheets/money.php, or using the worksheets generator that comes with the supportive materials of this curriculum.

The Lessons

	page	span
Counting Coins Review	128	3 pages
Change.....	131	3 pages
Dollars	134	3 pages
Counting Change	137	2 pages

Helpful Resources on the Internet

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

US Money Worksheets

Count common US coins or bills. You can choose which coins/bills will be used, and how many coins/bills are shown at most. Other currencies are available at www.homeschoolmath.net/worksheets
<http://www.homeschoolmath.net/worksheets/money.php>

Change Maker

Determine how many of each denomination you need to make the exact change. Good and clear pictures! Playable in US, Canadian, Mexican, UK, or Australian money.
<http://www.funbrain.com/cashreg/index.html>

Using Money

Drag the right amount of coins and bills (US) to the answer space to match the given amount. The pictures look a little fuzzy.
<http://www.mathcats.com/microworlds/usingmoney.html>

Counting Money Activity from Harcourt

Count the coin value and type it into the box and click “Check”.
http://www.hbschool.com/activity/counting_money/

Cash Out

Give the correct change by clicking on the bills and coins.
<http://www.mrnussbaum.com/cashd.htm>

Piggy bank

When the coins fall from the top of the screen, choose those that add up to the given amount, and the piggy bank fills.
<http://fen.com/studentactivities/Piggybank/piggybank.html>

Coins and Medals from U.S. Mint

History and pictures of the circulating coins, commemorative coins, Native American \$1 Coin Program, and the Presidential \$1 Coin Program. Learn also how coins are made and take a virtual tour around the mint.
www.usmint.gov/kids/coinsMedals

Money Instructor

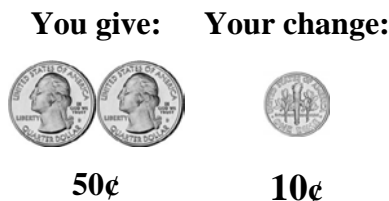
Checkbook math exercises and worksheets. Includes a checkbook to print, writing dollars and cents worksheet, checking account deposit, checkbook transactions, and word problems.
<http://www.moneyinstructor.com/checks.asp>

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Change

When you buy something in a store, you often do not have the exact amount of money to pay for it. Instead, you give the clerk *more* money than what the item costs. The clerk then gives you some money back. This is called your *change*.

A pen costs 40¢. You don't have the coins to make exactly 40¢, so you give the clerk 50¢. That is 10¢ too much! But then the clerk gives you back 10¢ — your change.



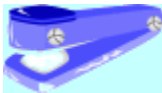















The clerk gives you back the *difference* between the price and what you paid.

In each problem below, find the change you get back. Think of the DIFFERENCE between the price and what you pay. Or, think how many cents you paid “too much”. That will be your change.







You can set up a “play store” to do these problems, using real money, one person as a clerk, and one person as a customer.

1. Write how many cents you give, and how many cents is your change.

<p>a. You give: Your change:</p>   <p>Price: 20¢ _____¢ _____¢</p>	<p>b. You give: Your change:</p>   <p>Price: 30¢ _____¢ _____¢</p>
<p>c. You give: Your change:</p>   <p>Price: 35¢ _____¢ _____¢</p>	<p>d. You give: Your change:</p>   <p>Price: 17¢ _____¢ _____¢</p>

<p>e. You give: Your change:</p>   <p>Price: 22¢ _____¢ _____¢</p>	<p>f. You give: Your change:</p>   <p>Price: 11¢ _____¢ _____¢</p>
<p>g. You give: Your change:</p>   <p>Price: 60¢ _____¢ _____¢</p>	<p>h. You give: Your change:</p>   <p>Price: 80¢ _____¢ _____¢</p>


2. Circle the coins you use to pay. Write how many cents your change is.

<p>a. You buy a drink for 55¢.</p>	<p>You have:</p> 	<p>Change: _____ ¢</p>
<p>b. You buy raisins for 33¢.</p>	<p>You have:</p> 	<p>Change: _____ ¢</p>
<p>c. You buy a toy for 46¢.</p>	<p>You have:</p> 	<p>Change: _____ ¢</p>
<p>d. You buy a book for 88¢.</p>	<p>You have:</p> 	<p>Change: _____ ¢</p>
<p>e. You buy a basket for 75¢.</p>	<p>You have:</p> 	<p>Change: _____ ¢</p>
<p>f. You buy crayons for 63¢.</p>	<p>You have:</p> 	<p>Change: _____ ¢</p>

3. Practice some more! Figure out the change.

a. Paper costs 70¢. You give \$1. Change: _____¢	b. A banana costs 41¢. You give 50¢. Change: _____¢	c. A book costs 94¢. You give \$1. Change: _____¢
d. A toy costs 20¢. You give 50¢. Change: _____¢	e. A drink costs 70¢. You give \$1. Change: _____¢	f. A towel costs 62¢. You give 75¢. Change: _____¢

4. Now you buy many items. First add their prices to find the total. Then find the change.
Draw the coins that could be your change.

a. A magazine costs 20¢. You buy three of them. You give \$1. <u>Total cost: 60¢</u>  <u>Change: 40¢</u>
b. A toy costs 15¢ and another toy 20¢. You give 50¢. Total cost: _____ ¢ Change: _____ ¢
c. A lollipop costs 8¢. You buy two of them. You give 20¢. Total cost: _____ ¢ Change: _____ ¢
d. A pencil costs 5¢. You buy four of them. You give 25¢. Total cost: _____ ¢ Change: _____ ¢
e. An eraser costs 35¢ and a pencil 10¢. You give 50¢. Total cost: _____ ¢ Change: _____ ¢