

math

MAMMOTH

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



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By Maria Miller

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Foreword

Math Mammoth Grade 1-A and Grade 1-B worktexts comprise a complete math curriculum for the first grade mathematics studies. This curriculum is aligned to the Common Core standards. The four main areas of study for first grade are:

1. The concepts of addition and subtraction, and strategies for addition and subtraction facts (chapters 1-2 and chapter 4);
2. Developing understanding of whole number relationships and place value till 100 (chapter 3 and chapter 7);
3. Developing understanding of measuring lengths as iterating length units (chapter 6); and
4. Reasoning about attributes of geometric shapes, such as the number of sides and the number of corners, and composing and decomposing geometric shapes (chapter 6).

Additional topics we study in the first grade are the clock to the half hour (chapter 5) and counting coins (chapter 8).

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, the clock, shapes and measuring, adding and subtracting with two-digit numbers, and counting coins.

When you use these two books as your only or main mathematics curriculum, they 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 geometry, clock, and money sections in a different order. This might even be advisable if your child is “stuck” on some concept, or is getting bored. Sometimes the brain “mulls it over” in the background, and the concept he/she was stuck on can become clear after a break.

Math Mammoth 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 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, the download version includes an html page called *Make_extra_worksheets_grade1.htm* that you can use to make additional worksheets for computation or for number charts. You can also simply reprint some already studied pages. Also, the third chapter that practices addition and subtraction facts contains a lot of pages with problems, so you can choose to “save” some of them for later review.

I wish you success in your math teaching!

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

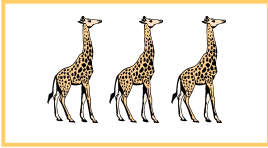
The Lessons in Chapter 0

	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>

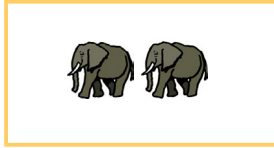
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Counting

1. Count. Write the number in the box.



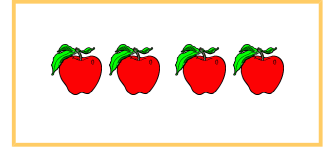
a.



b.



c.



d.



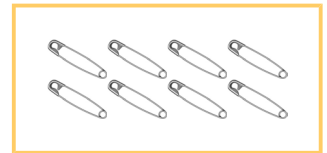
e.



f.



g.

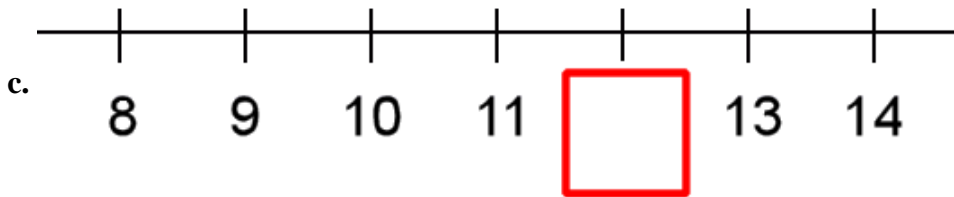
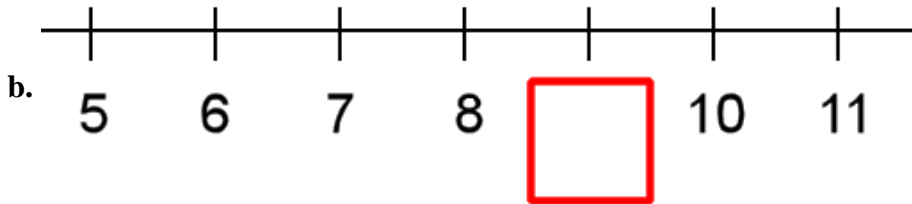
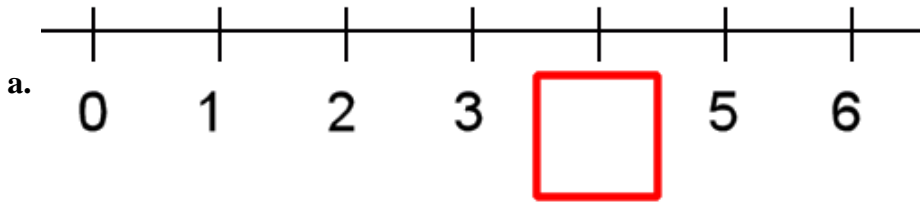


h.

2. Count. Write the number. Then circle the number that is MORE.

<p>a.</p> <table><tbody><tr><td></td><td></td></tr><tr><td><input type="text"/></td><td><input type="text"/></td></tr></tbody></table>			<input type="text"/>	<input type="text"/>	<p>b.</p> <table><tbody><tr><td></td><td></td></tr><tr><td><input type="text"/></td><td><input type="text"/></td></tr></tbody></table>			<input type="text"/>	<input type="text"/>
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3. Write the missing number below the number line.

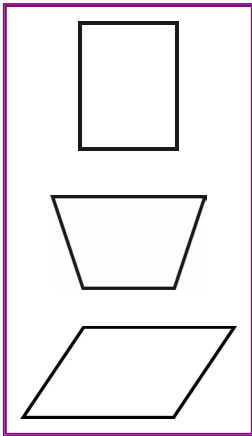


4. Circle the group that has more things. Then count ALL (both groups).
Write the number in the box below.

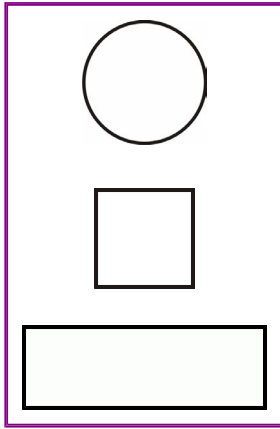
<p>a.</p> <input type="text"/>	<p>b.</p> <input type="text"/>	<p>c.</p> <input type="text"/>
<p>d.</p> <input type="text"/>	<p>e.</p> <input type="text"/>	<p>f.</p> <input type="text"/>

Position Words, Colors, and Shapes

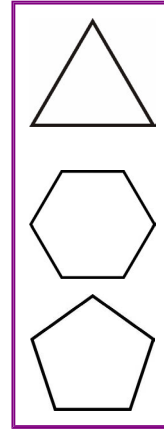
1. a. Color RED
the top shape.



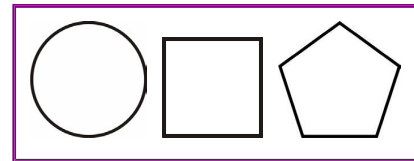
b. Color BLUE
the bottom shape.



c. Color YELLOW
the middle shape.



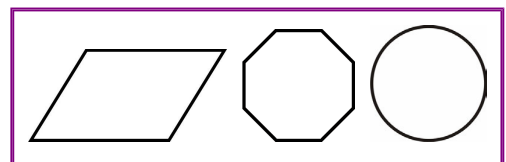
2. a. Color GREEN the shape on the right.



b. Color BLUE the shape in the middle.



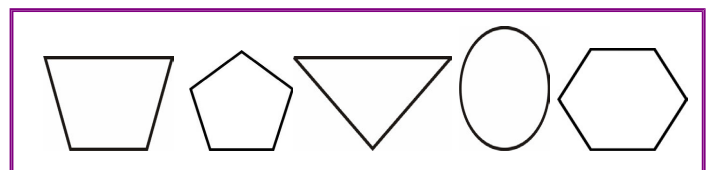
c. Color YELLOW the shape on the left.



d. Color ORANGE two shapes
on the right.



e. Color PURPLE two shapes
on the left.



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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 mentioned below can take several days to finish. They are not “daily lessons.”

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

If the student does not yet know the symbols “+” and “=”, 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/her own speech. This will make it easier for him/her to use the written symbols.

In the lesson Which is More? the symbols < and > are introduced, 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 $2 + 3 < 4 + 4$.

The lesson Missing Items introduces missing addend or unknown-addend problems. This means problems such as $1 + \underline{\quad} = 5$ or $\underline{\quad} + 3 = 8$, where a number to be added is missing. First, we use pictures for these problems, and then gradually only symbols. Missing addend problems are very important, as they lead the students to learn the connection between addition and subtraction, develop the correct understanding of the equal sign, and lead towards algebraic thinking.

Children *may* confuse the problem $1 + \underline{\quad} = 5$ with $1 + 5 = \underline{\quad}$. To help the children see the difference, you can word these problems like this: “*One and how many more makes five?*” You can model them by drawing. First draw one ball. Tell the child that we need a total of five balls. He/she needs to draw more until there are five balls.

In the missing addend problem $1 + \underline{\quad} = 5$, however many balls the child draws is the number that goes on the empty line. So, first there is one ball, then we need to add (draw) some more to make 5. How many more were drawn?

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. Soon after that, we study sums with 6, sums with 7, and so on. Their goal is to help the child become fluent in addition within 10, or in other words memorize addition facts within 10.

However, your child does not need to memorize them yet. All these lessons are building toward that goal, but the final mastery of addition facts doesn't have to happen this early in 1st grade.

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

1. Structured drill, such as you see in the lessons Sums with 5, Sums with 6, and so on. This is not a random drill, because you will start by showing the pattern or the structure in the facts. This will help the student to tie the addition facts in with a context and help him/her understand the facts on a conceptual level, instead of merely memorizing them at random. The number combinations that add up to a certain number is the basis for the drills.

2. Using addition facts in games, in math problems, everyday life, or anywhere else. Games are especially useful because they help children to like mathematics.
3. Random drilling may also be used as a tool among others.
4. Memory helps such as 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 further and used in the next chapters about subtraction, and in all later math work since they are constantly used. I recommend children become fluent with addition facts within 0-10 by the end of first grade, as mentioned in the Common Core Standards. The first three chapters in Math Mammoth Grade 1-A constantly practice all these facts. If your child does not know them by heart by the time you start the 1-B book, keep up practicing them with games and other drills.

Please also see the following page for a few games that I recommend using while studying this chapter. Games are important at this level, as they help children practice the addition facts and also make math fun.

Another important thread running through the chapter is to develop children's understanding of the signs $+$, $<$ and $>$. Children need to get used to equations such as $9 = 5 + 4$ or $2 < 5 + 4$. They need to understand the equation $2 + \underline{\quad} = 6$ correctly as an unknown addend problem, and not as the addition problem $2 + 6$, as I mentioned before. This is all done 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 such misconception will treat the equation $9 = \underline{\quad} + 4$ as an addition problem $9 + 4$.

We also study addition on a number line, which is an important way to model addition. Children also encounter adding many numbers, addition tables, number patterns, word problems, and get used to a symbol for the unknown number (a geometric shape, such as in $\square + 5 = 10$). So, while it looks on the surface like all we do is add small numbers, actually a lot happens and is learned in this chapter!

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 picture cards, Uno cards without the special cards, etc.

Rules: Deal seven cards to each player. Place the rest in a stack in the middle, face down.

At his turn, each player *may* first take one card from the deck. Then, each player *may* ask for one card from the player on his right (like in 'Go Fish'), and the person has to give him the card if he has it. Then the player may discard any two cards in his hand that add up to 10, or the card 10 itself.

The player who first discards all cards from his hand, wins.

Adaptations:

- * Deal more cards instead of seven.
- * Deal fewer cards if there are very many players or the players are 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 picture cards for 11, 12, and 13.

Some Went Hiding

You need: As many small objects as is the sum you are studying. For example, to study the sums with 5, you need 5 marbles, or 5 blocks, etc.

Rules: The first player shows the objects, and quickly hides SOME behind his/her back without showing how many. Then he/she shows the remaining objects to the next player, who has to tell how many went hiding. If the player gives the right answer, it is then his/her turn to hide some and ask the next player to answer. If he gives the wrong answer, he misses his turn. This game appeals best to young children.

Adaptations:

- * Instead of getting a turn, the player may gain points or other rewards for the right answer.

Addition (or Subtraction) Battle

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

Rules: In each round, each player is dealt two cards face up, and has to calculate the sum (add/subtract). The player with the highest sum gets all the cards from the other players. After enough rounds so that all of the cards are used, the player with the most cards wins.

If there is a tie, such as two players have the sum of 11, those players get an additional two cards and "battle" with those to resolve the tie.

Adaptations:

- * 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.

Sample worksheet from

www.mathmammoth.com

The Lessons in Chapter 1

	page	span
Two Groups and a Total	20	3 pages
Learn Symbols “ + ” and “ = ”	23	3 pages
Addition Practice 1	26	2 pages
Which is More?	28	2 pages
Missing Items	30	5 pages
Sums with 5	35	2 pages
Sums with 6	37	2 pages
Adding on Number Line	39	4 pages
Sums with 7	43	3 pages
Sums with 8	46	3 pages
Adding Many Numbers	49	3 pages
Addition Practice 2	52	2 pages
Sums with 9	54	4 pages
Sums with 10	58	4 pages
Comparisons	62	3 pages
Review of Addition Facts	65	4 pages

Helpful Resources on the Internet

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

Addition Exercise from Dositey.com

Write how many worms are on each of two leaves, and how many together.

<http://www.dositey.com/addsub/addex1.htm>

Children's Addition Quiz

A set of five interactive addition problems that you answer online.

<http://www.thegreatmartinicompany.com/Math-Quick-Quiz/addition-kid-quiz.html>

Number Bond Machines

Practice which two numbers add up to a given number.

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

Save the Whale

Find how much the given “pipe” length is missing from 10 and save the whale.

http://www.ictgames.com/save_the_whale_v4.html

Fun 4 The Brain

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

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

Children' Compare Numbers from Mr. Martini's Classroom

Compare two numbers. Press the number below to choose the biggest number that will appear.

<http://www.thegreatmartinicompany.com/Children-Math/compare-number.html>

Addition and Subtraction Game from The Little Animals Activity Centre

Solve simple addition and subtraction problems by clicking on the ladybug with the right answer.

<http://www.bbc.co.uk/schools/laac/numbers/chi.shtml>

Number Line Arithmetic

Use this virtual manipulative to illustrate addition on a number line.

http://nlvm.usu.edu/en/nav/frames_asid_156_g_1_t_1.html

Line Jumper

Addition questions on a number line.

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

Sum Stacker

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

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

Tux Math

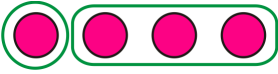
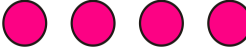




A versatile arcade game for math facts with many options. Includes all operations. You need to shoot falling comets that can damage penguins' igloos. **Price:** Free.

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


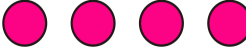

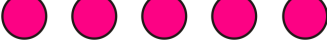





See also my review: <http://homeschoolmath.blogspot.com/2011/05/tux-math.html>

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>

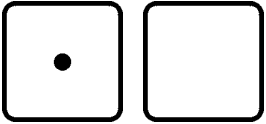
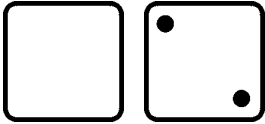
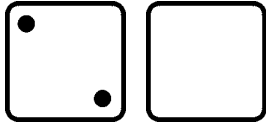
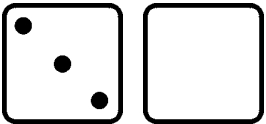
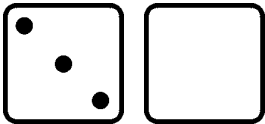
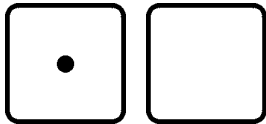
2. Make two groups. Write how many are in the second group.


<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 make two groups however you like.
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 empty die face.
Write on the lines how many dots are on each die face.

<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>



2 and 2





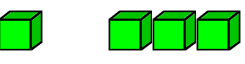



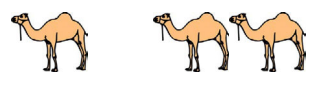
“Two and two makes four.”



1 and 4

“One and four makes five.”

5. Write how many are in each group. Write the total in the box.

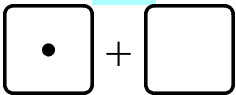

<p>a. </p> <p>_____ and _____ <input type="text"/></p>	<p>b. </p> <p>_____ and _____ <input type="text"/></p>	<p>c. </p> <p>_____ and _____ <input type="text"/></p>
<p>d. </p> <p>_____ and _____ <input type="text"/></p>	<p>e. </p> <p>_____ and _____ <input type="text"/></p>	<p>f. </p> <p>_____ and _____ <input type="text"/></p>
<p>g. </p> <p>_____ and _____ <input type="text"/></p>	<p>h. </p> <p>_____ and _____ <input type="text"/></p>	<p>i. </p> <p>_____ and _____ <input type="text"/></p>

6. Draw circles for each number. Write the total in the box.

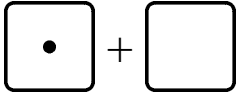
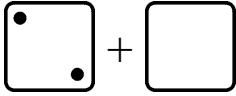
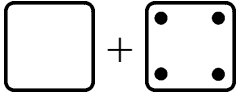
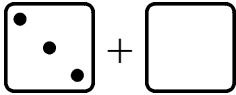
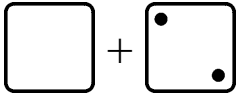
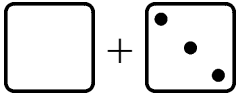
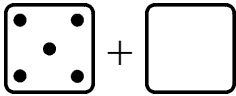
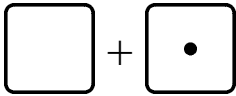
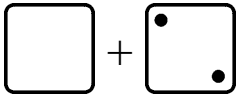
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<p>c. 3 and 3 <input type="text"/></p>	<p>d. 1 and 4 <input type="text"/></p>



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Missing Items

<p>Something is missing from the addition. The TOTAL is not missing. The total is 5.</p> <p>How many are in the second group? That's what is missing!</p> <p>There should be a total of 5 dots. Draw 4 in the second die face.</p>	<p>5</p>  <p>1 + _____</p>
<p>There should be a total of 4 dots. The second die face has two. There are none in the first die face, so you need to draw them.</p> <p>Read: "2 plus what number makes 4?" or, "2 and how many more makes 4?" or, "What number and 2 makes 4?"</p>	<p>4</p>  <p>_____ + 2</p>



1. Draw more dots for the addition. Write the missing number. The total is on top.

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

 + 

$3 + \underline{\quad} = 5$





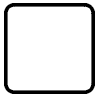





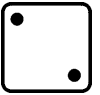





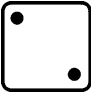







The **TOTAL** is now written after the equal sign “ = ”.
 The answer is $3 + \underline{2} = 5$

 + 

$\underline{\quad} + 3 = 4$

See the **TOTAL** written after the equal sign “ = ”.
 The answer is $\underline{1} + 3 = 4$

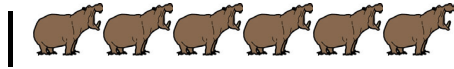

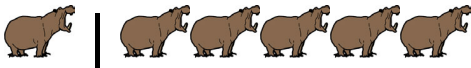

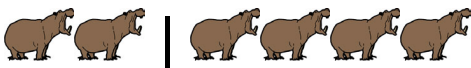


2. Draw more dots to show the missing number. Write the missing number.

<p>a.  + </p> <p>$2 + \underline{\quad} = 4$</p>	<p>b.  + </p> <p>$1 + \underline{\quad} = 1$</p>	<p>c.  + </p> <p>$\underline{\quad} + 1 = 5$</p>
<p>d.  + </p> <p>$3 + \underline{\quad} = 5$</p>	<p>e.  + </p> <p>$\underline{\quad} + 1 = 4$</p>	<p>f.  + </p> <p>$2 + \underline{\quad} = 3$</p>
<p>g.  + </p> <p>$5 + \underline{\quad} = 5$</p>	<p>h.  + </p> <p>$\underline{\quad} + 1 = 3$</p>	<p>i.  + </p> <p>$2 + \underline{\quad} = 5$</p>
<p>j.  + </p> <p>$1 + \underline{\quad} = 5$</p>	<p>k.  + </p> <p>$\underline{\quad} + 2 = 2$</p>	<p>l.  + </p> <p>$3 + \underline{\quad} = 4$</p>

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Sums with 6

1. Six hippos are grouped into two groups, in different ways. Write the addition sentences.

 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	

2. Play “6 Out” *and/or* “Some Went Hiding” with 6 objects (see the introduction).

3. **Drill.** Don't write the answers but just think them in your head.

$1 + \square = 6$

$4 + \square = 6$

$\square + 2 = 6$

$\square + 3 = 6$

$2 + \square = 6$

$3 + \square = 6$

$\square + 0 = 6$

$\square + 1 = 6$

$6 + \square = 6$

$5 + \square = 6$

$\square + 4 = 6$

$\square + 5 = 6$





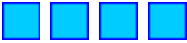












4. Add the numbers and write the total on the line.

a. $1 + 5 = \underline{\hspace{2cm}}$

b. $2 + 3 = \underline{\hspace{2cm}}$



c. $4 + 2 = \underline{\hspace{2cm}}$

5. Draw more little boxes to illustrate the missing number.

<p>a. </p> <p>2 +  = 6</p>	<p>b. </p> <p>2 +  = 5</p>	<p>c. </p> <p>4 +  = 6</p>
<p>d. </p> <p>3 +  = 6</p>	<p>e. </p> <p>1 +  = 6</p>	<p>f. </p> <p>5 +  = 6</p>
<p>g. </p> <p>1 +  = 5</p>	<p>h.</p> <p>0 +  = 6</p>	<p>i. </p> <p>3 +  = 5</p>



6. Jack and Jill share 5 cucumbers and 6 lemons in different ways. Find how many Jill gets. You can cover the cucumbers or lemons with your hand to help.

a. 5

Jack gets:	Left for Jill:
2	
1	
5	
3	
0	
4	

b. 6

Jack gets:	Left for Jill:
1	
4	
5	
0	
2	
3	

7. Add.

2 + 3 = _____

4 + 1 = _____

3 + 3 = _____

4 + 2 = _____

1 + 3 = _____

1 + 5 = _____

2 + 2 = _____

2 + 4 = _____

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Chapter 2: Subtraction Within 0-10

Introduction

The second chapter of *Math Mammoth Grade 1-A* covers the concept of subtraction, its various meanings, and the relationship between addition and subtraction. Keep in mind that the specific lessons mentioned below can take several days to finish. They are not “daily lessons.”

In the first lesson, Subtraction is Taking Away, the child learns the basic meaning of subtraction as taking away objects, and learns to write subtractions from an illustration where some objects are crossed out. The child can figure out the subtraction problems by simply counting how many objects are left.

If your child does not yet know the word “minus”, it is a good idea to introduce it first *orally*. Use blocks or other concrete objects. For example, show the child eight blocks, and take away three blocks. Then use both kinds of wordings: “*Eight blocks, take away three blocks, leaves five blocks. Eight blocks minus three blocks equals five blocks.*” Then let the child do the same. Play with concrete objects until the child can use the words “minus” and “equals” in his/her own speech.

In the next lesson, the child counts down to subtract, also tying in that concept with the number line. This is a transitional strategy to solve subtraction problems, because later on students will learn more efficient ways to subtract, but it is important conceptually. For now, the student can solve $9 - 3$ by counting down three steps from nine: eight, seven, six. So the answer is six.

In the next lesson, Subtraction and Addition in the Same Picture, we start to study the relationship between addition and subtraction. This concept will span several lessons. This first lesson presents two sets of objects, such as blue and white balls, and the student writes both an addition sentence and a subtraction sentence from this illustration.

The lesson When Can You Subtract? concentrates on the idea that some subtractions, such as $4 - 5$ are meaningless when you think of taking away. The child also makes subtraction patterns in this lesson.

Then we continue studying the connection between addition and subtraction in the lesson Two Subtractions from One Addition. Writing two subtractions from one addition means for example writing both $8 - 3 = 5$ and $8 - 5 = 3$ from the addition $3 + 5 = 8$. This idea ties in with *fact families*, a concept that is coming up soon.

In the lesson Two Parts — One Total we study word problems that don't involve the idea of taking away, but have two parts making up a total. For example, if there are 10 white and red flowers, and seven of them are white, how many are red? We know the “parts” (the red and white flowers) add up to 10, so we can write a missing addend addition $7 + \underline{\quad} = 10$. This can be solved by subtracting $10 - 7$, or by knowing the addition fact $7 + 3 = 10$. Then we study Fact Families. This means writing two additions and two subtractions using the same three numbers. Fact families will be used extensively in the next chapter.

In the lesson How Many More? students solve problems of how many more or how many fewer objects one person has than the other by drawing the objects. You can also adapt this lesson to be done with manipulatives.

In the very next lesson (“How Many More” Problems and Difference) we continue the theme, this time writing a missing addend addition for “how many more” problems. For example, Veronica has 4 marbles and Ann has 6. We can write a missing addend addition: $4 + \underline{\quad} = 6$, to find how how many more Ann has. In the next lesson (“How Many More” Problems and Subtraction) we finally write a subtraction for problems that ask “how many more.”

The Lessons in Chapter 2

	page	span
Subtraction Is “Taking Away”	72	3 pages
Count Down to Subtract	75	4 pages
Subtraction and Addition in the Same Picture	79	4 pages
When Can You Subtract?	83	4 pages
Two Subtractions from One Addition	87	3 pages
Two Parts — One Total	90	3 pages
Fact Families	93	4 pages
How Many More	97	3 pages
“How Many More” Problems and Difference	100	4 pages
“How Many More” Problems and Subtraction	104	4 pages
Review	108	1 page

Helpful Resources on the Internet

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

Kids' Subtraction Quiz from Mr. Martini's Classroom

Five problems to solve online. You can choose the highest number used from the list of numbers below the quiz.

<http://www.thegreatmartinicompany.com/Math-Quick-Quiz/subtraction-kid-quiz.html>

Subtraction Mystery Picture

Find out the picture behind the tiles by solving subtraction questions within 0-10.

<http://www.dositey.com/addsub/Mystery4.htm>

Matching Pictures to Number Sentences

Find the correct number sentence to go along with the picture.

http://www.haelmedia.com/html/mc_m1_001.html

Match Pictures to Number Sentences

Match pictures to either addition or subtraction number sentences.

http://www.haelmedia.com/html/mc_m1_001.html

Addition and Subtraction Game from The Little Animals Activity Centre

Solve simple addition and subtraction problems by clicking on the ladybug with the right answer.

<http://www.bbc.co.uk/schools/laac/numbers/chi.shtml>

Subtraction Game from Count Us In

Subtract two numbers which bowls a ball down a bowling alley lane.

<http://www.abc.net.au/countusin/games/game8.htm>

Take It Away

Subtract and click on the correct answer.

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

Subtraction Pinball

When the ball hits numbers, it defines a problem. Next you choose the correct answer.

<http://www.playkidsgames.com/games/pinball/subtraction/defaultk1.htm>

Simple Subtraction

Help the duck fly faster by clicking on the cloud with the correct answer.

<http://www.toonuniversity.com/flash.asp?err=513&engine=12>

Save the Apples!

Click on the correct basket to get the monkey to carry the apple basket. A crocodile is waiting!

<http://www.playkidsgames.com/games/apples/savetheApples.htm>

Busy Bees

Figure out how many of the 10 bees went inside the hive.

http://www.hbschool.com/activity/busy_bees/index.html

Soccer Subtraction

Click to make the players disappear until the subtraction sentence is true.

http://www.ictgames.com/soccer_subtraction.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](#).

Price: Free





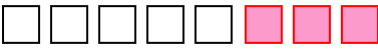
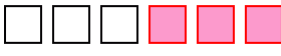
<http://sourceforge.net/projects/tuxmath>

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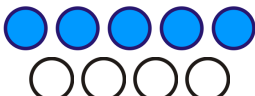



Subtraction and Addition in the Same Picture

<p>How many colored circles? How many white ones?</p>  <p><u>4</u> + <u>6</u> = 10</p>	 <p><u>3</u> + <u>4</u> = 7</p>
<p>Cover the colored circles. Write a subtraction sentence.</p>  <p>10 - <u>4</u> = <u>6</u></p>	<p>Cover the colored circles.</p>  <p>7 - <u>3</u> = <u>4</u></p>

1. Make an addition sentence and a subtraction sentence from the same picture.

<p>a. </p> <p>_____ + _____ = _____</p> <p>7 - _____ = _____</p>	<p>b. </p> <p>_____ + _____ = _____</p> <p>6 - _____ = _____</p>
<p>c. </p> <p>_____ + _____ = _____</p> <p>5 - _____ = _____</p>	<p>d. </p> <p>_____ + _____ = _____</p> <p>6 - _____ = _____</p>
<p>e. </p> <p>_____ + _____ = _____</p> <p>8 - _____ = _____</p>	<p>f. </p> <p>_____ + _____ = _____</p> <p>6 - _____ = _____</p>

2. Make an addition sentence and a subtraction sentence for the same picture.


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

3. In each problem, draw circles and then color some circles to fit the addition sentence. Then cover the **COLORED** circles and make a subtraction sentence.

<p>a. $7 + 1 = \underline{\quad}$</p> <p>_____ - _____ = _____</p>	<p>b. $6 + 3 = \underline{\quad}$</p> <p>_____ - _____ = _____</p>
<p>c. $2 + 3 = \underline{\quad}$</p> <p>_____ - _____ = _____</p>	<p>d. $2 + 5 = \underline{\quad}$</p> <p>_____ - _____ = _____</p>
<p>e. $7 + 4 = \underline{\quad}$</p> <p>_____ - _____ = _____</p>	<p>f. $3 + 3 = \underline{\quad}$</p> <p>_____ - _____ = _____</p>

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Two Parts — One Total

<p>There are ten marbles. Some are blue and seven are green. How many are blue?</p> <p>You can write an addition sentence. You can ALSO write a subtraction sentence, even though nothing is taken away.</p>	<div style="text-align: center;">  </div> <div style="text-align: center; margin-top: 10px;"> $\underline{\quad\quad} + 7 = 10$ $10 - 7 = \underline{\quad\quad}$ </div> <p style="text-align: center; font-size: small;">Cover part of the total (the green marbles), and you will see the other part (the blue marbles).</p>
<p>There are five blue marbles and some green marbles in a bag. There is a total of nine marbles. How many are green?</p> <p>Draw the marbles. Write an addition sentence AND a subtraction sentence.</p>	<div style="text-align: center; margin-top: 20px;"> $\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$ $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$ </div>

1. Solve the word problems. Write an addition sentence AND a subtraction sentence.

<p>a. Mom put some blue and red flowers in a vase. Jen counted five red flowers, and a total of ten flowers. How many of the flowers are blue?</p>	<div style="text-align: center; margin-top: 20px;"> $\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$ $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$ </div>
<p>b. There are nine children on a team, and four of them are boys. How many are girls?</p>	<div style="text-align: center; margin-top: 20px;"> $\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$ $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$ </div>

c. Jack has ten socks in his basket. Eight of them are white, and the rest are black.
How many are black?

$$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$$

$$\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

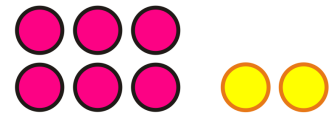
d. Mary saw eight chairs on the lawn, and two had blown over.
How many were still sitting upright?

$$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$$

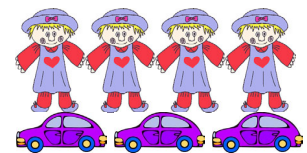
$$\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

2. For each picture, make a word problem that is solved by subtraction.





a.





b.



3. Write an addition sentence for the pictures.

 <p>a. _____ + _____ + _____ = _____</p>	 <p>b. _____ + _____ + _____ = _____</p>
 <p>c. _____ + _____ + _____ = _____</p>	 <p>d. _____ + _____ + _____ = _____</p>

4. Draw the missing marbles to match the addition sentence.

 <p>a. $3 + 2 + \underline{\hspace{1cm}} = 8$</p>	 <p>b. $1 + 5 + \underline{\hspace{1cm}} = 10$</p>
---	---

5. Draw a picture to solve these problems.

<p>a. Jane had some red, blue, and yellow roses in a vase. Two roses were blue, and two were red. If she had a total of ten roses, how many of them were yellow?</p>
<p>b. Seven birds sat in a tree. One of them was black, two were blue, and the rest were brown. How many were brown?</p>
<p>c. Mary has two long pencils, two medium-size pencils, and the rest of her pencils are short. If she owns nine pencils, how many of her pencils are short?</p>

Fact Families

Two addition facts and two subtraction facts form a fact family if they use the same three numbers.

For example, with 5, 3, and 2 we get a fact family on the right:

5



$$2 + 3 = 5$$

$$5 - 3 = 2$$

$$3 + 2 = 5$$

$$5 - 2 = 3$$

1. Write the fact families to match the pictures.

a. 6



$$1 + 5 = 6$$

$$5 + 1 = 6$$

$$6 - \underline{\quad} = \underline{\quad}$$

$$6 - \underline{\quad} = \underline{\quad}$$

b. 8



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

c. 9



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

d. 10



$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

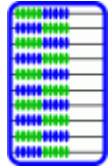
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Chapter 3: Place Value Within 0-100

Introduction

In the third chapter of *Math Mammoth Grade 1*, students learn two-digit numbers and a little beyond (to 120). Students compare whole numbers to 100, and learn to think of whole numbers between 10 and 100 in terms of tens and ones.

The initial lessons that introduce tens and ones use a 100-bead abacus extensively. A 100-bead abacus or school abacus simply contains 10 beads on 10 rods with a total of 100. It is *not* a special abacus such the Chinese or the Russians use. In the school abacus, each bead simply represents one. It can look, for example, like the picture on the right. The 100-bead abacus lets children both “see” the numbers and use their touch while making them.



Amazon has many abaci, for example this Melissa & Doug Classic Wooden Abacus:
<http://www.amazon.com/exec/obidos/ASIN/B00005BVRQ/?tag=homeschoolmath-20>

Browse Amazon's selection of abaci here:

<http://www.amazon.com/gp/search?ie=UTF8&keywords=abacus&tag=homeschoolmat-20>

Other stores carry abaci as well. If you cannot obtain a real abacus, you can use this virtual abacus:
<http://illuminations.nctm.org/ActivityDetail.aspx?ID=8>

Besides the abacus, we also use a visual model of blocks where ten of them “snap” together to form a stick. If you already have these so-called base-ten blocks, you can use them along with the visual exercises, if you prefer.

Then, we also use the 100-chart and number lines. Number lines help visualize how the numbers continue indefinitely and also connect with the concept of measuring. The 100-chart helps the child to be familiar with the numbers below 100 and find patterns in the number system.

When children count, they basically just learn numbers as some kind of continuum that continues and continues. With simple counting, your child might not catch on to the inherent structure and how it goes into groups of tens and hundreds and thousands.

For children to understand place value, they first need to know their numbers up to 10, do simple addition with small numbers, and understand about counting in groups. Our whole number system is based on the idea that if you have lots and lots of objects, the efficient way is to count them in groups of tens, hundreds, and thousands - not individually.

The crucial point in understanding the concept of place value is that a **certain position** *represents* a **certain size group**. Then the digit in that position tells you how many of that size group there are. For example, in the number 2,381, we adults already know that 8 represents eight tens, and not just “8”. The number 3 represents three hundreds, and not just “3”. The placing or positioning of the digit tells us what size the group is that we mean, and the digit itself tells how many of those groups.

In this chapter, children learn this idea for just two digits, or two place values.

For that matter, we could start a different system of writing numbers where font size tells you the place value: for example 78_2 would be 7 tens, 8 hundreds, and 2 ones = 872. Please note that this idea is NOT developed here. It is just an example to let *you* see that the place value concept is about something abstract (certain positioning) representing a certain size group.

The Lessons

	page	span
Counting in Groups of 10	112	2 pages
Naming and Writing Numbers	114	4 pages
The “Teen” Numbers	118	3 pages
Building Numbers 11-40.....	121	2 pages
Building Numbers 41-100	123	2 pages
A 100-Chart	125	2 pages
Add and Subtract Whole Tens	127	2 pages
Practicing with Numbers	129	2 pages
Which Number is Greater?	131	3 pages
Numbers Beyond 100	134	2 pages
More Practice with Numbers	136	2 pages
Skip-Counting Practice	138	3 pages
Bar Graphs	141	2 pages
Tally Marks	143	2 pages
Review	145	2 pages

Helpful Resources on the Internet

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

Base Blocks from National Library of Virtual Manipulatives

Place enough ten-sticks and one-blocks into the work area to show given numbers. Choose “Columns = 2” to restrict the program to two-digit numbers.

http://nlvm.usu.edu/en/nav/frames_asid_152_g_1_t_1.html?from=category_g_1_t_1.html

Electronic Abacus

Use this to illustrate two-digit numbers. It shows the amount of beads with a number and with a format “2-ten 5”.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=8>

Tens and Ones Exercise

Enter the two-digit number displayed by the ten-bags and one-counters

<http://www.dositey.com/addsub/tenoneex.htm>

Shark Pool Place Value

Click on the number shown by the ten-stacks and individual blocks.

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

Count to 99!

Enter the number shown by the colored blocks of a hundred chart.

<http://www.thegreatmartinicompany.com/Kids-Math/kids-count-99.html>

Sample worksheet from
www.mathmammoth.com

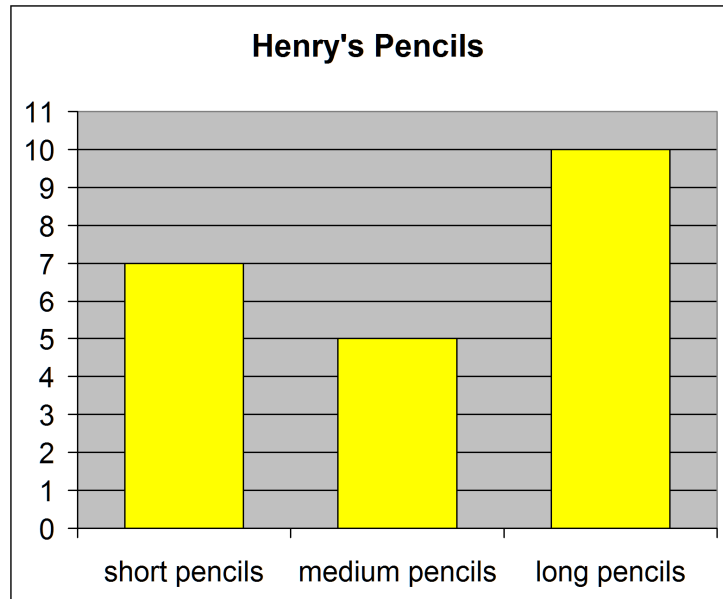
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Bar Graphs

This is a **bar graph**. Read it this way: look at the TOP of each column (bar), and look towards the left. How high does the top of the bar reach? Read the number.

Look at the first bar, for short pencils. Where does the top of that bar reach?

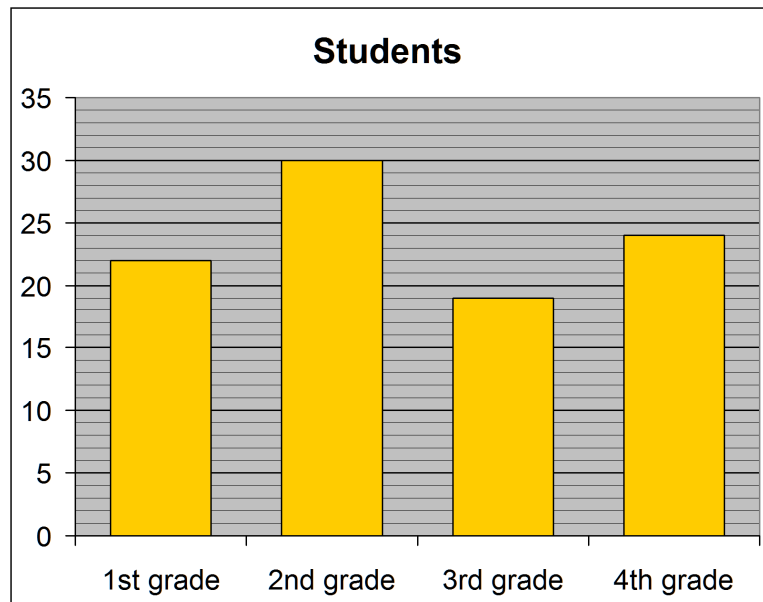
It reaches to 7. So, Henry has 7 short pencils.

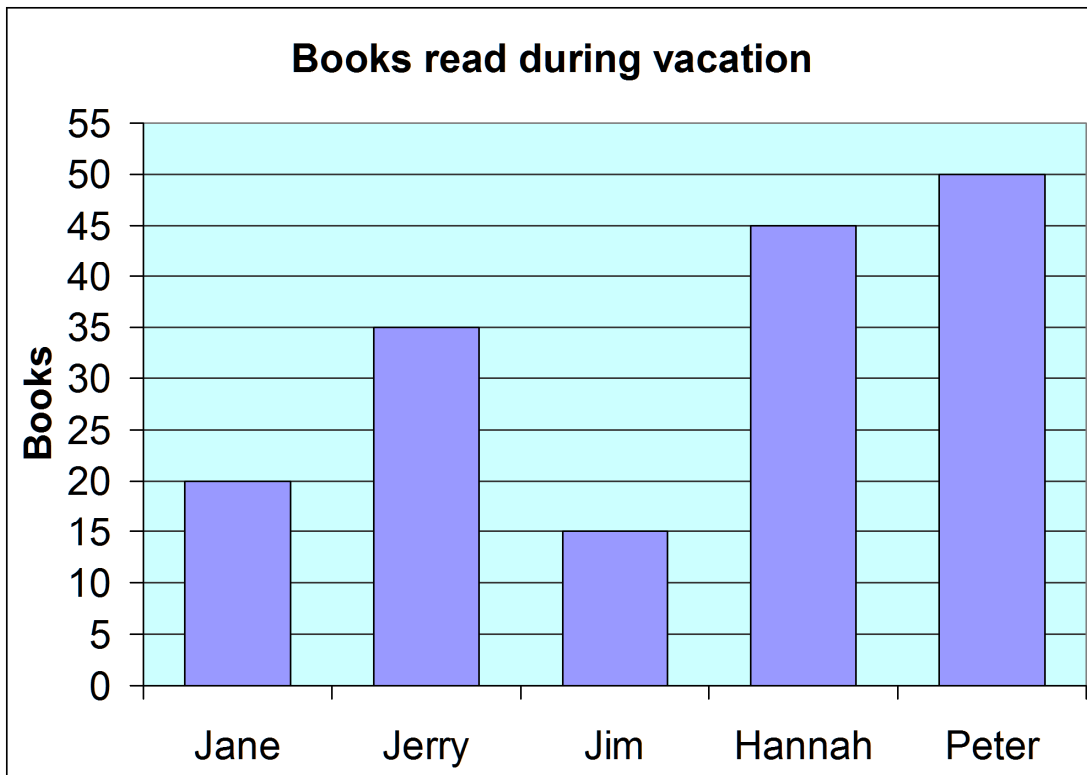


- How many medium pencils does Henry have?
 - How many long pencils does Henry have?
 - How many short and medium pencils does Henry have in total?
 - How many more long pencils does he have than short ones?

2. Here, the bar for first grade students reaches two little lines past 20. It is 22 students.

- How many students are in 2nd grade?
- How many students are in 3rd grade?
- How many students are in 4th grade?





3. a. How many books did each child read?

Jane _____ Jerry _____ Jim _____ Hannah _____ Peter _____

b. _____ read the least books.

_____ read the most books.

c. The two children who read the most books were _____

and _____.

The two children who read the least books were _____

and _____.





d. How many books did Jane and Peter read together? _____ books

(Challenge) How many books did Jim and Hannah read together? _____ books

Tally Marks

1. Tally marks. Tally marks are counting marks. When people count they make one tally mark for each thing they count. For one thing, draw one tally mark as “ | ”. The fifth tally mark is drawn across the four others like “ **||||** ”.

Write the number that the tally marks mean.

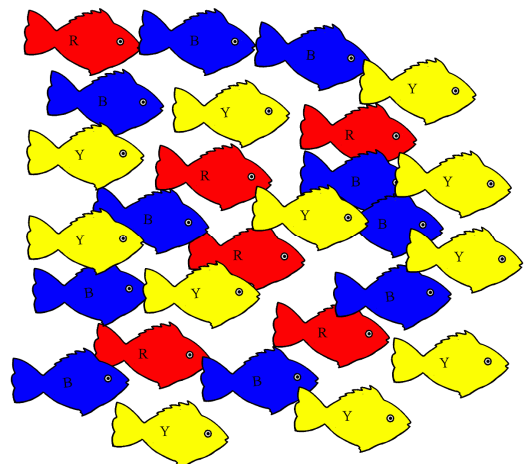
 <p>a. _____</p>	 <p>b. _____</p>	 <p>c. _____</p>	 <p>d. _____</p>
---	---	---	---

2. Draw tally marks for these numbers.

a. 7	b. 14
c. 16	d. 32
e. 41	f. 28

3. Count the fish. Use tally marks. Mark the fish you are counting, and write a tally mark for it. That way you won't count the same fish twice. Then write the number under “Count”.

	Tally Marks	Count
Red		
Blue		
Yellow		



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math

MAMMOTH

Grade 1 - B Worktext

Addition and subtraction facts within 0 - 10

Clock and calendar

Shapes and measuring

Adding and subtracting within 0 - 100

Counting coins



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Foreword

Math Mammoth Grade 1-A and Grade 1-B worktexts comprise a complete math curriculum for the first grade mathematics studies. This curriculum is aligned to the Common Core standards. The four main areas of study for first grade are:

1. The concepts of addition and subtraction, and strategies for addition and subtraction facts (chapters 1-2 and chapter 4);
2. Developing understanding of whole number relationships and place value till 100 (chapter 3 and chapter 7);
3. Developing understanding of measuring lengths as iterating length units (chapter 6); and
4. Reasoning about attributes of geometric shapes, such as the number of sides and the number of corners, and composing and decomposing geometric shapes (chapter 6).

Additional topics we study in the first grade are the clock to the half hour (chapter 5) and counting coins (chapter 8).

This book, 1-B, covers strategies for addition and subtraction facts, clock, shapes and measuring, adding and subtracting with two-digit numbers, and counting coins. The book 1-A covers addition concept, subtraction concept, and place value with two-digit numbers.

When you use these two books as your only or main mathematics curriculum, they 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 geometry, clock, and money sections in a different order.

This might even be advisable if your child is “stuck” on some concept, or is getting bored. Sometimes the brain “mulls it over” in the background, and the concept he/she was stuck on can become clear after a break.

Math Mammoth 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 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, the download version includes an html page called *Make_extra_worksheets_grade1.htm* that you can use to make additional worksheets for computation or for number charts. You can also simply reprint some already studied pages. Also, the third chapter that practices addition and subtraction facts contains a lot of pages with problems, so you can choose to “save” some of them for later review.

I wish you success in your math teaching!

Maria Miller, the author

Chapter 4: Addition and Subtraction Facts

Introduction

This chapter provides lots of practice for learning and memorizing the basic addition and subtraction facts within 0-10. The Common Core Standards call for children to demonstrate fluency for addition and subtraction within 10 in the first grade, and this is what this chapter is for.


Since this chapter is somewhat repetitive, consider studying this chapter simultaneously with some other chapter, such as clock or shapes and measuring. For example, you could study a little shapes and measuring and a little from this chapter each day, or study the two different chapters on alternate days. This is not compulsory; it is just a suggestion to “mix things up” in a somewhat spiral fashion.

The lessons titled Addition and Subtraction Facts With... aim at memorization of the basic facts within 0-10. We approach it from the concept of “fact families,” which makes the process to be logical and structured. These lessons have a lot of repetition and practice for both subtraction and addition facts.

Some children may not need all of the practice. Use your judgment and skip some pages in this section if you feel it is necessary. You can also “save” some of the pages to be completed later, as a review.

Alongside this book, you can also use math games or flashcards to reinforce these facts. You will find a list of some free online games below.

While your child does not absolutely have to learn these facts by heart while studying this chapter, it is advisable to learn them fairly well here. Mathematics builds upon previously learned concepts and facts, and learning addition and subtraction facts is essential for later study, such as when students add $24 + 2$ (in chapter 7 of this curriculum). However, if the child does not memorize these facts yet, don't worry. Go on with the curriculum, but keep practicing the facts with games, worksheets, drill, etc., on the side during the rest of first grade.

Besides practicing the facts with the help of fact families, children also solve word problems, fill in number patterns, get used to a symbol, such as , for the unknown number, compare expressions (such as $5 - 2 < 2 + 5$), and subtract many numbers.

The Lessons in Chapter 4

	page	span
Addition and Subtraction Facts with 4 and 5	10	2 pages
Addition and Subtraction Facts with 6	12	3 pages
Addition and Subtraction Facts with 7	15	2 pages
Addition and Subtraction Facts with 8	17	4 pages
Addition and Subtraction Facts with 9	21	3 pages
Addition and Subtraction Facts with 10	24	4 pages
Subtracting Many Numbers	28	2 pages
Review - Facts with 6, 7, and 8	30	2 pages
Review - Facts with 9 and 10	32	3 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 picture cards, Uno cards without the special cards, etc.

Rules: Deal seven cards to each player. Place the rest in a stack in the middle, face down.

At his turn, each player *may* first take one card from the deck. Then, each player *may* ask for one card from the player on their right (like in 'Go Fish'), and the person has to give the player the card if the person has it. Then the player may discard any two cards in his hand that add up to 10, or the "10" card itself.

The player who first discards all cards from his hand, wins.

Adaptations:

- * Deal more cards instead of seven.
- * Deal fewer cards if there are very many players or the players are 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 picture cards for 11, 12, and 13.

Some Went Hiding

You need: As many small objects as is the sum you are studying. For example, to study the sums with 12, you need 12 marbles, or 12 blocks, etc.

Rules: The first player shows the objects, and quickly hides SOME behind his/her back without showing how many. Then he/she shows the remaining objects to the next player, who has to tell how many went hiding. If the player gives the right answer, it is then his/her turn to hide some and ask the next player to answer. If he gives the wrong answer, he misses his turn. This game appeals best to young children.

Adaptations:

- * Instead of getting a turn, the player may gain points or other rewards for the right answer.

Addition (or Subtraction) Battle

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

Rules: In each round, each player is dealt two cards face up, and has to calculate the sum (subtract/add). The player with the highest sum gets all the cards from the other players. After enough rounds so that all of the cards are used, the player with the most cards wins.

If there is a tie, such as two players have the sum of 11, those players get an additional two cards and "battle" with those to resolve the tie.

Adaptations:

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

Helpful Resources on the Internet

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

Fun 4 The Brain

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

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

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

Mental Math Practice

Online practice of sets of 10 addition and subtraction questions; timed

<http://www.teachingtreasures.com.au/maths/mental-maths/yr1-maths-pg1.htm>

Math Facts Practice at playKidsgames.com

Timed practice with various skill levels.

<http://www.playkidsgames.com/games/mathfact/default.htm>

Number Bond Machines

Practice which two numbers add up to a given number.

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

Online Subtraction Flash Cards

<http://www.thegreatmartinicompany.com/WebMozilla/subtractionm.html> and

<http://www.thegreatmartinicompany.com/WebMozilla/subtractionmfill.html>

Addition Eaters and Subtraction Eaters

Eat the addition (or subtraction) problems if the sum (difference) is a given number.

<http://www.hoodamath.com/games/addition.php>

<http://www.hoodamath.com/games/subtraction.php>

Sum Stacker

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

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

An addition/subtraction card game

This card game is an easy, cheap and fun alternative to drill.

<http://diosadotada.homeschooljournal.net/2008/05/15/easy-cheap-alternative-to-drill-kill>

Fun math card game

A simple and fun card game for addition/subtraction.

<http://blog.aussiepumpkinpatch.com/2010/03/meal-ticket-math.html>

Face off! and other card and board games

Students place markers on the numbers 2-12, toss two dice, find the sum and remove a marker from that number. The page has other addition games also.

<http://www.mathwire.com/games/addsubgames.html>

Number Line Bounce

Arrange the given bounce arrows on a number line using addition and subtraction until you reach the target number. Since it uses several operations, it is *challenging* for first graders, but give it a try.

http://nlvm.usu.edu/en/nav/frames_asid_107_g_1_t_1.html

Sample worksheet from

www.mathmammoth.com

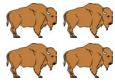
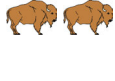
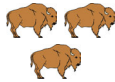





Tux Math

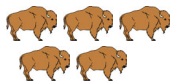
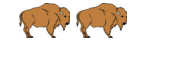


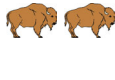

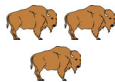



A versatile arcade game for math facts with many options. Includes all operations. You need to shoot falling comets that can damage penguins' igloos. **Price:** Free.

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

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

Addition and Subtraction Facts with 4 and 5

Facts with 4		$4 + 0 = 4$	$4 - 4 = 0$
		$0 + 4 = 4$	$4 - 0 = 4$
	 	$1 + 3 = 4$	$4 - 3 = 1$
	 	$3 + 1 = 4$	$4 - 1 = 3$
	 	$2 + 2 = 4$	$4 - 2 = 2$

Facts with 5		$5 + 0 = 5$	$5 - 5 = 0$
		$\underline{\quad} + \underline{\quad} = 5$	$5 - \underline{\quad} = \underline{\quad}$
	 	$4 + 1 = 5$	$5 - 4 = \underline{\quad}$
	 	$1 + 4 = 5$	$5 - \underline{\quad} = \underline{\quad}$
	 	$3 + 2 = 5$	$5 - 3 = \underline{\quad}$
	 	$\underline{\quad} + \underline{\quad} = 5$	$5 - \underline{\quad} = \underline{\quad}$

1. Find the missing numbers.

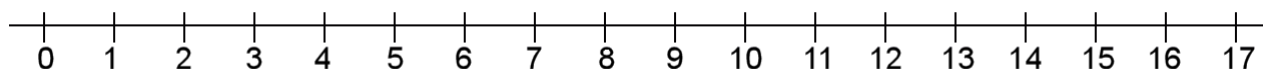
a.	b.	c.	d.
$3 + \underline{\quad} = 4$	$2 + \underline{\quad} = 5$	$5 - 0 = \underline{\quad}$	$4 - 0 = \underline{\quad}$
$1 + \underline{\quad} = 4$	$1 + \underline{\quad} = 5$	$5 - 4 = \underline{\quad}$	$4 - 3 = \underline{\quad}$
$1 + \underline{\quad} = 5$	$4 + \underline{\quad} = 5$	$5 - 2 = \underline{\quad}$	$5 - 1 = \underline{\quad}$
$2 + \underline{\quad} = 4$	$3 + \underline{\quad} = 5$	$4 - 1 = \underline{\quad}$	$4 - 2 = \underline{\quad}$

2. Color the square

- yellow if the answer is 0.
- red if the answer is 1,
- blue if the answer is 2,
- green if the answer is 3,
- purple if the answer is 4,
- orange if the answer is 5.

$5 - 4$	$2 + 3$	$4 - 4$	$1 + 2$	$4 - 2$	$1 + 3$
$2 + 2$	$3 - 2$	$5 - 0$	$0 + 0$	$5 - 2$	$1 + 1$
$0 + 2$	$5 - 1$	$0 + 1$	$1 + 4$	$0 - 0$	$4 - 1$

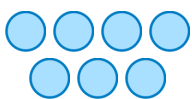
3. Continue the patterns as long as you can!



$17 - 0 = \underline{\quad}$	$10 + \underline{\quad} = 10$	$5 - 2 = \underline{\quad}$
$17 - 1 = \underline{\quad}$	$10 + \underline{\quad} = 11$	$6 - 2 = \underline{\quad}$
$17 - 2 = \underline{\quad}$	$10 + \underline{\quad} = 12$	$7 - 2 = \underline{\quad}$
$17 - \underline{\quad} = \underline{\quad}$	$10 + \underline{\quad} = \underline{\quad}$	$\underline{\quad} - 2 = \underline{\quad}$
$17 - \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$
$\underline{\quad} - \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} - \underline{\quad} = \underline{\quad}$

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Subtracting Many Numbers

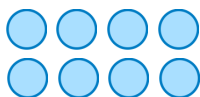


$$7 - 1 - 2 = ??$$

You have 7 balls. First you take away 1 ball, and then you take away 2 more balls. You will have 4 balls left. $7 - 1 - 2 = 4$.

1. Subtract two times, taking away circles. You can cover the circles to help.

a.

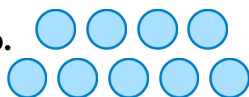


$$8 - 2 - 3 = \underline{\quad}$$

$$8 - 5 - 2 = \underline{\quad}$$

$$8 - 1 - 3 = \underline{\quad}$$

b.

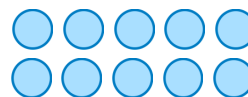


$$9 - 3 - 1 = \underline{\quad}$$

$$9 - 4 - 2 = \underline{\quad}$$

$$9 - 2 - 5 = \underline{\quad}$$

c.



$$10 - 5 - 3 = \underline{\quad}$$

$$10 - 6 - 2 = \underline{\quad}$$

$$10 - 1 - 4 = \underline{\quad}$$

2. Solve. You can draw pictures to help.

a. Mary had ten cookies. She gave two to her brother, and two to her sister.
How many does she have left?

b. Seven birds were in the tree. Three flew away.
After a while, one more flew away.
How many birds are left in the tree?

c. Three cars were in the parking lot. Then, three more cars drove in. After that, two more cars drove in. How many cars are there now?

d. Jack had \$5. His mom gave him \$1,
and his dad gave him \$2.
How many dollars does Jack have now?

You can subtract two numbers this way:

$$\begin{array}{r} 8 - 2 - 3 \\ \quad \backslash \quad / \\ \quad 6 - 3 = 3 \end{array}$$

First take away 2. That leaves 6.
Then, from 6, subtract 3. That leaves 3.

OR you can subtract them this way:

$$\begin{array}{r} 8 - 2 - 3 \\ \quad \backslash \quad / \\ \quad 8 - 5 = 3 \end{array}$$

Check how much you need to subtract or take away *in total*. You need to subtract 2 and 3, or a total of 5. So, subtract $8 - 5 = 3$.

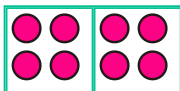
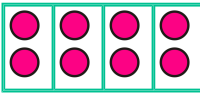
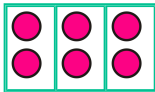
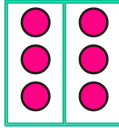
3. Subtract using either way.

a. $7 - 2 - 3 = \underline{\quad}$ $9 - 2 - 6 = \underline{\quad}$	b. $9 - 7 - 1 = \underline{\quad}$ $6 - 2 - 2 = \underline{\quad}$	c. $7 - 5 - 1 = \underline{\quad}$ $10 - 6 - 1 = \underline{\quad}$
---	---	--

4. Solve. Compare the two problems and their results.

a. $10 - 3 - 2 = \underline{\quad}$ $10 - 3 - 3 = \underline{\quad}$	b. $7 - 3 - 3 = \underline{\quad}$ $7 - 4 - 3 = \underline{\quad}$	c. $9 - 6 - 1 = \underline{\quad}$ $8 - 6 - 1 = \underline{\quad}$
---	---	---

5. Match the subtraction problems to the right pictures.

	a. $8 - 2 - 2 - 2 - 2 = 0$	
	b. $8 - 4 - 4 = 0$	
	c. $6 - 2 - 2 - 2 = 0$	
	d. $6 - 3 - 3 = 0$	

Puzzle Corner

Here are some problems with four numbers!

$9 - 3 - 2 - 1 = \underline{\quad}$

$10 - 1 - 2 - 1 = \underline{\quad}$

$8 - 4 - 1 - 2 = \underline{\quad}$

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Chapter 5: Clock

Introduction

The fifth chapter covers reading the clock (whole hours and half hours) and some basics of time and calendar.

Reading the clock - whole and half hours

The main goal of this chapter is to learn the whole and half hours on the clock.

In the first lesson we use an analog clock without the minute hand. The child learns whole and half hours with this special clock, and also practices what time it is one hour or a half-hour later than a given time.

The next lesson talks about the minutes. While it does have some clock reading to the nearest five minutes, the main focus in this lesson is to learn that one hour is 60 minutes, a half-hour is 30 minutes, and how the phrases “o'clock” and “half past” relate to the hours and minutes.

For example, the child is to learn that half past eight is written 8:30, and that the “30” part means minutes, and that half an hour IS 30 minutes.

The book has a few exercises about reading the clock to the five-minute intervals; however this can be skipped. The second grade book has much more practice on reading the clock to the nearest five minutes.

I have included one lesson about time order. The topics in this lesson are hopefully already familiar to the student. The next lesson deals with morning and afternoon hours: AM and PM. The goal is to understand that at midnight, the clock starts at 12 hours, and goes through all the hours from 1 to 12, and then it is noon, and after that the hours again go from 1 to 12 until it is midnight again.

We will also briefly look at the calendar, and practice the names of the months.

Reading the clock is a skill that can and should be practiced in everyday situations from now on so that children can learn by experience and not just by filling in math book pages.

The Lessons

	page	span
Whole and Half Hours	37	4 pages
The Minutes and Half Hours.....	41	4 pages
Time Order	45	2 pages
AM and PM	47	3 pages
The 2012 Calendar	50	2 pages
Review - Half Hours	52	1 page

Helpful Resources on the Internet

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

Flashcard Clock

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

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

Teaching Time

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

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

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>

Clockwise

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

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

Clock

(The words, “Evaluation version” are 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; it 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>

Time-for-Time

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

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

On Time

Set the clock's hands to the given time. Four different levels.

http://www.sheppardsoftware.com/mathgames/earlymath/on_time_game1.htm

Clock Shoot

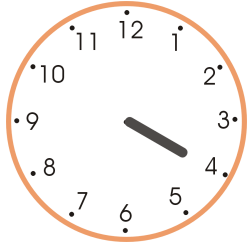
A game where you need to click on the clock with the matching time (analog/digital). Three different levels: whole hours, half hours, or quarter hours.

http://www.sheppardsoftware.com/mathgames/earlymath/clock_shoot.htm

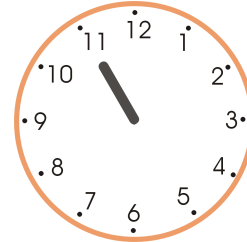
Sample worksheet from
www.mathmammoth.com

Whole and Half Hours

In this lesson, the clock only has one hand - the HOUR hand.



The hour hand points to four - it is four o'clock, or "four hours".

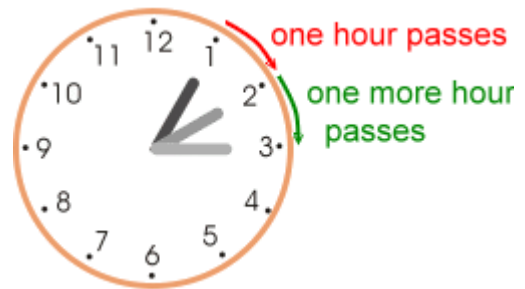


The hour hand points to eleven - it is eleven o'clock, or "eleven hours".

The hour hand slowly moves around the clock face: from 1 to 2 to 3, and so on.

When the hour hand moves from 1 to 2, exactly one hour of time has passed.

The same is true when the hour hand moves from 2 to 3. It takes the hour-hand one hour to do that.



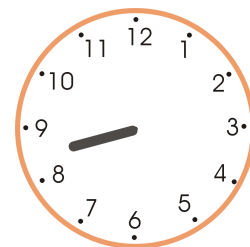
On this clock, the hour hand has first pointed to 5 - it was five o'clock.

Then it has moved **halfway** between 5 and 6. We say it is **half past five**.



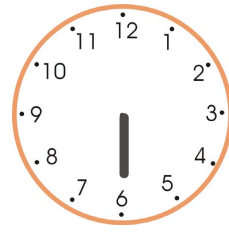
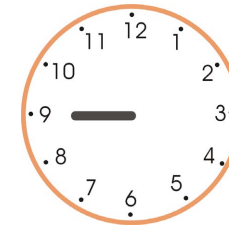
It takes the hour hand one-half hour to move from five to halfway between five and six.

The hour hand has moved past eight o'clock, and is halfway between 8 and 9. We say it is half past eight.

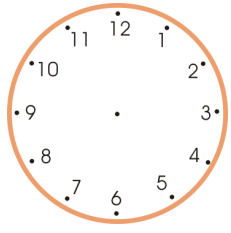
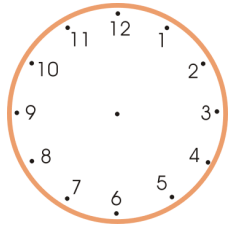
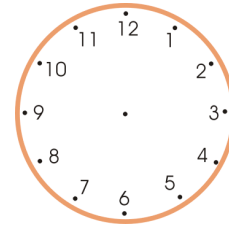
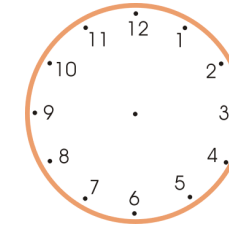
In half an hour, it will be nine o'clock.



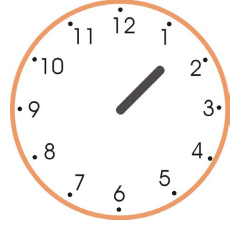
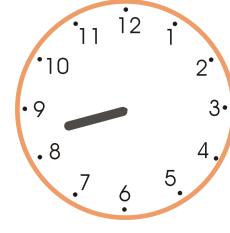
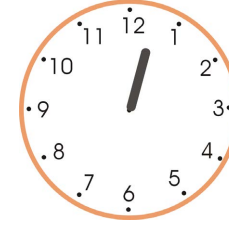
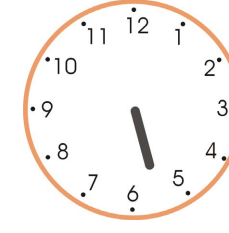
1. Write the time under each clock face.

 <p>a. _____ o'clock</p>	 <p>b. _____ o'clock</p>	 <p>c. _____ o'clock</p>	 <p>d. _____ o'clock</p>
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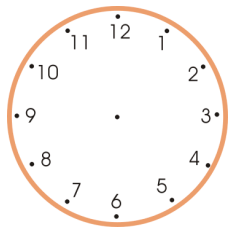
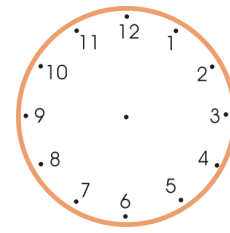
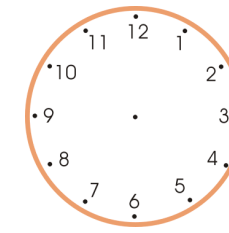
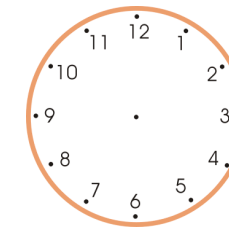
2. Draw the hour hand.

 <p>a. five o'clock</p>	 <p>b. eight o'clock</p>	 <p>c. twelve o'clock</p>	 <p>d. seven o'clock</p>
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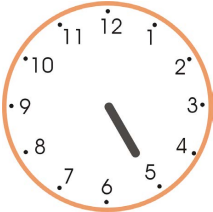
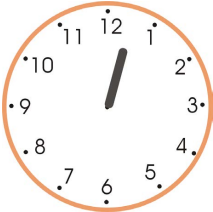
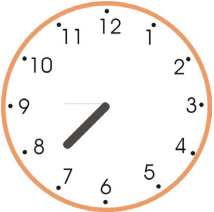
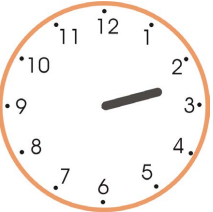




3. Write the time.

 <p>a. half past _____</p>	 <p>b. half past _____</p>	 <p>c. half past _____</p>	 <p>d. half past _____</p>
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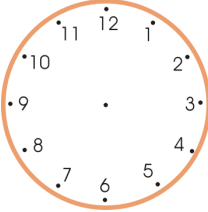
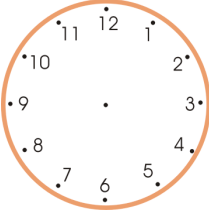
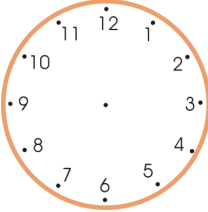
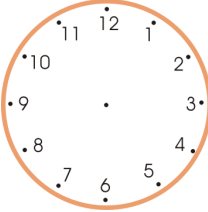
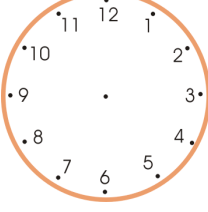
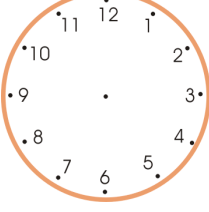
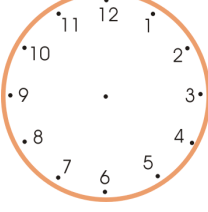
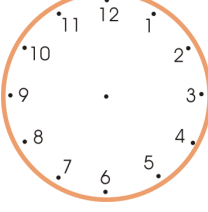
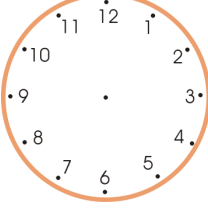
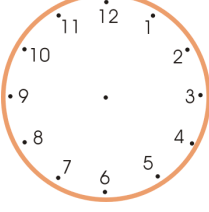
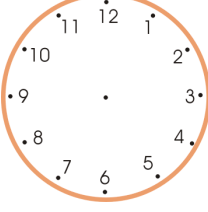
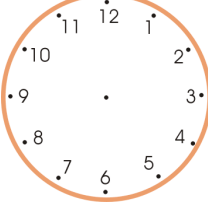
4. Draw the hour hand.

 <p>a. half past six</p>	 <p>b. half past three</p>	 <p>c. half past two</p>	 <p>d. half past four</p>
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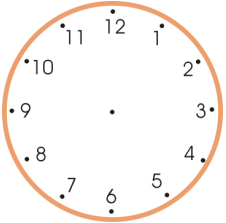
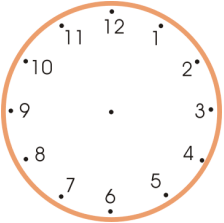
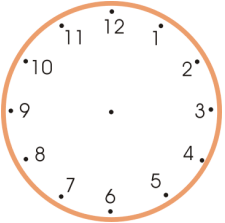
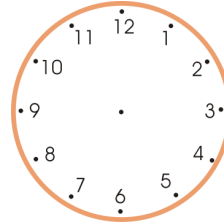
5. Write the time yourself!

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

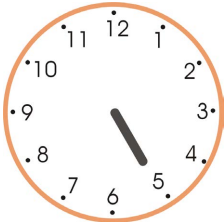
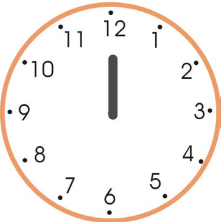
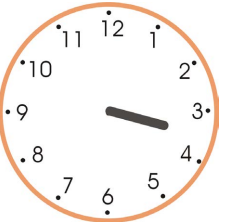
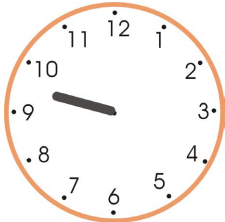
6. Draw the hour hands on the clocks. On the second row, show the time a half-hour later. On the third row, show the time another half-hour later (compared to the second row).

<p>Draw the hour hand.</p>	 <p>a. Five o'clock</p>	 <p>b. One o'clock</p>	 <p>c. Half-past six</p>	 <p>d. Half-past three</p>
<p>A half-hour later →</p>				
<p>Another half-hour later →</p>				

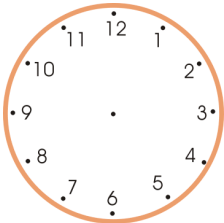
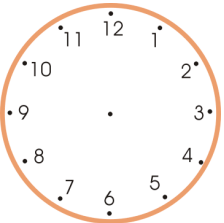
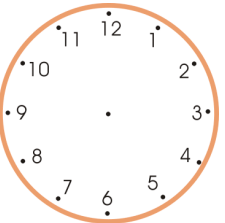
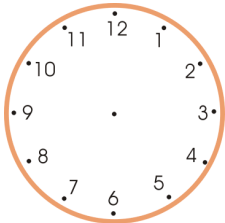
7. Draw the hour hand on the clocks. Then write the time that the clock shows a half-hour later.

				
	a. three o'clock	b. eleven o'clock	c. half-past five	d. half-past eleven
1/2 hour later →	half past _____	half past _____	_____ o'clock	_____ o'clock

8. Write the time that the clock shows. Then write the time an hour later.

				
	a. _____ o'clock	b. _____ o'clock	c. half past _____	d. half past _____
An hour later →	_____ _____	_____ _____	_____ _____	_____ _____

9. Draw the hour hand on the clock face. Write what time it would be an hour later.

				
	a. three o'clock	b. eleven o'clock	c. half-past five	d. half-past eleven
An hour later →	_____ _____	_____ _____	_____ _____	_____ _____

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Chapter 6: Shapes and Measuring

Introduction

The sixth chapter of *Math Mammoth Grade 1* covers basic shapes and the basic idea of measuring. We will also study three-dimensional shapes, halves and fourths, and inches and centimeters.

The goals of this section are:

- The student can identify common shapes, such as triangles, squares, rectangles, circles, and quadrilaterals.
- The student can draw lines with a ruler.
- The student develops understanding of measuring lengths as iterating (repeating) a measuring unit.

The lessons in this chapter can be quite easy, but they are laying a foundation for later studies. For example, dividing shapes into parts helps build an understanding of part-whole relationships *and* fractions, as well as the properties of the original shape and of the parts. They may seem easy to us (and even to your child), but are needful to lay a proper foundation for geometric understanding.

For additional practice, you can let the child draw lines and other shapes however he/she is able to, divide them to other shapes, and let him/her draw patterns on grid paper. A tangram or block shapes are also excellent aids.

The Lessons

	page	span
Basic Shapes	56	3 pages
Playing with Shapes	59	1 page
Printable Shapes	61	1 page
Drawing Basic Shapes	63	3 pages
Practicing Basic Shapes and Patterns	66	3 pages
Halves and Quarters	69	4 pages
Measuring Length	73	4 pages
Exploring Measuring	77	2 pages
Measuring Lines in Inches	79	3 pages
Measuring Lines in Centimeters	82	2 pages
Three-Dimensional Shapes	84	2 pages
Review	86	1 page

Helpful Resources on the Internet

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

Buzzing with Shapes

Tic tac toe with shapes; drag the counter to the shape that has that amount of sides.

<http://www.harcourtschool.com/activity/buzz/buzz.html>

Patch Tool

An online activity where the student designs a pattern using geometric shapes.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=27>

Shifting Shapes

Figure out what shape it is when viewing through a small opening! Click on the “eye” button to see it in its entirety.

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

Interactive Tangram Puzzle

Place the tangram pieces so they form the given shape.

http://nlvm.usu.edu/en/nav/frames_asid_112_g_2_t_1.html

Pattern Blocks

This program is designed to help with fractions, but children will enjoy just playing with the polygon shapes.

http://www.arcytech.org/java/patterns/patterns_j.shtml

Polygon Playground

Drag various colorful polygons to the work area to make your own creations!

<http://mathcats.com/explore/polygons.html>

Make Your Own Mandala

A mandala is a circular symmetrical design based on eights. Make your own and experiment with symmetry.

http://www.girlsgotech.org/world_around_us.html

Measure It!

Click on the ruler to measure a red bar.

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

Measure Lines

Move the ruler to measure the line in centimeters

http://www.freewebtown.com/weddell/mw/ruler/ruler_cm.swf

Elementary Teddy Bear Measurement Game

Measure the teddy bear with the ruler.

<http://www.apples4theteacher.com/measure.html>

Inchy Picnic Game

Measure with a ruler to find how many inches Andy Ant needs to go.

www.fuelthebrain.com/Game/play.php?ID=4

Shapes Identification Quiz from ThatQuiz.org

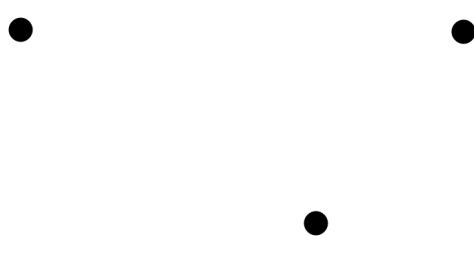
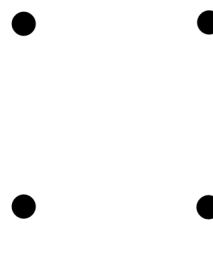


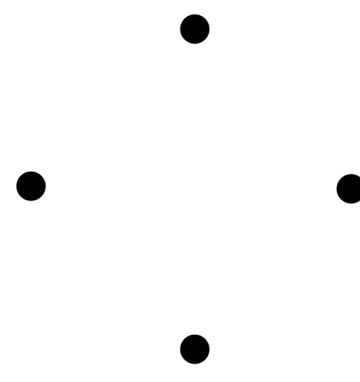
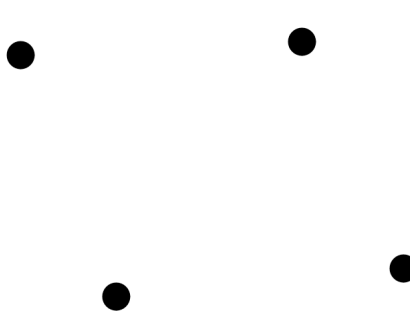
An online quiz in a multiple-choice format, asking to identify common two-dimensional shapes. You can modify the quiz parameters to your liking.

www.thatquiz.org/tq-f/math/shapes/

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Drawing Basic Shapes

1. Use a ruler to join the dots carefully with straight lines. What shape do you get?

<p>a.</p>  <p>I got a triangle / square / rectangle / other four-sided shape</p>	<p>b.</p>  <p>I got a triangle / square / rectangle / other four-sided shape.</p>
<p>c.</p>  <p>It is a triangle / square / rectangle / other four-sided shape.</p>	<p>d.</p>  <p>It is a triangle / square / rectangle / other four-sided shape.</p>
<p>e.</p>  <p>It is a triangle / square / rectangle / other four-sided shape.</p>	<p>f.</p>  <p>It is a triangle / square / rectangle / other four-sided shape.</p>

2. **a.** Draw four dots anywhere in this space.

Join the dots with lines. Use a ruler!

What shape did you get? A square,
a rectangle, or just a four-sided shape?

b. This time try to draw four dots in this
space so that you would get a rectangle.

c. Draw a rectangle. This time, use a BOOK to draw straight corners.

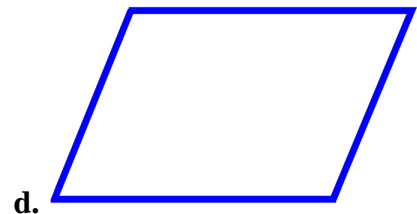
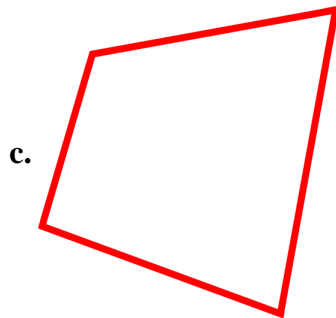
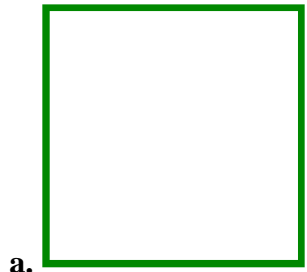
3. The shapes (a), (b), (c), and (d) below are four-sided shapes (quadrilaterals).
In each shape, draw a line from one corner to the opposite corner.

What kind of shapes do you get now? _____

Now draw another line from corner to corner in each shape, using the two other corners you didn't yet use.

How many parts does each four-sided shape have now? _____

What kind of shapes are these parts? _____

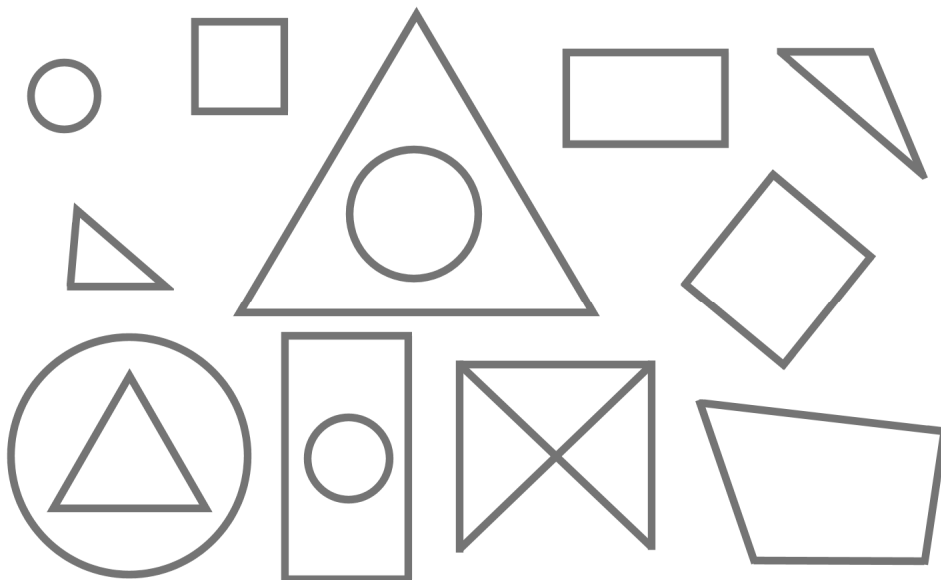


4. Choose a color for each shape, and color!

Triangles are _____. Circles are _____.

Squares are _____. Rectangles are _____.

Other four-sided shapes are _____.



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Chapter 7: Adding and Subtracting Within 0-100

Introduction

This seventh chapter progressively presents a variety of easy addition and subtraction problems with numbers from 0 to 100. It includes these topics:

- Adding a two-digit number and a single-digit number without carrying (for example, $23 + 4$ or $56 + 3$).
- Subtracting a one-digit number from a two-digit number without borrowing: For example, $45 - 3$ or $67 - 6$.
- Adding or subtracting two-digit numbers in columns (one number under the other) without regrouping (carrying or borrowing)
- Recognizing that sometimes in adding two-digit numbers we need to carry — to combine ten ones to make a new ten. We approach this concept using concrete visual models and don't treat it as an abstract concept.
- Practicing specific strategies for adding or numbers under 20 (such as $7 + 9$ or $15 - 8$): a trick with nine and eight, adding just one more than a known sum, and using the relationship between addition and subtraction to subtract. Actually memorizing these basic addition and subtraction facts is left for second grade.

The Lessons in Chapter 7

	page	span
Refresh Your Memory	89	2 pages
Adding Without Carrying	91	3 pages
Subtracting Without Borrowing	94	3 pages
Adding or Subtracting Two-Digit Numbers	97	4 pages
Completing the Next Ten	101	3 pages
Going Over Ten	104	4 pages
Subtracting from Whole Tens	108	2 pages
Add Using “Just One More”	110	2 pages
A “Trick” with Nine and Eight	112	3 pages
Adding within 20	115	4 pages
Subtract to 10	119	2 pages
Using Addition to Subtract	121	3 pages
Some Mixed Review	124	3 pages
Pictographs	127	2 pages
Review	129	4 pages

Helpful Resources on the Internet

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

Add 'em Up

A game where you choose the correct answer to addition problems.

http://www.primarygames.com/add_up/2a.htm

Math Games from AplusMath

Practice two-digit addition and subtraction with Matho, Hidden Picture, and Concentration.

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

Speed Grid Addition

Find numbers on the grid that add up to the given number.

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

Double Digit Addition

Match the addition problem with the correct sum. Enjoy!

<http://www.quia.com/mc/818288.html>

Addition Level 2

A matching game where you add a one-digit number and a two-digit number.

<http://www.quia.com/mc/65798.html>

Space Jumps

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

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

Bridging Shuttle

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

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

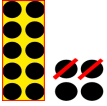
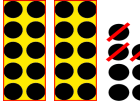
Froggy Hop

Find either 10 more or 1 more than a given number.

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

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Subtracting Within the Same Ten

 <p>$14 - 2 = \underline{12}$</p> <p>“I can subtract $4 - 2 = 2$; the 10 stays the same.”</p>	 <p>$27 - 3 = \underline{24}$</p> <p>“I can subtract $7 - 3 = 4$; the 20 stays the same.”</p>	<p>Think of the <i>ones digits</i> only. The tens do not change, because we don't have to subtract from the tens.</p>
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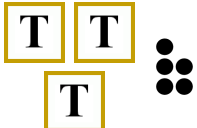
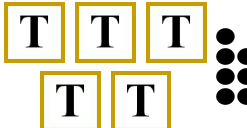
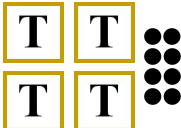
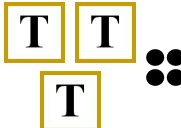
1. Subtract and compare. The top problem helps you solve the bottom one!

<p>a. $8 - 2 = \underline{6}$</p> <p>$28 - 2 = \underline{26}$</p>	<p>b. $7 - 6 = \underline{\quad}$</p> <p>$17 - 6 = \underline{\quad}$</p>	<p>c. $7 - 7 = \underline{\quad}$</p> <p>$67 - 7 = \underline{\quad}$</p>
<p>d. $6 - 6 = \underline{\quad}$</p> <p>$56 - 6 = \underline{\quad}$</p>	<p>e. $9 - 8 = \underline{\quad}$</p> <p>$49 - 8 = \underline{\quad}$</p>	<p>f. $5 - 2 = \underline{\quad}$</p> <p>$95 - 2 = \underline{\quad}$</p>

2. Subtract. Think of the “helping problem” that only uses numbers less than 10.

<p>a. $54 - 2 = \underline{\quad}$</p> <p>$4 - 2 = \underline{\quad}$</p>	<p>b. $76 - 2 = \underline{\quad}$</p> <p>$\underline{\quad} - \underline{\quad} = \underline{\quad}$</p>	<p>c. $88 - 4 = \underline{\quad}$</p> <p>$\underline{\quad} - \underline{\quad} = \underline{\quad}$</p>
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3. Subtract. Cross out dots. The box with “T” is a ten.

<p>a. </p> <p>$35 - 4 = \underline{\quad}$</p> <p>$35 - 3 = \underline{\quad}$</p> <p>$35 - 2 = \underline{\quad}$</p>	<p>b. </p> <p>$57 - 7 = \underline{\quad}$</p> <p>$57 - 5 = \underline{\quad}$</p> <p>$57 - 3 = \underline{\quad}$</p>	<p>c. </p> <p>$48 - 2 = \underline{\quad}$</p> <p>$48 - 4 = \underline{\quad}$</p> <p>$48 - 6 = \underline{\quad}$</p>	<p>d. </p> <p>$34 - 1 = \underline{\quad}$</p> <p>$34 - 2 = \underline{\quad}$</p> <p>$34 - 4 = \underline{\quad}$</p>
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4. Subtract.

a.	b.	c.	d.
$77 - 6 = \underline{\quad}$	$47 - 2 = \underline{\quad}$	$57 - 4 = \underline{\quad}$	$15 - 3 = \underline{\quad}$
$22 - 1 = \underline{\quad}$	$75 - 1 = \underline{\quad}$	$86 - 2 = \underline{\quad}$	$98 - 4 = \underline{\quad}$

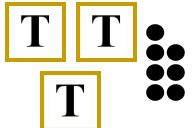
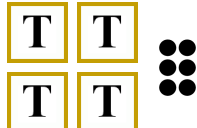

5. Find the missing addends.

a. $10 + \underline{\quad} = 15$	b. $21 + \underline{\quad} = 22$	c. $65 + \underline{\quad} = 69$
$32 + \underline{\quad} = 38$	$94 + \underline{\quad} = 95$	$33 + \underline{\quad} = 36$
$72 + \underline{\quad} = 79$	$44 + \underline{\quad} = 48$	$91 + \underline{\quad} = 98$

6. Solve.

a. Katherine sold 21 painted pictures in the morning, and 7 in the afternoon. How many pictures did she sell all totaled?
b. She had 30 pictures to sell when she started. How many does she have left now?
c. Katherine can paint a picture in one hour. She started painting at 4:30 and painted three pictures. What time did she stop painting?

7. Take away the ones (the dots) so that only the whole tens are left.

a. 	b. 	c. 
$37 - \underline{\quad} = 30$	$46 - \underline{\quad} = 40$	$28 - \underline{\quad} = \underline{\quad}$
d. $57 - \underline{\quad} = \underline{\quad}$	e. $85 - \underline{\quad} = \underline{\quad}$	f. $69 - \underline{\quad} = \underline{\quad}$

8. Solve. In the last row, make your own problems, and let a friend solve them!

a. $50 + \bigcirc = 57$	b. $\bigcirc + 2 = 88$	c. $79 - 9 = \bigcirc$
d. $\bigcirc - 5 = 20$	e. $90 - \bigcirc = 85$	f. $42 = 40 + \bigcirc$
$\bigcirc + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} + \bigcirc = \underline{\hspace{2cm}}$	

9. Count by fives. Notice the patterns! A 100-chart or an abacus can help you.

- a. 10, 15, _____, _____, _____, _____, _____, _____, _____
- b. 1, 6, _____, _____, _____, _____, _____, _____, _____
- c. 3, 8, _____, _____, _____, _____, _____, _____, _____

10. Continue the patterns.

a.	b.	c.
$88 - 0 = \underline{\hspace{2cm}}$	$95 - 2 = \underline{\hspace{2cm}}$	$48 - 1 = \underline{\hspace{2cm}}$
$88 - 1 = \underline{\hspace{2cm}}$	$85 - 2 = \underline{\hspace{2cm}}$	$46 - 1 = \underline{\hspace{2cm}}$
$88 - 2 = \underline{\hspace{2cm}}$	$75 - 2 = \underline{\hspace{2cm}}$	$44 - 1 = \underline{\hspace{2cm}}$
$88 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - 1 = \underline{\hspace{2cm}}$
$88 - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
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Chapter 8: Coins

Introduction

In this chapter, we study counting coins. The goals are:

- The student is able to identify pennies, nickels, dimes and quarters.
- The student is able to count the money in coins when the cent sum is at most 100 cents.

While the book has pictures for the coins, practicing with real coins is of course advisable.

The student also practices making given money amounts with coins, and using coins in shopping.

If your book is printed in black and white, you can color the pennies dark orange before doing the exercises.

The Lessons

	page	span
Counting Dimes, Nickels, and Cents	135	<i>3 pages</i>
Counting Dimes, Nickels, and Cents 2	138	<i>2 pages</i>
Quarters	140	<i>3 pages</i>
Practicing with Money	143	<i>2 pages</i>
Review - Coins	145	<i>1 page</i>

Helpful Resources on the Internet

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

Counting coins worksheets

Create free worksheets for counting all U.S. coins and some bills. You can choose the number of coins, the maximum total amount, and the number of problems.

<http://www.homeschoolmath.net/worksheets/money.php>

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/

Piggy bank

When 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>

The One Dollar Store

Choose enough of the quarters, dimes, nickels, and pennies to make up the exact price of a toy.

<http://www.smartygames.com/igre/game.php?dir=math&file=learnMoney>

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>

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

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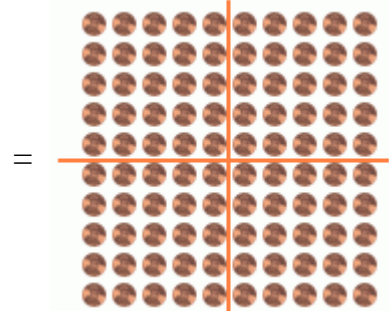
Quarters



One **quarter** is 25 cents.

The word “quarter” means one-fourth. A quarter coin is one-fourth part of a **dollar**.

One dollar is 100 cents, and is written \$1.



$$4 \text{ quarters} = 100\text{¢}$$

$$1 \text{ dollar} = 1 \text{ dollar} = \$1$$



Two quarters = 50¢.



Three quarters = 75¢



25¢



35, 45, 55

(count dimes by tens)






56, 57¢

Count the quarters first since they have the biggest cent-value.













1. Quarters and dimes. Write the total amount in cents.

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

2. Quarters and nickels. Write the total amount in cents.

<p>a. </p>	<p>b. </p>	<p>c. </p>
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3. How much money? Write down the amount in cents.

<p>a. </p>	<p>b. </p>
<p>c. </p>	<p>d. </p>
<p>e. </p>	<p>f. </p>
<p>g. </p>	<p>h. </p>
<p>i. </p>	<p>j. </p>
<p>k. </p>	<p>l. </p>

4. How much is the total if you have:

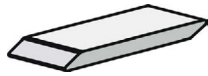















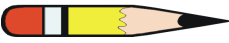

a. two dimes and a quarter

b. two dimes, four nickels

c. a dime, a nickel, six pennies

d. two quarters, three dimes, seven pennies

5. Cross out the coins you need to buy the item. Write how many cents you have left.

<p>a.  39¢</p>  <p>Left _____¢</p>	<p>b.  88¢</p>  <p>Left _____¢</p>	<p>c.  54¢</p>  <p>Left _____¢</p>
<p>d.  61¢</p>  <p>Left _____¢</p>	<p>e.  97¢</p>  <p>Left _____¢</p>	<p>f.  81¢</p>  <p>Left _____¢</p>
<p>g.  73¢</p>  <p>Left _____¢</p>	<p>h.  45¢</p>  <p>Left _____¢</p>	<p>i.  26¢</p>  <p>Left _____¢</p>