math MAMMOTH

Grade 2-A Worktext

Light Blue Series

- **S**ome review, even and odd numbers, and doubling
- **R**eading the clock
- **A**ddition and subtraction facts within 0-18
- **A**dding two-digit numbers
- **G**eometry and fractions

By Maria Miller

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Chapter 4: Regrouping in Addition

Chapter 5: Geometry and Fractions

Foreword

Math Mammoth Grade 2-A and Grade 2-B worktexts comprise a complete math curriculum for the second grade mathematics studies. This curriculum is aligned to the Common Core standards. The four main areas of study for second grade are:

1. Understanding of the base-ten system within 1000. This includes place value with three-digit numbers, skip-counting in fives, tens, and multiples of hundreds, tens, and ones (within 1000).
   (chapters 6 and 8);

2. Develop fluency with addition and subtraction within 100, including solving word problems, regrouping in addition, and regrouping in subtraction (chapters 1, 3, 4, and 8);

3. Using standard units of measure (chapter 7);

4. Describing and analyzing shapes (chapter 5).

Additional topics we study are time (chapter 2), money (chapter 9), introduction to multiplication (chapter 10), and bar graphs and picture graphs (in various chapters).

This book, 2-A, covers reading the clock (chapter 2), the basic addition and subtraction facts within 18 (chapter 3), regrouping in addition (chapter 4), and geometry (chapter 5). The rest of the topics are covered in the 2-B student worktext.

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. For the chapter on measuring, the child should be familiar with three-digit numbers.

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 would not 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_grade2.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, chapter 3, which practices addition and subtraction facts within 18, 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 1: Some Old, Some New
Introduction

The first chapter of the *Math Mammoth Grade 2* contains some review, and some new topics.

In the first two lessons we review adding and subtracting two-digit numbers from first grade. Then students get to review skip-counting using the 100-chart.

Next, the lesson Fact Families reviews the connection between addition and subtraction, and introduces a new strategy for missing subtrahend problems (of the type __ − 5 = 4). In these problems, the student can *add* to find the missing total. This is an early prelude to algebraic thinking.

Then we go on to the "new", starting with ordinal numbers, which are probably familiar from common language. Then, in the lesson Subtracting Whole Tens students subtract *mentally* any number of whole tens from a two-digit number, such as 72 − 40.

Even and odd numbers is presented in the context of equal sharing: if you can share that many objects evenly (equally), then the number is even. Children may need to use manipulatives to grasp this idea.

Then we study doubling and halving. Don't skip the simple word problems included in these lessons—they are very important. Students need to learn to apply the concepts they have just learned. Also, if the student cannot solve simple word problems that involve doubling or halving, there is a good chance he/she did not actually learn those concepts.

The Lessons in Chapter 1

Helpful Resources on the Internet

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

Number Cracker
Help Mr. Cracker obtain the secret code before the insidious Prof. Soup catches him by guessing what number comes next in a series of numbers.
http://www.funbrain.com/cracker/index.html

Squigly
Squigly is hiding in one of the apples. Click on the ordinal number that tells the order of Squigly's apple.
http://www.primarygames.com/squigly/start.htm

Number Jump
Move the ball along the number line to smash the flies.
http://www.carstensstudios.com/mathdoodles/numberjump.htm

Connect Sums
Click on the neighboring die-faces/numbers/coins so that the points add up to the given target sum.
http://www.carstensstudios.com/mathdoodles/connectsums.html

Sum Stacker
Drag dies from stack to stack until the sums of each stack equal the sums given.
http://www.carstensstudios.com/mathdoodles/sumsstacker.html

Froggy Hop
Find 10 more or 1 more of a given number.
http://www.ictgames.com/frog.html

Fruit Shoot
Shoot a fruit with an even or odd number, whichever one your aim tells you. Three levels: 1-10, 1-20, and 1-100.
www.sheppardsoftware.com/mathgames/earlymath/Fruit_shoot_odd_even.htm

Odd or Even?
Drag and drop the number cards to their correct place in the diagram (even or odd). three difficulty levels (numbers 1-10, 1-30, or 1-100).
www.crickweb.co.uk/ks2numeracy-properties-and-ordering.html#

Story of Odd and Even
A simple story about two ladybugs named Odd and Even. It teaches even and odd within 1-10.
www.primarygames.com/storybooks/even_odd/1.htm

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Fact Families

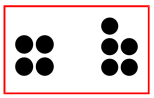
When two addition and two subtraction facts use the same numbers, it is called a "*fact family*."

Sometimes in a subtraction problem, the *total* is asked:

$\square - 8 = 20$

You know 20 and 8 are the "parts," and the total is missing. To find the total, just add the "parts":

$20 + 8 = \underline{28}$



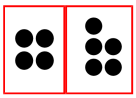
$4 + 5 = 9$

$5 + 4 = 9$

$9 - 5 = 4$

$9 - 4 = 5$

Notice the TOTAL. The subtraction sentences *start* with the total.



$4 + 5 = 9$

$5 + 4 = 9$

$9 - 5 = 4$

$9 - 4 = 5$

Notice the PARTS. The two parts make up the total.

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

a.

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

b.

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

c.

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

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

a.

$2 + \square = 8$

$\square + 2 = 8$

$8 - 2 = \square$

$8 - \square = 2$

b.

____ + ____ = 10

____ + ____ = 10

$10 - 7 = \square$

$10 - \square = 7$

c.

____ + ____ = ____

____ + ____ = ____

$9 - \square = 6$

____ − ____ = ____

3. Write a matching addition for the subtraction. There are two possibilities.

a. _____ + _____ = _____ 8 − 2 = 6	**b.** _____ + _____ = _____ 20 − 7 = 13	**c.** _____ + _____ = _____ 60 − 20 = 40

When the first number is missing in a subtraction, it is the TOTAL that is missing.

You can find the TOTAL by adding the two numbers (those are the "parts").

□ − 6 = 2

The total is missing. 6 and 2 are the "parts." So we add them. 2 + 6 = 8. The missing number is 8!

It is like "adding backwards":

Add. +
8 − 6 = 2

Add. +
23 − 3 = 20

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

a. □ − 5 = 4	**b.** □ − 7 = 2	**c.** □ − 7 = 10

5. Find the missing numbers.

a. □ − 2 = 4 □ − 50 = 50 □ − 8 = 20	**b.** □ − 7 = 80 60 + 4 = □ 16 + □ = 20	**c.** 9 − □ = 5 77 + □ = 78 □ − 9 = 60

Puzzle Corner

Find the missing numbers. This time adding backwards will NOT work!

a. 50 − □ = 10
33 − □ = 31

b. 100 − □ = 91
76 − □ = 72

c. 10 − □ − 2 = 1
9 − □ − 5 = 2

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Chapter 2: Clock
Introduction

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

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

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

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

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

The Lessons in Chapter 2

Helpful Resources on the Internet

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

Analog and Digital Clocks
These clocks show you the current time, side by side. Useful for illustration.
http://nlvm.usu.edu/en/nav/frames_asid_316_g_2_t_4.html

What Time Will it Be?
Move the hands on the clock to show what time it will be after a certain amount of minutes.
http://nlvm.usu.edu/en/nav/frames_asid_318_g_2_t_4.html

Match Clocks
Make the digital clock to show the time given with the analog clock.
http://nlvm.usu.edu/en/nav/frames_asid_317_g_2_t_4.html

Flashcard Clock
Read the analog and type in the time in digital form. Very clear clock and good fast response!
http://www.teachingtreasures.com.au/maths/FlashcardClock/flashcard_clock.htm

Telling Time Practice
Interactive online practice: you drag the hands of the clock to show the correct time.
http://www.worsleyschool.net/socialarts/telling/time.html

Teaching Time
Analogue/digital clock games and worksheets. Also an interactive "class clock" to demonstrate time.
http://www.teachingtime.co.uk/

Time-for-time
Resource site to learn about time: worksheets, games, quizzes, time zones.
http://www.time-for-time.com/default.htm

A Matter of Time
Lesson plans for telling time, interactive activities, and some materials to print.
http://www.fi.edu/time/Journey/JustInTime/contents.html

Elapsed Time Line
This interactive tool shows 2 clocks that have draggable fingers to set a "from" and "to" time, and a number line. You can demonstrate how to use a number line to calculate elapsed time.
http://www.teacherled.com/2008/10/05/elapsed-time-line/

Clockwise
Plug in a time, and the clock runs till it, or clock runs to a time and you type it in.
http://www.shodor.org/interactivate/activities/clock2/index.html

The Right Time
A couple of interactive exercises about reading the clock.
http://www.pitara.com/activities/math/time/time.asp?QNum=3

What Time Is It?
Look at the analog clock and pick the digital clock that shows the same time.
http://www.primarygames.com/time/start.htm

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

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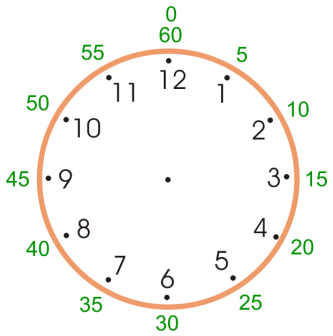
The Minutes

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

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

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



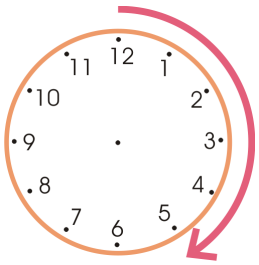
1 hour = 60 minutes.
1/2 hour = 30 minutes.

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

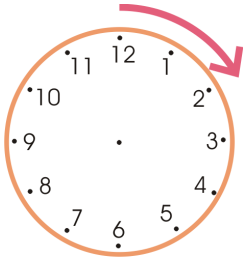
The hour hand is past 2.
The minute hand is at 25.
The time is 2:25.

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

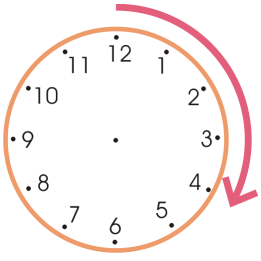
1. The arrow shows how much the minute hand travels. How many minutes pass?



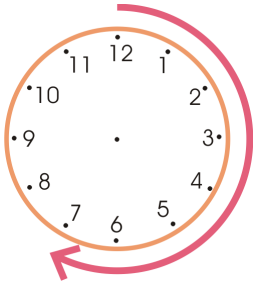
a. _____ minutes



b. _____ minutes

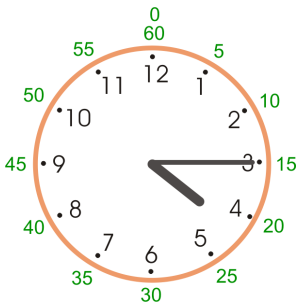


c. _____ minutes

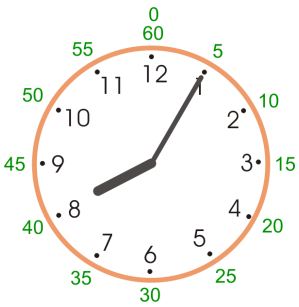


d. _____ minutes

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

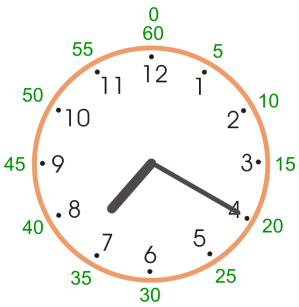


a. _____ : _____

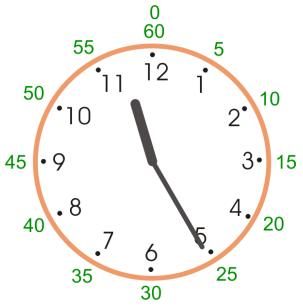


b. _____ : _____

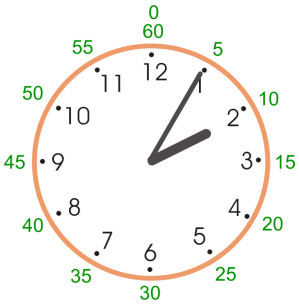
c. _____ : _____



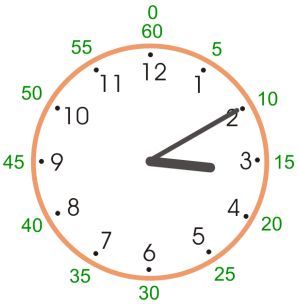
d. _____ : _____



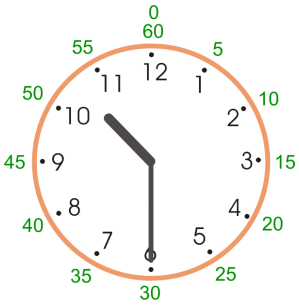
e. _____ : _____



f. _____ : _____

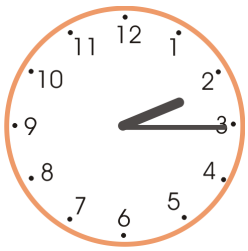


g. _____ : _____

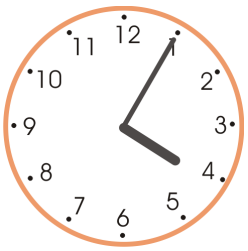


h. _____ : _____

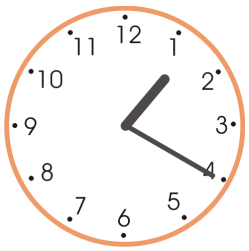
3. Write the time using the normal clock. Remember, the numbers for the minute hand are not shown, and they go by fives!



a. _____ : _____

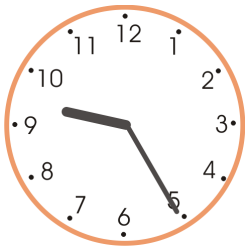


b. _____ : _____

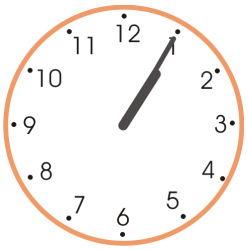


c. _____ : _____

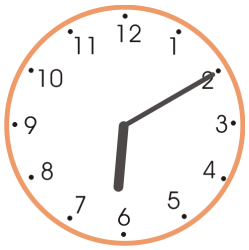
d. _____ : _____



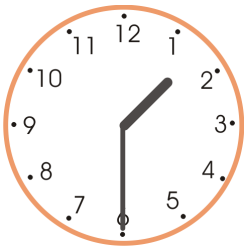
e. _____ : _____



f. _____ : _____

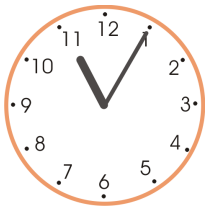


g. _____ : _____



h. _____ : _____

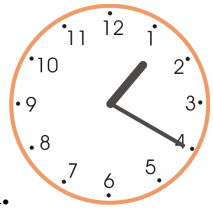
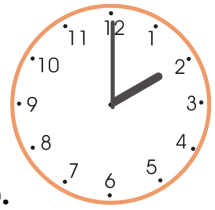
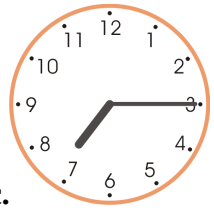
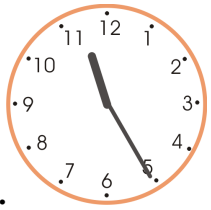
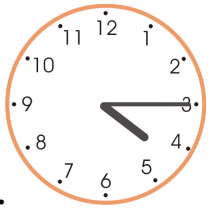
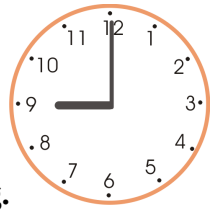
4. Find the clock that shows 11:25 and the clock that shows 11:05.

a.  **b.**  **c.**  **d.** 

5. Write the time.

 **a.** _____ : _____	 **b.** _____ : _____	 **c.** _____ : _____	 **d.** _____ : _____

6. Write the time that the clock shows, and the time 5 minutes later. Imagine the minute hand moving one "step" further. You can use your practice clock.

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

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Chapter 3: Addition and Subtraction Facts Within 0-18

Introduction

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

This chapter includes lots of repetition, drill, and practice. Therefore, you are welcome to mix the lessons from this chapter with some geometry, place value, clock, or measuring, in order to prevent boredom. The goal is to memorize these facts, or at least become so fluent with them that an outsider cannot tell if the student remembers the answer or uses some mental math strategy to get the answer.

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

Learning addition and subtraction facts is very important for later study. For example, we will soon study regrouping (carrying/borrowing) in addition and in subtraction, which requires that the student be able to recall all the sums of single-digit numbers and corresponding subtraction facts efficiently and fluently.

We will start the chapter by reviewing how to complete the next whole ten. This concept is very important. For example, what number do you add to 23 to get 30? As an equation, we write:
$23 + \_\_ = 30$.

In the next lesson, we study sums that go over ten, doing these sums into two parts. For example, in the sum 9 + 7, the child first completes 10 by adding 9 + 1. Then, the child adds the rest, or 6, to 10. Learning this prepares the child for addition facts where the sum is more than 10.

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

9 + 2 till 9 + 9: 8 facts
8 + 3 till 8 + 8: 6 facts
7 + 4 till 7 + 7: 4 facts
6 + 5 till 6 + 6: 2 facts

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

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

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

The Lessons in Chapter 3

Helpful Resources on the Internet

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

Video: Strategies for Subtraction Facts
I recommend the usage of FACT FAMILIES in order to learn the basic subtraction facts. That way, when children have a subtraction problem, such as 7 − 5 = ____, they will learn to think through addition and fact families: 5 and 2 and 7 form a fact family, OR that 5 + 2 = 7, so 7 − 5 = 2.
http://www.youtube.com/watch?v=XSVlrkBf_Ns

Video: Strategies for Addition Facts
I list several strategies to learn addition facts for first and second grade math. I show the pattern of "Sums with 7", which also is used with other sums, then the 9-trick, the 8-trick, the doubles, doubles plus one more, and how to do random drill using the structure of the addition table.
http://www.youtube.com/watch?v=jdIzuGPRhRQ

Number Jump
Move the ball along the number line to smash the flies.
http://www.carstensstudios.com/mathdoodles/numberjump.htm

Connect Sums
Click on the neighboring die-faces/numbers/coins so that the points add up to the given target sum.
http://www.carstensstudios.com/mathdoodles/connectsums.html

Space Jumps
Adding two single-digit numbers, first jump to ten, then the rest to the spaceship. Practices addition that goes over ten.
http://www.ictgames.com/spacejumps.html

Bridging Shuttle
Bridging Through Ten means the same as adding to ten first, then the rest. Get a "flight plan", then first add to ten by typing the number needed in the oval, and press the red button. Then type the rest that the shuttle needs to go in the other oval, and press the red button.
http://www.ictgames.com/bridging.html

Speedy Sums
Click on numbers that add to the target sum. The more numbers you use, the higher your score will be.
http://www.schooltimegames.com/Mathematics/AddLikeMad.html

Math Magician Games
Flashcard problems in all 4 operations, including subtraction. Answer 20 questions in 1 minute.
http://www.oswego.org/ocsd-web/games/Mathmagician/mathssub.html

Aplus Math Games
Matho (math and bingo combined), concentration, hidden picture, and Planet Blaster games for the basic operations.
http://www.aplusmath.com/games/

Addition Surprise
Draw the answer square in the addition table.
http://www.hbschool.com/activity/add/add.html

Fun 4 the Brain
Practice your basic facts with these kid-appealing simple games.
http://www.fun4thebrain.com/

Power Lines Puzzle
Arrange the numbers into the pattern so that the numbers on the "lines" add up to the given sum.
http://www.primarygames.co.uk/pg2/powerlines/powerlines1.html

Online Addition Flashcards
http://www.thegreatmartinicompany.com/additionfill.html

Number Bond Machines
Practice which two numbers add up to a given number. Set the number to be 11, 12, ... 18 to practice basic facts.
http://www.amblesideprimary.com/ambleweb/mentalmaths/numberbond.html

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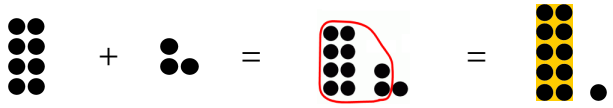
Adding with 8

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



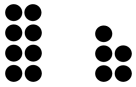
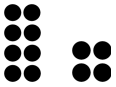
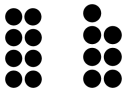
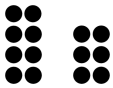
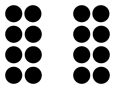
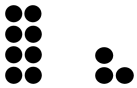
8 + 3 = 10 + 1 = 11

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

8 + 5 = 10 + 3 = 13

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

1. Add. First, circle the ten.

 **a.** 8 + 5 10 + 3 = ____	 **b.** 8 + 4 10 + ____ = ____	 **c.** 8 + ____ 10 + ____ = ____
 **d.** 8 + ____ = 10 + ____ = ____	 **e.** 8 + ____ = 10 + ____ = ____	 **f.** 8 + ____ = 10 + ____ = ____

8 + 1 = ☐
8 + 2 = ☐
8 + 3 = ☐
8 + 4 = ☐
8 + 5 = ☐
8 + 6 = ☐
8 + 7 = ☐
8 + 8 = ☐
8 + 9 = ☐

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

2 + 2 = _____	5 + 5 = _____	8 + 8 = _____
3 + 3 = _____	6 + 6 = _____	9 + 9 = _____
4 + 4 = _____	7 + 7 = _____	10 + 10 = _____

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

8 + 0 = ☐	8 + 5 = ☐	8 + 8 = ☐	8 + 9 = ☐
8 + 3 = ☐	8 + 7 = ☐	8 + 1 = ☐	8 + 4 = ☐
8 + 10 = ☐	8 + 1 = ☐	8 + 6 = ☐	8 + 2 = ☐

3. Add and fill in what is missing.

a. 8 + 4 = _____ 8 + 6 = _____	**b.** 7 + 8 = _____ 8 + 5 = _____	**c.** 3 + 8 = _____ 8 + 9 = _____
d. 8 + ____ = 13 8 + ____ = 15	**e.** 8 + ____ = 12 8 + ____ = 16	**f.** ____ + 8 = 11 ____ + 8 = 14

4. **a.** Jenny ate 8 strawberries, and Jack ate 5 more than what Jenny did.
How many strawberries did Jack eat?

b. Ashley is 13 years old, and Maryann is 5.
How many years older is Ashley than Maryann?

5. Find the patterns and continue them.

a. 8 + 2 = _____ 8 + 4 = _____ 8 + 6 = _____ 8 + ____ = _____ _____ + _____ = _____ _____ + _____ = _____ _____ + _____ = _____	**b.** 18 + 2 = _____ 18 + 4 = _____ 18 + 6 = _____ 18 + ____ = _____ _____ + _____ = _____ _____ + _____ = _____ _____ + _____ = _____	**c.** $\frac{1}{2}$ of 0 is _____. $\frac{1}{2}$ of 2 is _____. $\frac{1}{2}$ of 4 is _____. $\frac{1}{2}$ of _____ is _____. $\frac{1}{2}$ of _____ is _____. $\frac{1}{2}$ of _____ is _____. $\frac{1}{2}$ of _____ is _____.

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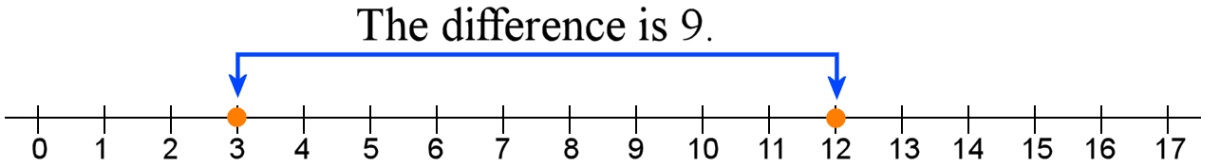
Difference and How Many More

The difference of two numbers on the number line means <u>how far apart</u> they are from each other. The difference of 3 and 12 is 9, because those two numbers are NINE steps apart.



1. Find the differences of these numbers using the number line above.

a. The difference of 10 and 6 _____	**b.** The difference of 12 and 8 _____
c. The difference of 14 and 2 _____	**d.** The difference of 17 and 6 _____

We can solve the difference of two numbers by **<u>subtracting</u>**.

The difference of 10 and 4? Subtract 10 – 4 = 6. The difference is 6.

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

The difference of 10 and 4 **a.** _____ – _____ = _____	The difference of 2 and 9 **b.** _____ – _____ = _____	The difference of 8 and 3 **c.** _____ – _____ = _____
The difference of 20 and 50 **d.** _____ – _____ = _____	The difference of 10 and 90 **e.** _____ – _____ = _____	The difference of 19 and 8 **f.** _____ – _____ = _____

3. Solve the subtractions by thinking of their difference—how far apart the two numbers are from each other.

a. 20 – 16 = _____	**b.** 40 – 38 = _____	**c.** 65 – 61 = _____	**d.** 36 – 31 = _____
e. 100 – 99 = _____	**f.** 87 – 84 = _____	**g.** 55 – 50 = _____	**h.** 79 – 78 = _____

We can ALSO solve the difference of two numbers by writing a "*how many more*" addition (addition where one addend is missing).

What is the difference of 12 and 7? Think: 7 + ____ = 12.
This means, "7 and how many more makes 12?"

The answer is 5. So, the difference of 12 and 7 is 5.

4. Write a "*how many more*" addition to find the difference of the numbers.

a. The difference of 10 and 6 is _____. 6 + ____ = 10	**b.** The difference of 6 and 12 is _____. 6 + ____ = 12
c. The difference of 15 and 8 is _____. ____ + ____ = _____	**d.** The difference of 4 and 11 is _____. ____ + ____ = _____

5. Subtract. Think of the *difference* as "*how many more*".

+3 ↶ **a.** 15 – 12 = ____ 12 and *how many more* makes 15?	+____ ↶ **b.** 11 – 9 = ____ 9 and *how many more* makes 11?	+____ ↶ **c.** 16 – 11 = ____ 11 and *how many more* makes 16?

So, there are ***two ways*** to find the difference: subtraction or a "*how many more*" addition.

Example. Find the difference of 100 and 95. It is easier to think 95 + ____ = 100. The difference is 5.	**Example.** Find the difference of 100 and 2. It is easier to subtract 100 – 2 = 98. The difference is 98.

6. Find the differences.

a. The difference of 60 and 56 _____	**b.** The difference of 22 and 20 _____
c. The difference of 35 and 1 _____	**d.** The difference of 67 and 3 _____
e. The difference of 50 and 30 _____	**f.** The difference of 40 and 100 _____
g. The difference of 19 and 14 _____	**h.** The difference of 78 and 4 _____

Whenever a word problem asks "*how many more*," you can solve it in two ways. You can either subtract, or you can write a "*how many more*" addition. Either way, you are finding the difference of the two numbers.

7. Solve the word problems.

a. Jane is on page 20 and Boyd is on page 17 of the same book.
How many more pages has Jane read?

b. Mom has one dozen eggs plus five in another carton. A dozen means 12.
How many eggs does mom have?

c. Barb is reading a 50-page book. She is on page 42.
How many more pages does she have left to read?

d. Janet worked in the garden for 2 hours in the morning and 3 hours in the afternoon. Andy worked for 8 hours in the shop.
Who worked more hours?

How many more?

e. Betty is going batty with flies! She killed 28 flies. Her husband killed 5 flies.
How many more did she kill than him?

f. The next day, Betty was again going batty with flies. She killed 5 flies in the living room, 12 in the kitchen, and 2 in her room.
How many flies did she kill in total?

g. Matthew had $12 and Bob had $6. Then both brothers worked helping dad in the garden. Matthew earned $5 and Bob earned $9.
Now, who has more money?

How much more?

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Chapter 4: Regrouping in Addition
Introduction

The fourth chapter of *Math Mammoth Grade 2* deals with addition within 0-100, both mentally and in columns, especially concentrating on regrouping in addition (carrying).

Mental math

Mental math is important because it builds number sense. We study adding mentally a two-digit number and a single-digit number where the answer goes to the next ten (problems such as 36 + 8 or 45 + 9). These additions use the helping problem composed of the single-digit numbers (6 + 8 or 5 + 9). The child knows that 6 + 8 fills the first ten and is four more than the ten. He/she will learn to use that fact when adding 36 + 8. The sum 36 + 8 fills the *next* whole ten (40), and is four more than that, or 44.

Regrouping in tens

We also study adding two-digit numbers in columns, and regrouping with tens, or "carrying," which is illustrated and explained in detail with the help of visual models. These visual models take the place of base-ten blocks or other manipulatives. You are welcome to use actual manipulatives if you prefer. The main concept to understand is that 10 ones make a new ten, and this new ten is regrouped with the other tens, written using a little "1" in the tens column.

In order to prepare for adding three or four two-digit numbers in columns, we practice explicitly how to add 3 or 4 single-digit numbers, such as 7 + 8 + 6 + 4, and the principle of adding in parts (such as 13 + 16 is the same as 10 + 10 and 3 + 6).

The lessons also include lots of word problems, and occasional review problems about doubling and even and odd numbers.

The Lessons

Helpful Resources on the Internet

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

Base Blocks Addition
A virtual manipulative that shows regrouping in addition. You can either solve addition problems that are provided, or create your own. "Lasso" with a mouse ten units, ten tens, or ten hundreds to regroup them. Choose "Columns = 2" to restrict the work to two-digit numbers.
http://nlvm.usu.edu/en/nav/frames_asid_154_g_1_t_1.html?from=category_g_1_t_1.html

Callum's Addition Pyramid
Add the pairs of numbers to get a number on the next level and finally the top number.
Three difficulty levels.
http://www.amblesideprimary.com/ambleweb/mentalmaths/pyramid.html

Techno Tortoise
Practice adding 2 two-digit numbers into parts on a number line.
http://www.ictgames.com/technowithflock.html

Mr. Martini's Classroom: Addition and Subtraction Inequalities
Compare expressions that involve addition and subtraction of one and two-digit numbers.
http://www.thegreatmartinicompany.com/inequalities/number-comparison.html
and
http://www.thegreatmartinicompany.com/inequalities/add-subtract-comparison.html

Mr. Martini's Classroom: Long Addition
Practice adding two-digit numbers in columns online.
http://www.thegreatmartinicompany.com/longarithmetic/longaddition.html

Mathionare Addition Quiz
Answer increasingly more difficult addition questions (one and two-digit numbers), and win a million!
http://www.mathsisfun.com/games/mathionaire-addition-quiz.html

Button Beach Challenge
Figure out what number the various colored buttons represent.
http://www.amblesideprimary.com/ambleweb/mentalmaths/buttons.html

Teaching Treasures - Year 2 Math Worksheets
Simple online addition and subtraction worksheets where the student types in the answer and can check it.
http://www.teachingtreasures.com.au/maths/maths_level2.html

Count on Convict
Practice "adding up" strategy for mental subtraction. First type the amount to move on to the next whole ten, then count on tens, then the rest.
http://www.ictgames.com/countonconvict.html

Double Digit Addition
Match the addition problem with the correct sum. Enjoy!
http://www.quia.com/mc/818288.html

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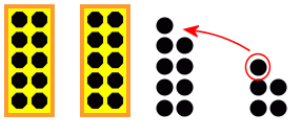
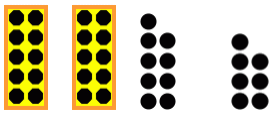
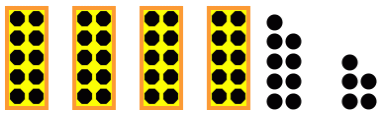
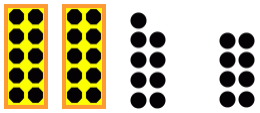
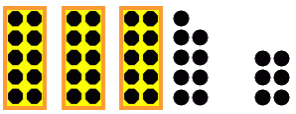
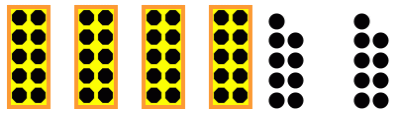
Add with Two-Digit Numbers Ending in 9

Imagine that 29 wants to be 30... so it "grabs" one from 5. Then, 29 becomes 30, and 5 becomes 4. The addition problem is changed to 30 + 4 = 34.	 29 + 5 = _____

1. Circle the nine dots and one more dot to form a complete ten. Add.

 **a.** 19 + 5 = _____	 **b.** 29 + 7 = _____	 **c.** 49 + 5 = _____
 **d.** 29 + 8 = _____	 **e.** 39 + 6 = _____	 **f.** 49 + 9 = _____

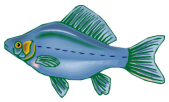
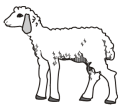
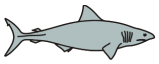
2. Add. For each problem, write a helping problem using the "ones" from the first problem.

a. 19 + 7 = _____ _9_ + _7_ = _____	**b.** 49 + 3 = _____ ____ + _____ = _____	**c.** 39 + 4 = _____ ____ + _____ = _____

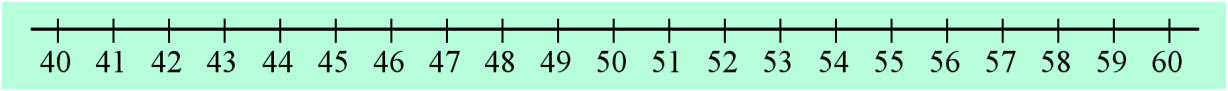
3. Add. Compare the problems.

a. 9 + 3 = _____ 19 + 3 = _____	**b.** 9 + 6 = _____ 39 + 6 = _____	**c.** 9 + 4 = _____ 49 + 4 = _____
d. 9 + 7 = _____ 39 + 7 = _____ 29 + 7 = _____	**e.** 9 + 9 = _____ 69 + 9 = _____ 79 + 9 = _____	**f.** 9 + 5 = _____ 19 + 5 = _____ 59 + 5 = _____

4. These problems review the basic facts with 9 and 8. By this time you should already remember these addition facts. Try to remember what number will fit, and not count.

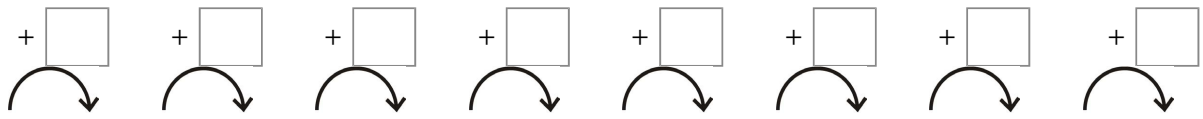
a. 	b. 	c. 	d. 
14 − 9 = _____	4 + 9 = _____	15 − _____ = 8	7 + 8 = _____
15 − 9 = _____	8 + 9 = _____	17 − _____ = 8	5 + 8 = _____
13 − 9 = _____	5 + 9 = _____	12 − _____ = 8	6 + 8 = _____
18 − 9 = _____	6 + 9 = _____	14 − _____ = 8	3 + 8 = _____
17 − 9 = _____	9 + 9 = _____	13 − _____ = 8	9 + 8 = _____
16 − 9 = _____	7 + 9 = _____	16 − _____ = 8	4 + 8 = _____

5. Find the difference of numbers. The number line can help.

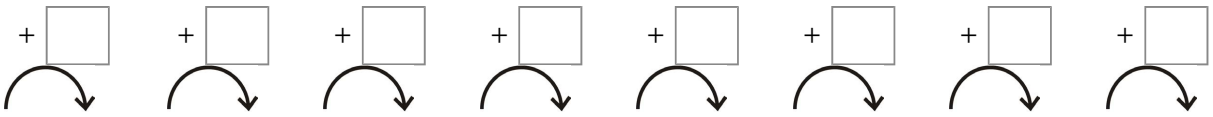


a. Difference of 41 and 53	b. Difference of 60 and 46	c. Difference of 59 and 48
_____	_____	_____

6. Find the patterns and continue them!

a. 

0 1 3 6 10 _____ _____ _____ _____

b. 

_____ _____ _____ _____ _____ 44 48 52 56

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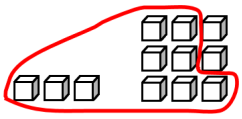
Regrouping with Tens

When adding 3 + 9, we can circle ten little ones to form a ten. We write "1" in the tens column.

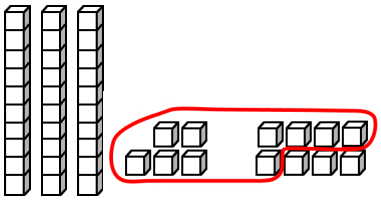
There are two little ones left over, so we write "2" in the ones column.



	tens	ones
		3
+		9
	1	2

With 35 + 8, we circle ten little ones to make a ten. There already are three tens, so in total we now have four tens. So, we write "4" in the tens column.

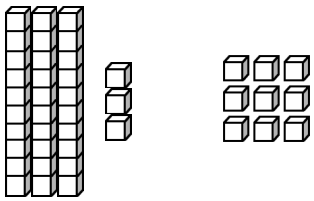
There are three little cubes left over, so we write "3" in the ones column.



	tens	ones
	3	5
+		8
	4	3

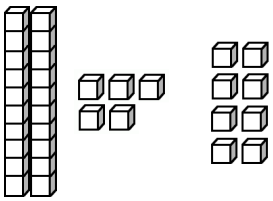
1. **Circle** ten cubes to make **a new ten**. Count the tens, including the new one. Count the ones. Write the tens and ones in their own columns. You can also use manipulatives.

a.



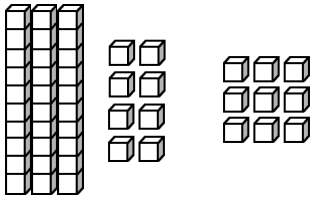
	tens	ones
	3	3
+		9

b.



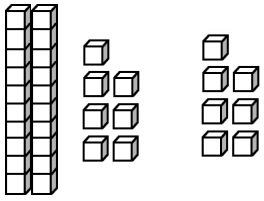
	tens	ones
	2	5
+		8

c.



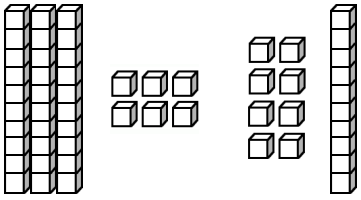
	tens	ones
	3	8
+		9

d.



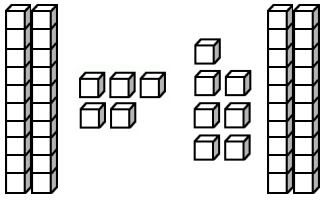
	tens	ones
	2	7
+		7

e.



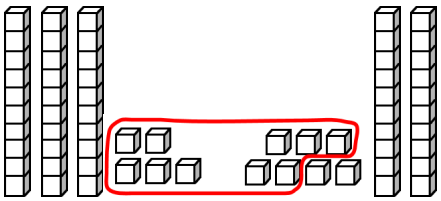
	tens	ones
	3	6
+	1	8

f.



	tens	ones
	2	5
+	2	7

When we make a new ten from the ones, we are **regrouping**. The ten ones get grouped as a ten, and are counted with the other tens.



This is also called **carrying to tens**. Imagine someone "gathering" ten little cubes in his lap and "carrying" them over into the tens column as 1 ten.

	tens	ones
	1	
	3	5
+	2	7
	6	2

To show this new ten, write a little "1" in the tens column above the other numbers. Then add in the tens-column as usual, adding the little "1" also.

2. Circle ten ones to make a new ten. Add the tens and ones in columns.

a.

	tens	ones
	1	
	1	3
+	2	9
		2

b.

	tens	ones
	1	
	2	4
+	3	8

c.

	tens	ones
	1	
	3	5
+	1	9

d.

	tens	ones
	1	
	2	4
+	4	7

e.

+		

f.

+		

g.

+		

h.

+		

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Adding Three or Four Numbers in Columns

Sometimes we get *two or three new* tens from the ones. We need to regroup.

In the ones, we add 8 + 7 + 8 = 23.

We write the two new tens in the tens column. Complete the problem.

$$\begin{array}{r} {\scriptstyle 2\ \ } \\ 48 \\ 27 \\ +\ 18 \\ \hline 3\ \ \end{array}$$

In the ones we add 9 + 9 + 7 + 6 = 18 + 13 = 31. We write *three* new tens in the tens column.

In the tens, we add 3 + 3 + 1 + 2 + 2 = 11. The answer is *more* than one hundred. It is 111 (one hundred eleven).

$$\begin{array}{r} {\scriptstyle 3\ \ } \\ 39 \\ 19 \\ 27 \\ +\ 26 \\ \hline 111 \end{array}$$

1. Add mentally. *Remember* to first try to find if any of the numbers **make 10**.

a. 8 + 4 + 5 = _____	**b.** 3 + 8 + 7 = _____	**c.** 8 + 5 + 6 + 4 = _____

2. Add. The answers are "hidden" in the list of numbers below the problems.

a.
$$\begin{array}{r} 52 \\ 30 \\ +\ 11 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 13 \\ 25 \\ +\ 54 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 33 \\ 38 \\ +\ 27 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 36 \\ 27 \\ +\ 19 \\ \hline \end{array}$$

e.
$$\begin{array}{r} 36 \\ 27 \\ 18 \\ +\ 16 \\ \hline \end{array}$$

f.
$$\begin{array}{r} 40 \\ 18 \\ 16 \\ +\ 22 \\ \hline \end{array}$$

g.
$$\begin{array}{r} 15 \\ 17 \\ 18 \\ +\ 39 \\ \hline \end{array}$$

h.
$$\begin{array}{r} 12 \\ 29 \\ 25 \\ +\ 14 \\ \hline \end{array}$$

i.
$$\begin{array}{r} 19 \\ 69 \\ +\ 19 \\ \hline \end{array}$$

j.
$$\begin{array}{r} 56 \\ 32 \\ +\ 29 \\ \hline \end{array}$$

k.
$$\begin{array}{r} 45 \\ 55 \\ +\ 19 \\ \hline \end{array}$$

l.
$$\begin{array}{r} 59 \\ 19 \\ +\ 42 \\ \hline \end{array}$$

74 80 82 89 91 92 93 96 97 98 117 107 120 119 122

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Chapter 5: Geometry and Fractions
Introduction

The fifth chapter of *Math Mammoth Grade 2* covers geometry topics and an introduction to fractions.

In geometry, the emphasis is on exploring shapes. Students are supposed to recognize and draw basic shapes, and identify triangles, rectangles, squares, quadrilaterals, pentagons, hexagons, and cubes. Drawing happens by first drawing dots on paper, then connecting those with a ruler.

We also study some geometric patterns, have surprises with pentagons and hexagons, and make shapes in a tangram-like game. These topics are to provide some fun while also let children explore geometry and help them memorize the terminology for basic shapes.

In the section on fractions, the student divides some basic shapes into halves, thirds, and fourths (quarters). They also learn the common notation for fractions (such as 1/3) and color parts to show a given fraction. We also study comparing fractions using visual models.

The Lessons

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

Polygon Playground
Drag various colorful polygons to the work area to make your own creations!
http://mathcats.com/explore/polygons.html

Tangram puzzles for kids
Use the seven pieces of the Tangram to form the given puzzle.
Complete the puzzle by moving and rotating the seven shapes.
http://www.abcya.com/tangrams.htm

Interactive Tangram Puzzle
Place the tangram pieces so they form the given shape. Uses Java.
http://nlvm.usu.edu/en/nav/frames_asid_112_g_2_t_1.html

Logic Tangram game
Note: this uses four pieces only. Use logic and spatial reasoning skills to assemble the four pieces into the given shape.
http://www.mathplayground.com/tangrams.html

Tangram set
Cutting instructions for making a Tangram set. Also includes a large gallery of puzzle shapes to make.
http://tangrams.ca/make-a-set
http://tangrams.ca/puzzle-shapes

Fractions - Part of a Whole
Divide the pie into pieces and color some. The computer shows the fraction.
http://nlvm.usu.edu/en/nav/frames_asid_102_g_2_t_1.html

Visualizing Fractions
The other way around as in the previous activity: the computer shows a fraction, and you divide the pie and color the pieces.
http://nlvm.usu.edu/en/nav/frames_asid_103_g_2_t_1.html

Naming Fractions
An interactive activity that asks the student to name the fraction shown.
http://nlvm.usu.edu/en/nav/frames_asid_104_g_2_t_1.html

Who Wants Pizza?
Lessons and interactive exercises about fractions, based on the pizza model.
http://math.rice.edu/~lanius/fractions/frac.html

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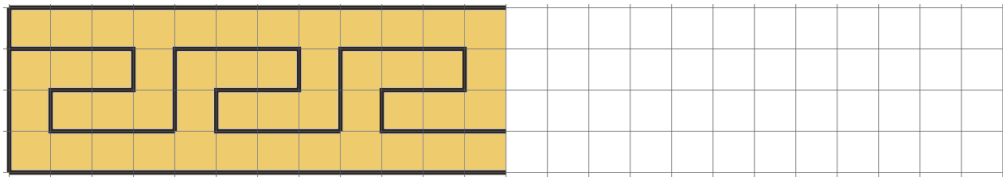
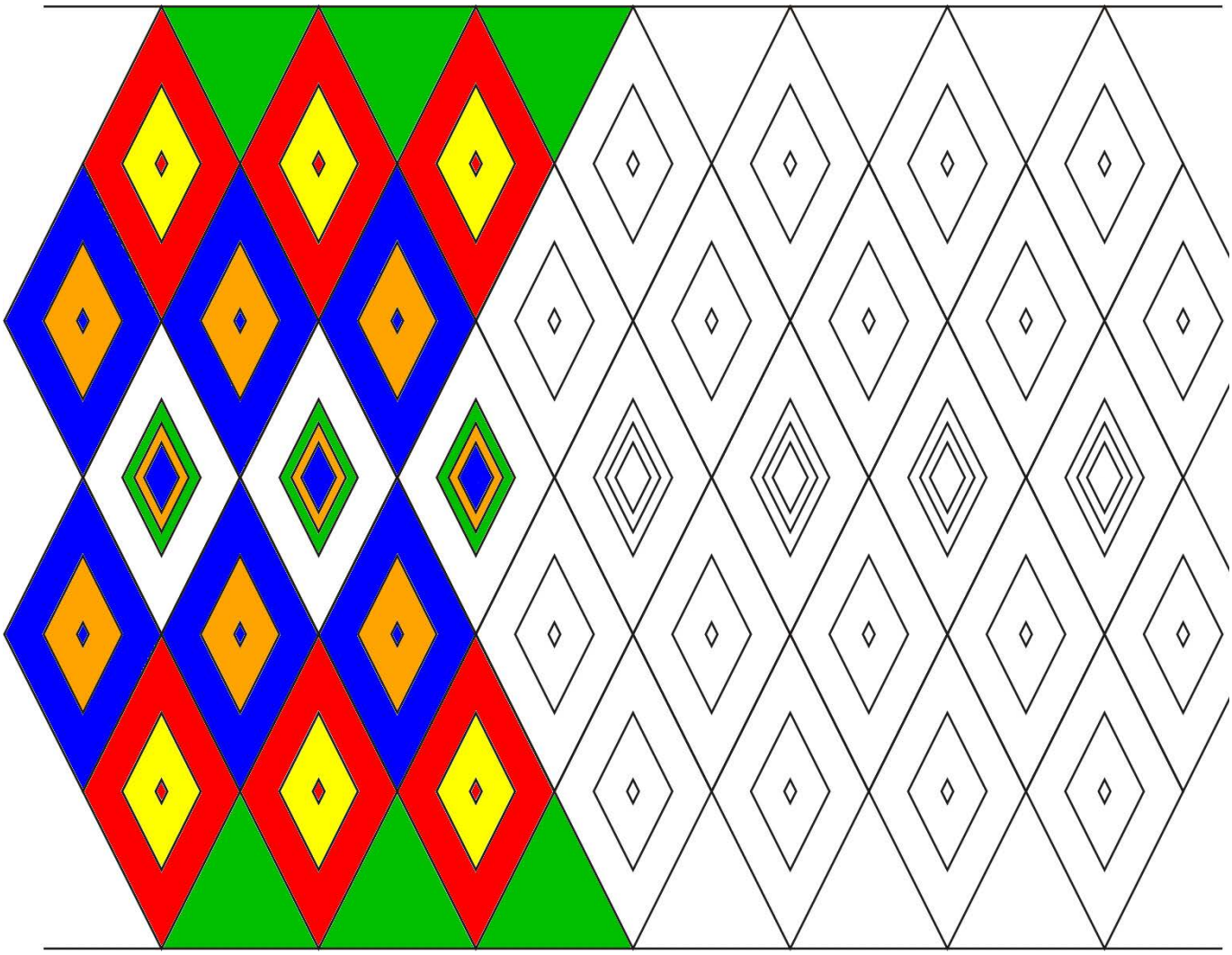
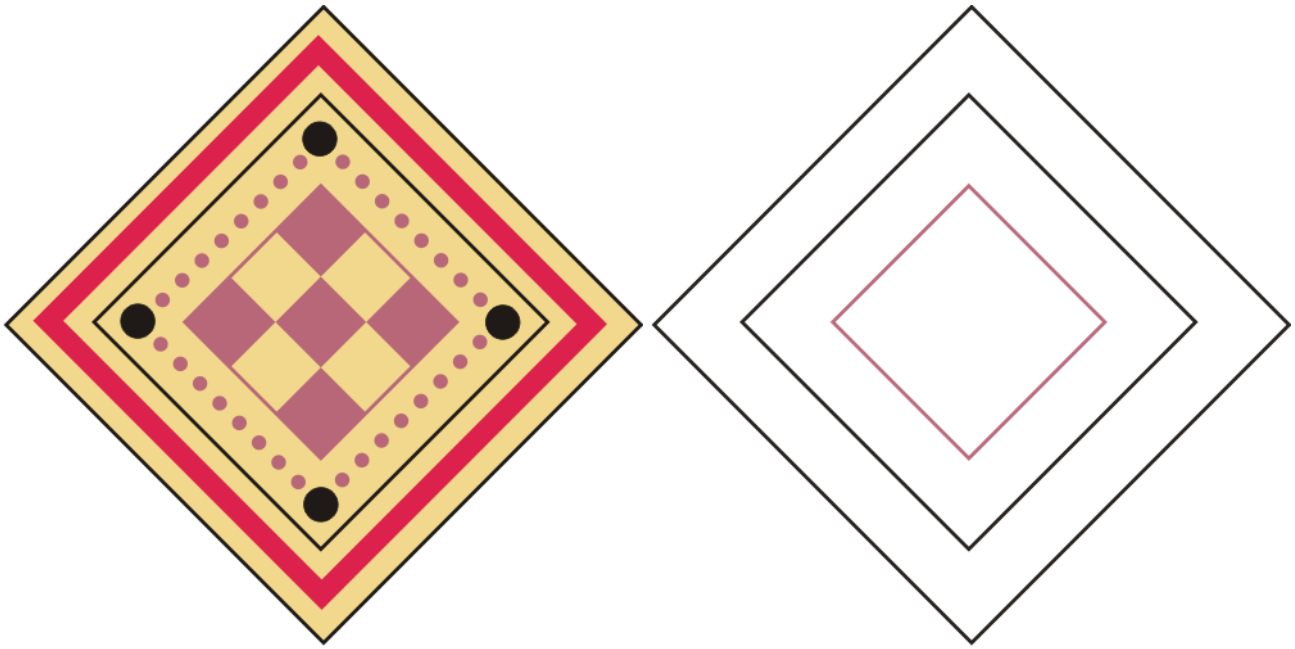
Geometric Patterns

1. The design below is often seen in Greek vases. Continue it.



2. This is a pattern from an apron used by Kirdi people in Cameroon, Africa. Notice it uses PARALLELOGRAMS that are inside each other. Continue the coloring in the pattern.



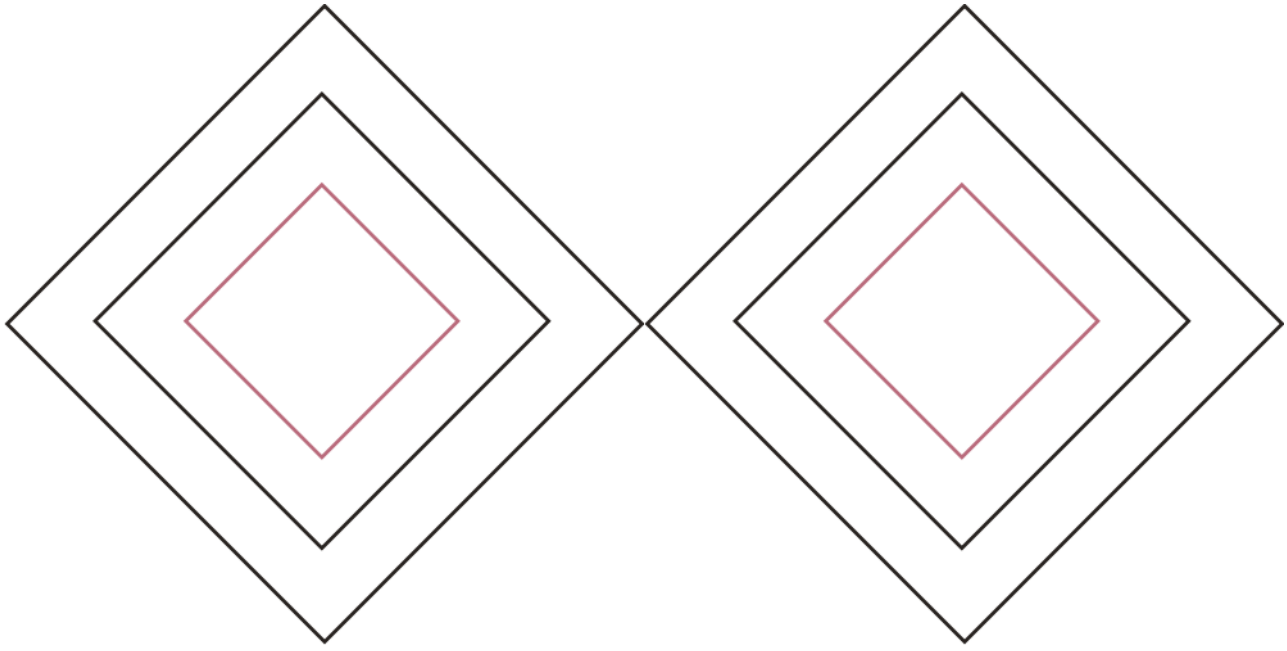


3. This is a geometric design found on a Greek vase.

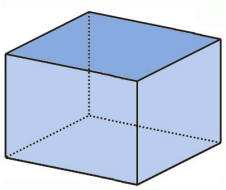
a. What two shapes are used in this design?

_____ and _____

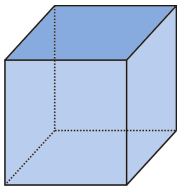
b. Copy the design at least once in the empty shapes.



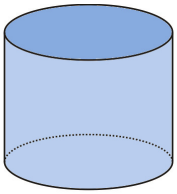
Solids



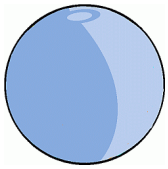
This is a **box**. It is also called a "rectangular prism."



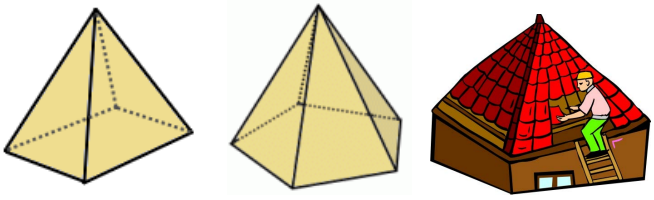
A **cube** is a box, too, but all of its sides are <u>equal in length</u>.



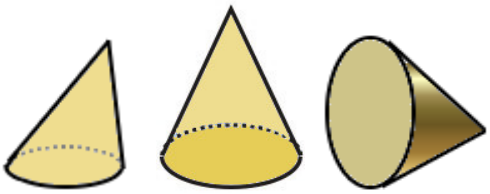
A **cylinder** has a circle on the bottom and at the top.



This is a **sphere**, or just a ball.



A pyramid has a pointed top. Its bottom shape can be any many-sided figure, such as a triangle, a rectangle, a square, or a pentagon.



<u>A cone</u> has a pointed top, as well, but it has a rounded shape on the bottom.

1. Make a cube, a cylinder, a cone, and a pyramid using the cut-outs provided on the following pages. Your teacher will help you.

2. A *face* is any of the flat sides of a solid.

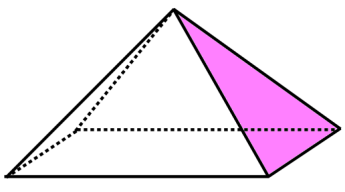
   a. Count how many faces a cube has. _____ faces

   What shapes are they?

   b. Count how many faces a box has. _____ faces

   What shapes are they?

   c. Count how many faces this pyramid has. _____ faces

   What shapes are they?

   d. Count how many faces a ball has. _____ faces

   How about the cylinder? It has there faces: the top and bottom circles are two faces, and the third face is "wrapped around" it. And the cone? It has two faces.

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math MAMMOTH

Grade 2- B Worktext

- **T**hree-digit numbers
- **M**easuring
- **R**egrouping in addition and subtraction
- **M**oney
- **I**ntroduction to multiplication

Light Blue Series

By Maria Miller

Contents

Chapter 8: Regrouping in Addition and Subtraction

Chapter 9: Money

Chapter 10: Exploring Multiplication

Foreword

Math Mammoth Grade 2-A and Grade 2-B worktexts comprise a complete math curriculum for the second grade mathematics studies. This curriculum is aligned to the Common Core standards. The four main areas of study for second grade are:

1. Understanding of the base-ten system within 1000. This includes place value with three-digit numbers, skip-counting in fives, tens, and multiples of hundreds, tens, and ones (within 1000).
   (chapters 6 and 8);

2. Develop fluency with addition and subtraction within 100, including solving word problems, regrouping in addition, and regrouping in subtraction (chapters 1, 3, 4, and 8);

3. Using standard units of measure (chapter 7);

4. Describing and analyzing shapes (chapter 5).

Additional topics we study are time (chapter 2), money (chapter 9), introduction to multiplication (chapter 10), and bar graphs and picture graphs (in various chapters).

This book, 2-B, covers three-digit numbers (chapter 6), measuring (chapter 7), regrouping in addition and subtraction (chapter 8), counting coins (chapter 9), and an introduction to multiplication (chapter 10). The rest of the topics are covered in the 2-A student worktext.

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. For the chapter on measuring, the child should be familiar with three-digit numbers.

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_grade2.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, chapter 3, which practices addition and subtraction facts within 18, 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 6: Three-Digit Numbers
Introduction

The sixth chapter of *Math Mammoth Grade 2* deals with three-digit numbers, or numbers up to one thousand.

The first lesson presents three-digit numbers with hundred-flats, ten-pillars, and one-cubes. Next we study three-digit numbers on a number line. In the lesson Forming Numbers—and Breaking Them Apart the child practices separating three-digit numbers into the different "parts": hundreds, tens, and ones. These first three lessons provide the basis for understanding three-digit numbers and place value.

Next we study Skip-Counting by Tens, and soon also by twos and fives. Then we compare and order three-digit numbers.

After this, the lessons change to mental math. First we study Adding and Subtracting Whole Hundreds mentally. Students practice completing the next hundred (problems such as 260 + ____ = 300). Then it is time to add and subtract whole tens mentally. Along the way students also solve word problems and other types of problems.

The chapter ends with some bar graphs and pictographs, which provide a nice application for now learned three-digit numbers.

The Lessons

Helpful Resources on the Internet

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

Base Blocks from the National Library of Virtual Manipulatives
Place enough hundred-flats, ten-sticks, and one-blocks into the work area to show given numbers. Choose "Columns = 3" to restrict the program to three-digit numbers.
http://nlvm.usu.edu/en/nav/frames_asid_152_g_1_t_1.html?from=category_g_1_t_1.html

Place Value to Thousands
Multiple choice questions; help the duck swing his golf club.
http://www.toonuniversity.com/flash.asp?err=496&engine=5

Cookie Dough
Either spell the number in words or write the digits.
http://www.funbrain.com/numwords/index.html

Inequalities
Arrange the digits to make two numbers so that the comparison is true. Use six digits for two 3-digit numbers.
http://www.primarygames.co.uk/PG5/Inequal/sidequal.html

Naming Numbers
These pages teach number naming skills covered in K8 math courses. Each page has an explanation, interactive practice and challenge games about naming numbers.
http://www.aaamath.com/B/nam.htm

Mostly Postie
Drag the parcel onto the scales, then enter the value shown to deliver your letter or parcel. Practices counting in 10s and 100s
http://www.ictgames.com/mostlyPostie.html

Helipad Hops
Read the "number" of the SOS message, add/subtract to make it the nearest whole ten, and click on the whole ten helipad where the helicopter should land.
http://www.ictgames.com/helipad%20hops7.html

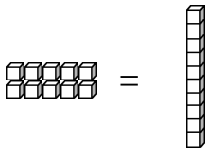
Place Value at AAAMath.com
Read, practice, and play with 3-digit numbers.
http://www.aaaknow.com/plc21ax2.htm

Line Dry Game
Fill in a missing number on the clothes line based on different skip counting patterns.
www.fuelthebrain.com/Game/play.php?ID=15

Thatquiz.org Quiz for Graphs
A 10-question quiz involving bar graphs and pictographs.
http://www.thatquiz.org/tq-5/?-j40v0h-l1-p0

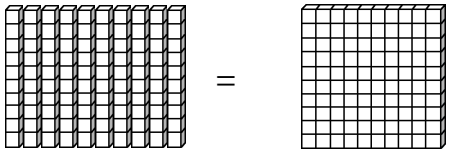
Three-Digit Numbers

Ten ones make a ten:



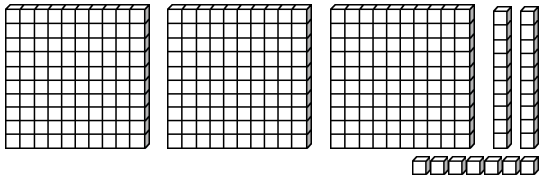
10 ones = 10

Ten ten-pillars make ONE HUNDRED:



10 tens = 100

Write hundreds, tens, and ones in their own columns:

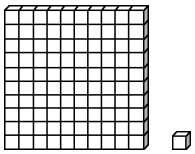


hundreds	tens	ones
3	2	7

three hundred twenty-seven

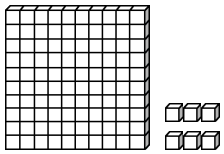
1. Count the ones, tens, and hundreds, and fill in the missing parts.

a. one hundred one



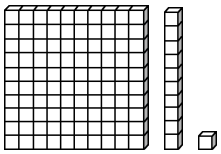
hundreds	tens	ones
1	0	1

b. one hundred six



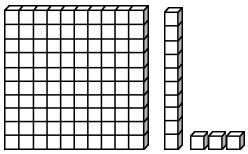
hundreds	tens	ones

c. one hundred eleven



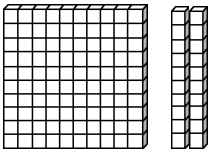
hundreds	tens	ones
1	1	1

d. one hundred thirteen



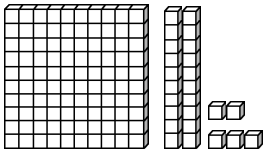
hundreds	tens	ones

e. one hundred twenty



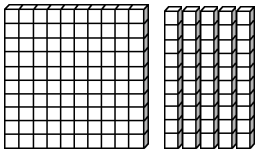
hundreds	tens	ones

f. one hundred twenty-five



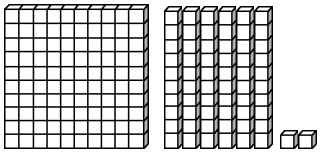
hundreds	tens	ones

g. one hundred fifty



hundreds	tens	ones

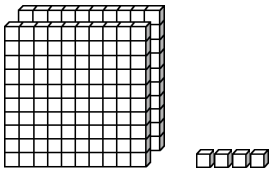
h. one hundred sixty-two



hundreds	tens	ones

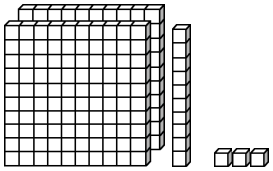
2. Count the ones, tens, and hundreds, and fill in the missing parts.

a. two hundred four



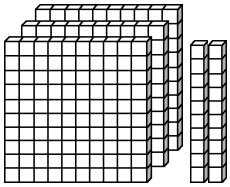
hundreds	tens	ones
2	0	4

b. two hundred thirteen



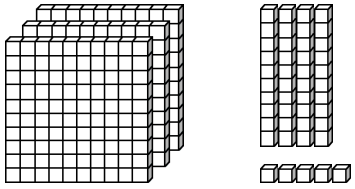
hundreds	tens	ones

c. _____



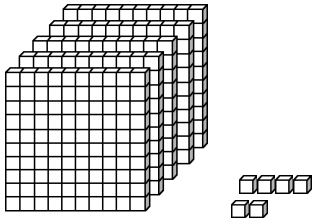
hundreds	tens	ones

d. _____



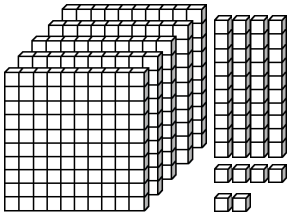
H	T	O

e. _____



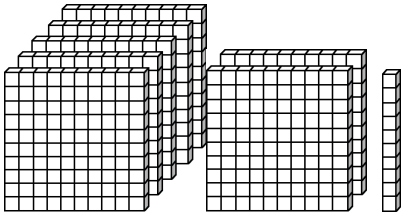
H	T	O

f. _____



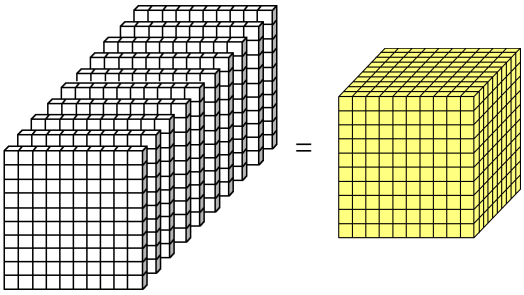
H	T	O

g. _____



H	T	O

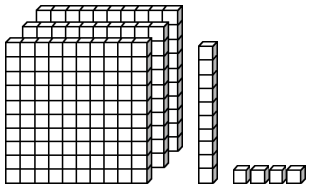
h. Ten hundreds = One thousand



Th	H	T	O
1	0	0	0

3. Write in numerals a sum of the hundreds, tens, and ones shown in the picture.
Also write the number.

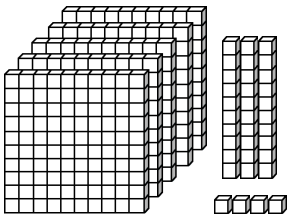
a.



_____ + _____ + _____

H	T	O

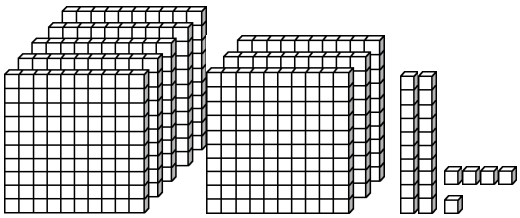
b.



_____ + _____ + _____

H	T	O

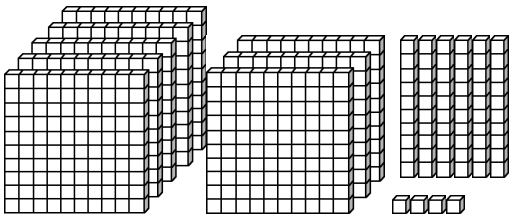
c.



_____ + _____ + _____

H	T	O

d.

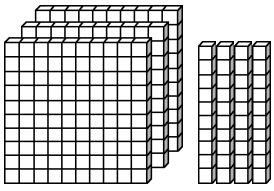


_____ + _____ + _____

H	T	O

Notice: There are NO ones.
Write a zero for ones in the sum.

e.

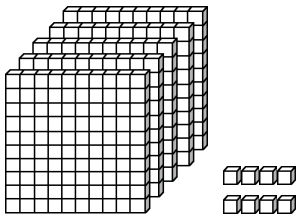


_____ + _____ + 0

H	T	O

Notice: There are NO tens.
Write a zero for tens in the sum.

f.



_____ + 0 + _____

H	T	O

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Patterns and Problems

1. Three children played a card game where you get points for the cards left in your hand. The person who has the least points at the end of the game is the winner. The table shows the point count at a certain time in the game:

   Then, Dan got 100 more points and Bill got 30 more points (Jim got none).

   Add those to their point counts and write the new point counts in the grid.

   The game ended now. Who won?

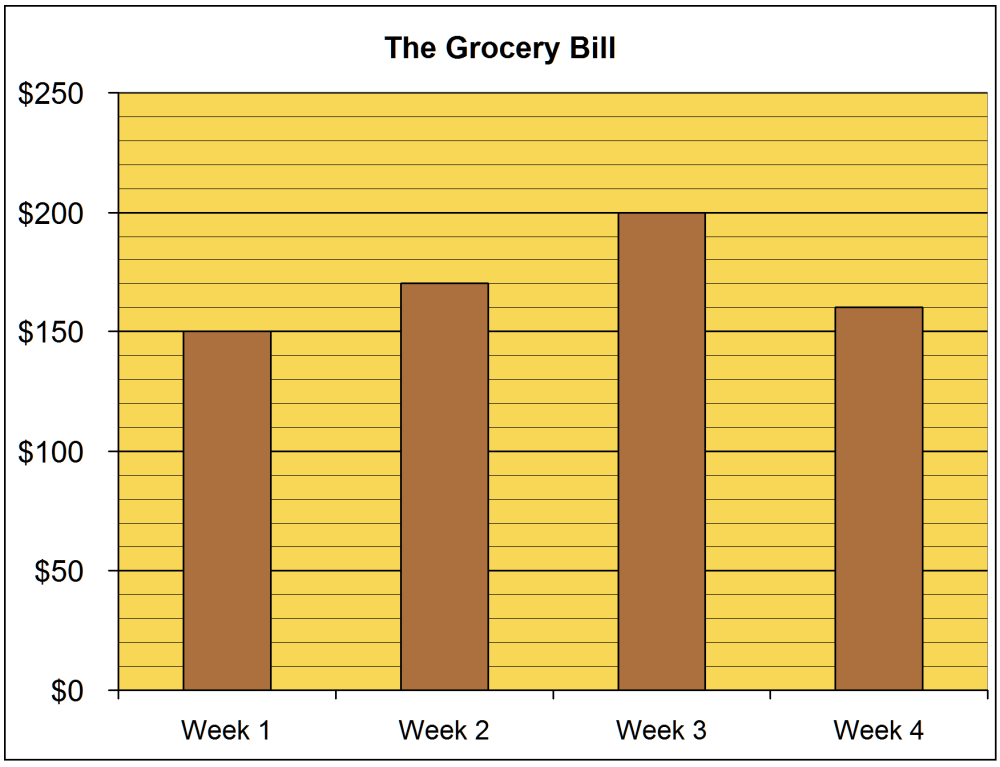
Jim	Dan	Bill
540	270	330

2. The bar graph shows how much money the Riley family spent for groceries in four different weeks.

   a. Mark above each bar how much they spent for groceries in dollars.

   b. How much more did they pay for week 3 than for week 4?

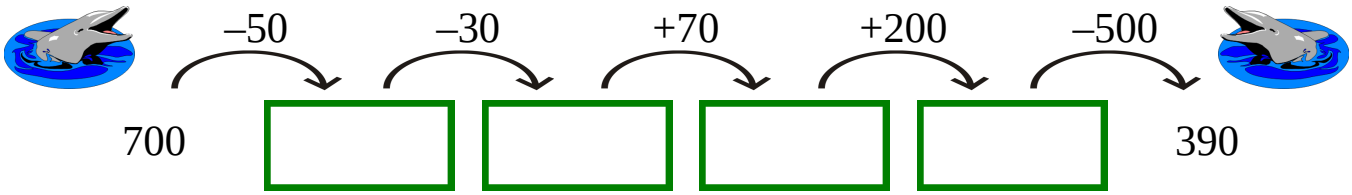
   c. How much more did they pay for week 2 than for week 1?

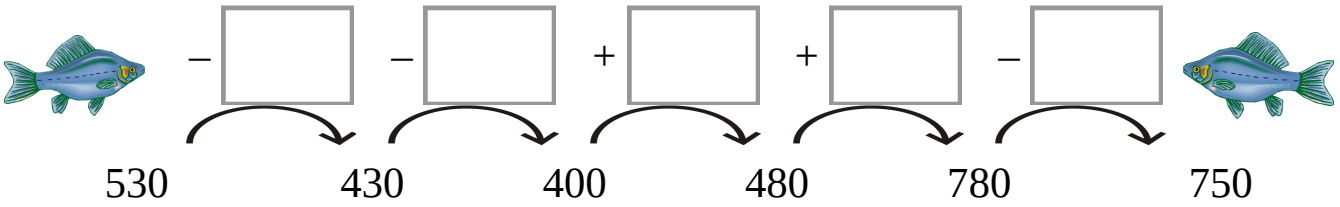


3. Count by 20s, and fill in the grid.

520	540	560		
620				
820				
				1000

4. Fill in.





5. Continue the patterns!

a. 590 – 60 = _____

590 – 70 = _____

590 – 80 = _____

590 – _____ = _____

590 – _____ = _____

590 – _____ = _____

b. 770 + 10 = _____

770 + 20 = _____

770 + 30 = _____

770 + _____ = _____

770 + _____ = _____

770 + _____ = _____

6. Find what number goes in the oval.

Subtractions where the TOTAL is missing:	**a.** ◯ – 60 = 220	**b.** ◯ – 80 = 510
	c. ◯ – 500 = 100	**d.** ◯ – 310 = 60

e. 450 + ◯ = 750	**f.** 716 + ◯ = 776	"How many more" additions
g. 530 + ◯ = 590	**h.** 637 + ◯ = 697	

What was subtracted is missing:	**i.** 1000 – ◯ = 700	**j.** 740 – ◯ = 40
	k. 667 – ◯ = 607	**l.** 999 – ◯ = 299

Find what number goes into the oval!

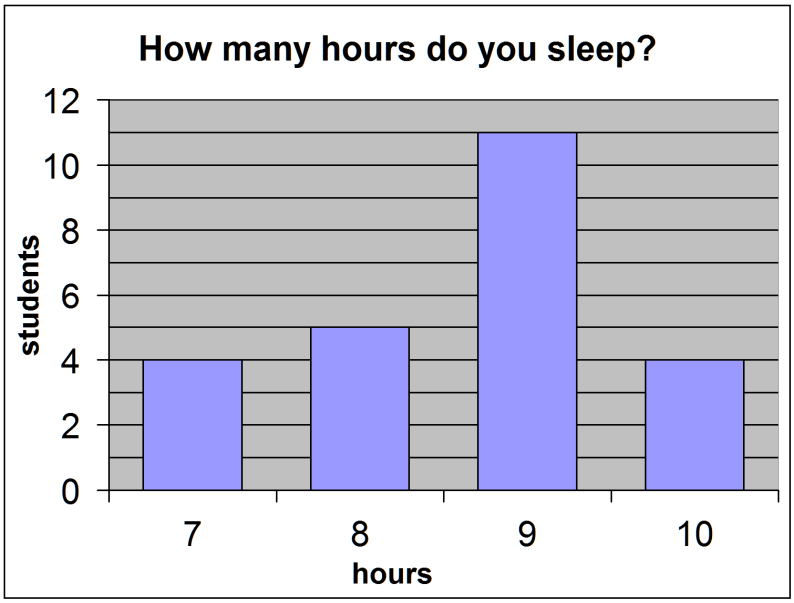
Puzzle Corner

a. 980 – 200 – ◯ = 80	**b.** 784 – ◯ – 40 = 704
c. 210 + 50 + ◯ = 310	**d.** 600 + ◯ + 30 = 720

Bar Graphs and Pictographs

Bar graphs use "bars" or rectangles in them to show some information.

1. This bar graph shows how many hours some second grade students slept last night.



a. How many students slept 8 hours last night?

b. How many students slept 10 hours last night?

c. *How many more* students slept 9 hours than the ones who slept 10 hours?

d. A school nurse said that children need to sleep well for at least 8 hours. How many students had slept *less than* 8 hours last night?

e. How many students had slept *at least* 8 hours last night?

f. Make a pictograph. Draw ONE sleepy face to mean 2 students.

	Students
Students who slept less than 8 hours	
Students who slept at least 8 hours	

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Chapter 7: Measuring
Introduction

The seventh chapter of *Math Mammoth Grade 2* covers measuring length and weight. The student measures and estimates length in inches and half-inches, and learns to measure to the nearest half-inch or to the nearest centimeter. The bigger units—feet, miles, meters, and kilometers—are introduced, but in this grade level the students do not yet study conversions between the units.

The lessons on measuring weight have several activities to do at home using a bathroom scales. The goal is to let students become familiar with pounds and kilograms, and have an idea of how many pounds or kilograms some common things weigh.

When it comes to measuring, experience is the best teacher. So, encourage your child to use measuring devices (such as a measuring tape, ruler, and scales), and to "play" with them. In this way the various measuring units start to become a normal part of his/her life, and are never forgotten.

The concrete activities we do in second grade are laying an important foundation for familiarizing the students with measuring units. In third grade, we will study volume later grades, the study of measuring turns toward conversions between the different units.

The Lessons

Helpful Resources on the Internet

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

Measuring Scales
An interactive scales. You can put weights on it, change the maximum and the interval, and thus show the student how to read the scales.
http://www.rsc-northwest.ac.uk/acl/eMagArchive/RSCeMag0910/FunctionalSkillsResources/measuring_scales.html

Scales Reader
Practice reading the scales in grams and/or kilograms.
http://www.ictgames.com/weight.html

Measure It!
Click on the ruler to measure a red bar.
http://onlineintervention.funbrain.com/measure/index.html

Reading Scales
Helps teachers to illustrate a variety of measuring devices and how to read them.
http://www.teacherled.com/2009/02/18/reading-scales-2/

Reading a tape measure worksheets
Worksheet generator - you can choose to hat accuracy to measure - inches, or inches & feet.
http://themathworksheetsite.com/read_tape.html

Inchy Picnic Game
Measure with a ruler to find how many inches Andy Ant needs to go.
http://www.fuelthebrain.com/Game/play.php?ID=4

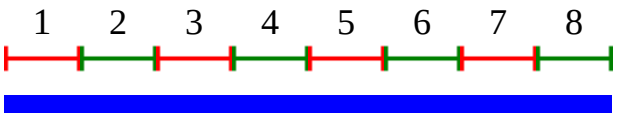
Measuring to the Nearest Centimeter

Remember? We can measure how long things are using *centimeters*.

This line is 1 centimeter long: 

A centimeter is written shortly as "cm."

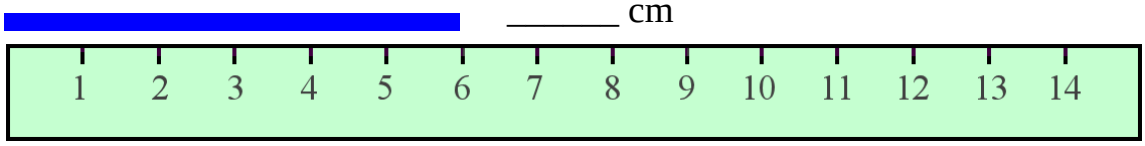
The blue line on the right is 8 cm long. →



1. How many centimeters long are these lines?

a.  _____ cm

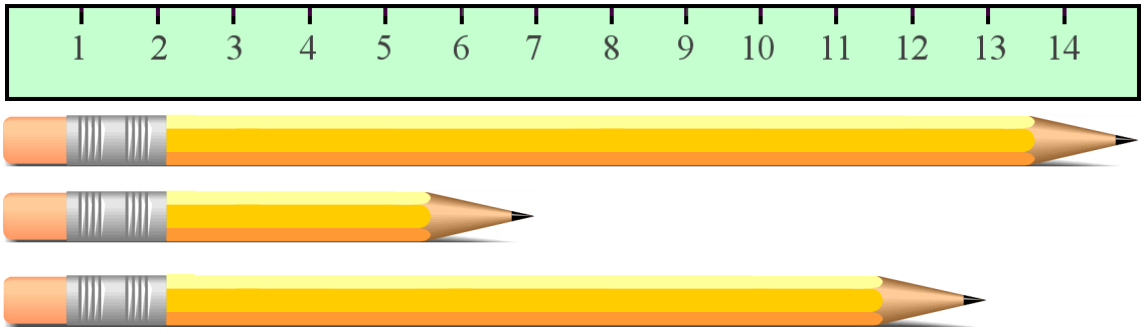
b.  _____ cm

c.  _____ cm

d. 

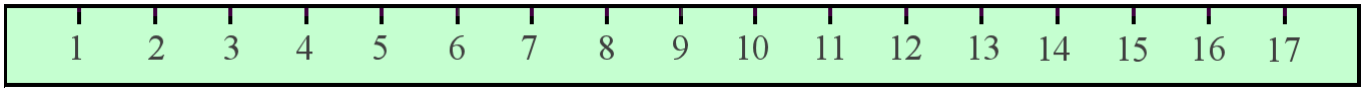
_____ cm

2. Measure the pencils with a centimeter ruler. If you don't have one, you can cut out the one from the bottom of this page. Then answer the questions.



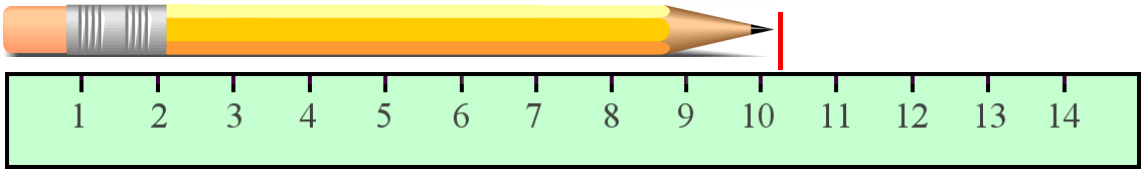
a. How much longer is pencil #1 than pencil #2? _____ cm

b. How much longer is pencil #3 than pencil #2? _____ cm

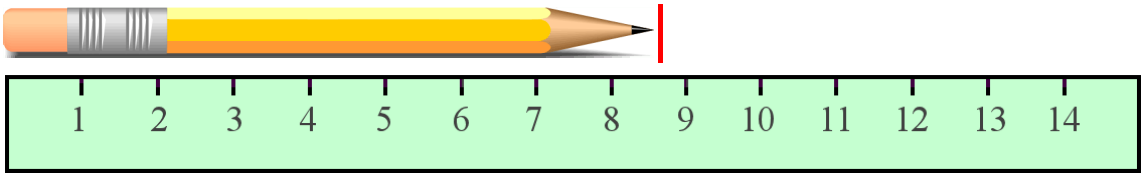


Most things are NOT exactly a certain number of whole centimeters.
You can measure them to the nearest centimeter.

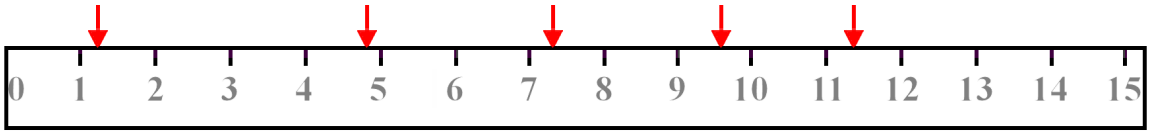
The pencil below is a little over 10 cm long. It is *about 10* cm long.



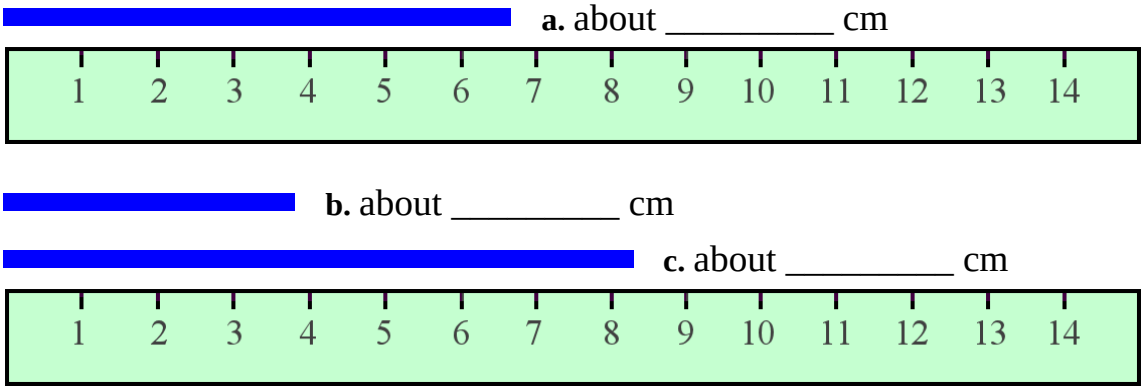
This pencil is about 9 cm long. The end of the pencil is closer to 9 cm than to 8 cm.



3. Circle the number that is nearest to each arrow.



4. Measure the lines to the nearest centimeter.



5. This line is 1 cm long: ⊢—⊣ . Your finger is probably about that wide; put it on top of the 1-cm line and check! Guess how long these lines are. Then measure.

	My guess:	**Measurement:**
a. ———————	about _____ cm	about _____ cm
b. ———	about _____ cm	about _____ cm
c. ———————	about _____ cm	about _____ cm

6. **a.** Find two small objects. Measure to find *about* how many centimeters longer one is than the other.

   The _____ is *about* _____ cm longer

   than the _____.

   b. Find other two small objects. Measure to find *about* how many centimeters longer one is than the other.

   The _____ is *about* _____ cm longer

   than the _____.

7. Draw some lines here or on blank paper. Use a ruler. Hold the ruler down tight with one hand, while drawing the line with the other. It takes some practice!

   a. 6 cm long

   b. 3 cm long

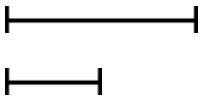
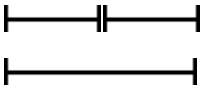
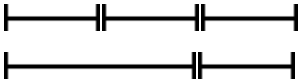
   c. 12 cm long

   d. 17 cm long

8. Find some small objects. First GUESS how long or tall they are. Then measure. If the item is not exactly so-many centimeters long, then measure it to the nearest centimeter and write "about" before your cm-number, such as *about 8 cm.*

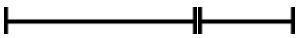
Item	GUESS	MEASUREMENT
	cm	cm
	cm	cm
	cm	cm
	cm	cm
	cm	cm

Inches and Half-Inches

 This line is 1 inch long. This line is 1/2 inch long.	 Two half-inches make an inch!
 3 inches and a 1/2-inch = 3 1/2 inches (three and a half inches)	 three half-inches = 1 1/2 inches (one and a half inches)

1. How long of a train of inches and half-inches are end-to-end?

a.  _____ inches

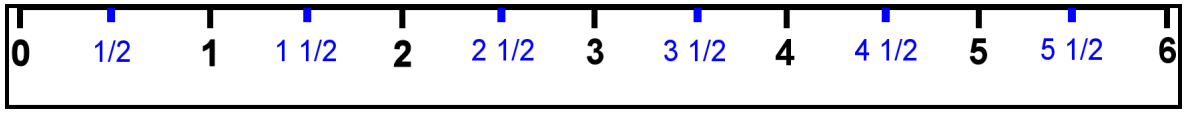
b.  _____ inches

c.  _____ inches

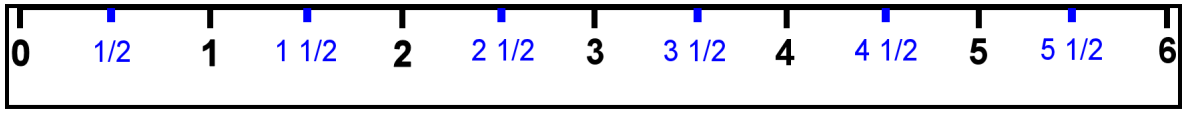
d.  _____ in.

2. How long are these things in inches?

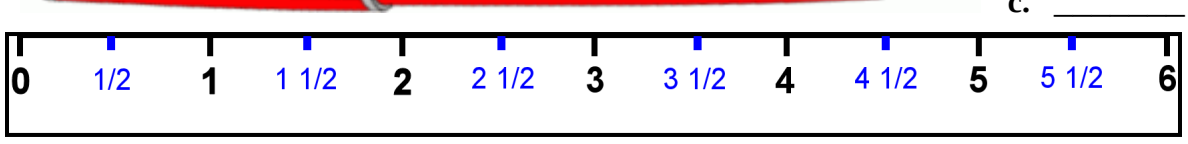
a. _____ inches



b. _____ inches



c. _____ inches



You can cut out the ruler above and tape it on an existing ruler or cardboard!

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Chapter 8: Regrouping in Addition and Subtraction

Introduction

The eight chapter of *Math Mammoth Grade 2* deals with regrouping in addition (a.k.a. carrying) and in subtraction (a.k.a. borrowing).

In the first lesson, the student adds three-digit numbers, regrouping in tens, but there is no regrouping in hundreds. Students already know how to regroup two-digit numbers so this lesson only extends that knowledge to numbers that have three digits.

In the next lesson students regroup ten tens as a hundred (or carry to the hundreds). This is first illustrated with visual models. You can do the exercises that include visual models with manipulatives instead (base ten blocks), if you prefer.

Then we study regrouping twice: 10 ones form a new ten, and then 10 tens form a new hundred. Again, students work first with visual models, with the aim of helping them to understand the concept itself. Then, they do the process with numbers only, adding in columns.

Next we study regrouping in subtraction, starting with two-digit numbers. First, students learn to break 1 ten into 10 tens. For example, 5 tens 4 ones is written as 4 tens 14 ones—one ten gets "broken down" into 10 tens. This is the process of regrouping: one of the tens "changes groups" from being with the tens to being with the ones.

After students have mastered that, then it is time to use regrouping in subtraction problems and learn the traditional way of subtracting in columns (the numbers are written under each other).

Then we study word problems with more and fewer, and and also several techniques or "tricks" for mental subtraction. The word problems in the chapter require both addition and subtraction. I do not like putting only subtraction word problems to a lesson that is about subtraction. Students need to practice recognizing whether a problem requires addition or subtraction, thus each set of word problems typically includes both kinds.

After this it is time to study regrouping in subtraction with three-digit numbers. There are three cases:

1. Regrouping 1 ten as 10 ones, such as is needful for 546 − 229.
2. Regrouping 1 hundred as 10 tens, such as is needful for 728 − 441.
3. Regrouping two times (1 ten as 10 ones, and 1 hundred as 10 tens), such as is needful for 725 − 448.
4. Regrouping with zero tens, such as is needful for 405 − 278. Here, first we regroup 1 hundred as 10 tens, then 1 ten as 10 ones.

In 2nd grade, we ONLY study cases (1) and (2) from the list above. The other two will be studied in third grade. Again, students first practice the regrouping process with visual models. You could use base-ten blocks instead.

In the end of the chapter, students encounter bar graphs again. They also play Euclid's game, which is meant as a fun, supplemental lesson. You may omit it if time does not allow.

The Lessons

Helpful Resources on the Internet

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

Base Blocks Addition
A virtual manipulative that shows regrouping in addition. You can either solve addition problems that are provided, or create your own. "Lasso" with a mouse ten units, ten tens, or ten hundreds to regroup them. Choose "Columns = 3" to restrict the work to three-digit numbers.
http://nlvm.usu.edu/en/nav/frames_asid_154_g_1_t_1.html?from=category_g_1_t_1.html

Base Blocks Subtraction
A virtual manipulative that helps teach borrowing in subtraction. Choose "Create Problem", then click on the red and blue blocks to create a problem. The number to be subtracted (the subtrahend) is illustrated by the RED blocks whereas the minuend is by the BLUE blocks. Click BEGIN problem to start solving. Drag a red block on top of a blue to "subtract" —they cancel each other. Drag bigger place values to the column on their right to "break them up"—in other words regroup or borrow. Choose "Columns = 3" to restrict the work to three-digit numbers.
http://nlvm.usu.edu/en/nav/frames_asid_155_g_1_t_1.html?from=category_g_1_t_1.html

Regrouping in vertical addition
Shows hundreds, tens, ones as pictures, and asks you to regroup if needed.
http://www.harcourtschool.com/justforkids/math/elab/samplepages/g3a02.htm

Callum's Addition Pyramid
Add the pairs of numbers to get a number on the next level and finally the top number.
Choose the "hard" level to add two and three-digit numbers.
http://www.amblesideprimary.com/ambleweb/mentalmaths/pyramid.html

Thatquiz.org Quiz for Graphs
A 10-question quiz involving bar graphs and pictographs.
http://www.thatquiz.org/tq-5/?-j40v0h-l1-p0

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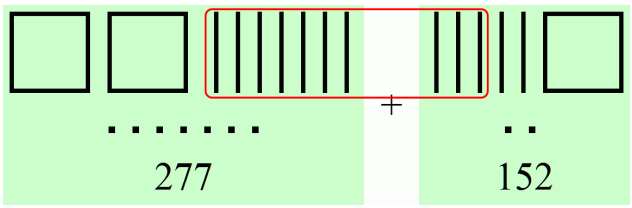
Regrouping 10 Tens as a Hundred



Ten TENS are grouped to make a new hundred!

	hundreds	tens	ones
	1		
	2	7	7
+	1	5	2
	4	2	9

In the TENS, there are 7 tens and 5 tens to add (277 has 7 tens, and 152 has 5 tens).

That is 12 tens. And, **10 tens makes a hundred!** So, we make a new hundred, and regroup that with the other hundreds, writing the new hundred with a little "1" in the hundreds column.

(We have 2 tens left over from that, and they stay in the tens column.)

1. Circle ten 10-sticks to make a new hundred. Write the addition.
   Alternatively, you can do these exercises using base-ten blocks or similar manipulatives.

a. ||||||| + |||||

_____ + _____ = _____

b. H H |||||| + |||||

_____ + _____ = _____

c. H H |||| + |||||
H H ||||

_____ + _____ = _____

d. H |||| + |||||||
H ||| . . . . .

_____ + _____ = _____

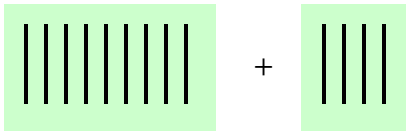
e. H H |||||| + ||||||
H H H || . H

_____ + _____ = _____

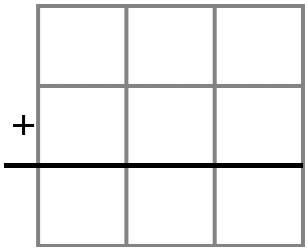
f. H H ||| + |||||||| H
H H ||| . . . . . .

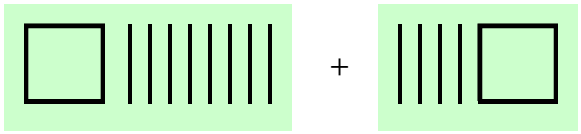
_____ + _____ = _____

2. Write the numbers in the grid, and add. Regroup. You can circle 10 ten-sticks in the picture to help you. Alternatively, you can do these exercises using base-ten blocks or similar manipulatives.

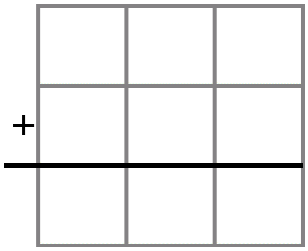
a. 

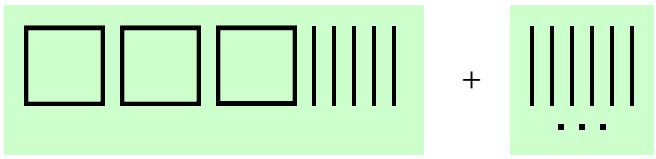
90 + 40



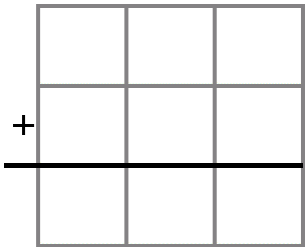
b. 

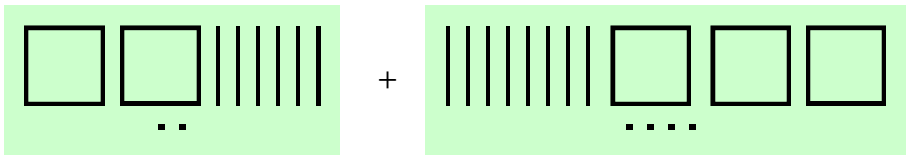
180 + 140



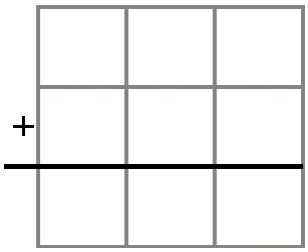
c. 

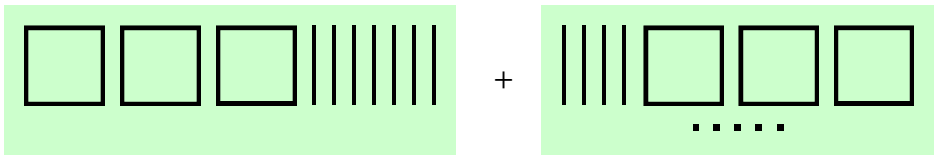
350 + 63



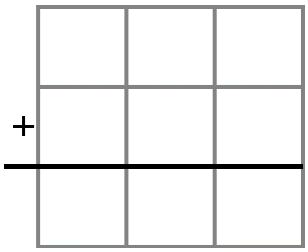
d. 

262 + 384



e. 

370 + 345



3. Add mentally. Compare the problems. Notice you get a NEW hundred from the tens!

a.	b.	c.
70 + 40 = _____	50 + 60 = _____	90 + 50 = _____
170 + 40 = _____	150 + 60 = _____	290 + 50 = _____
270 + 40 = _____	250 + 60 = _____	490 + 50 = _____

4. Add. You need to regroup 10 tens as a new hundred.

a.
$$\begin{array}{r} 80 \\ +\ 30 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 220 \\ +\ 90 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 64 \\ +\ 53 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 370 \\ +\ 74 \\ \hline \end{array}$$

e.
$$\begin{array}{r} 533 \\ +\ 282 \\ \hline \end{array}$$

f.
$$\begin{array}{r} 67 \\ +\ 72 \\ \hline \end{array}$$

g.
$$\begin{array}{r} 224 \\ +\ 193 \\ \hline \end{array}$$

h.
$$\begin{array}{r} 464 \\ +\ 392 \\ \hline \end{array}$$

i.
$$\begin{array}{r} 355 \\ +\ 374 \\ \hline \end{array}$$

j.
$$\begin{array}{r} 787 \\ +\ 82 \\ \hline \end{array}$$

5. Add mentally. THINK of the new hundred you might get from adding the tens.

a.	b.	c.
70 + 40 = _____	80 + 60 = _____	290 + 50 = _____
130 + 40 = _____	270 + 60 = _____	220 + 50 = _____
160 + 50 = _____	130 + 50 = _____	190 + 20 = _____

6. What number was added? Think of regrouping!

a.
$$\begin{array}{r} 167 \\ +\ 1\square 2 \\ \hline 359 \end{array}$$

b.
$$\begin{array}{r} 240 \\ +\ 1\square 2 \\ \hline 422 \end{array}$$

c.
$$\begin{array}{r} 391 \\ +\ 4\square 2 \\ \hline 813 \end{array}$$

d.
$$\begin{array}{r} 653 \\ +\ 1\square 3 \\ \hline 846 \end{array}$$

e.
$$\begin{array}{r} 375 \\ +\ 1\square 4 \\ \hline 559 \end{array}$$

7. Add and match the answers with the letters in the key. Then use the key to unravel the message.

W	**L**	**P**	**T**	**S**
233 + 758	553 + 346	597 + 330	191 + 751	282 + 647

E	**O**	**A**	**E**	**I**
111 + 729	772 + 132	474 + 343	217 + 639	470 + 399

G	**N**	**R**	**F**	**H**
216 116 + 529	231 240 + 432	85 205 + 643	136 134 + 589	105 301 + 459

Key:

817	840	856	859	861	865	869	899	903	904	927	933	929	942	991

When the  and the  ran a race, who won?

942	865	840

856	899	856	927	865	817	903	942

, because

942	865	856

861	869	933	817	859	859	840

991	817	929

869	903

942	865	856

933	840	859	933	869	861	856	933	817	942	904	933

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Review

1. Add.

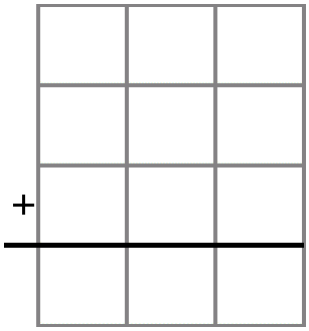
a.
$$\begin{array}{r} 215 \\ +\ 477 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 192 \\ +\ 225 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 303 \\ 128 \\ +\ 287 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 409 \\ 219 \\ +\ 136 \\ \hline \end{array}$$

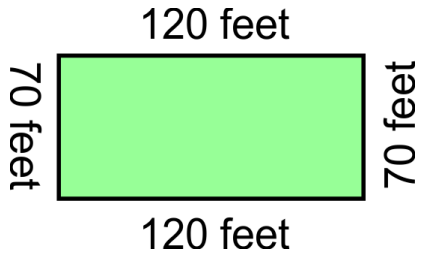
2. Sarah bought three bicycles for her children.
Each bicycle cost $154.
How much was the total cost?

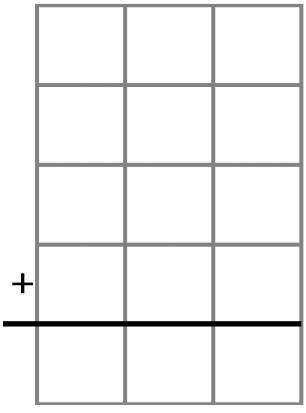


3. Add mentally. THINK of the new hundred you might get from adding the tens.

a.	**b.**	**c.**
80 + 40 = _____	90 + 90 = _____	690 + 50 = _____
780 + 40 = _____	240 + 50 = _____	470 + 80 = _____

4. Find how many feet it is if you walk all of the way around this rectangle.





5. Subtract. Regroup if necessary. Check each subtraction by *adding your answer and the number you subtracted*.

a. 88 − 54 = _____ ; 54 + _____ = 88	**b.** 63 − 48 = _____ ; 48 + _____ = 63
c. 84 − 49 = _____ ; 49 + _____ = 84	**d.** 882 − 159 = _____ ; 159 + _____ = 882
e. 556 − 391 = _____ ; 391 + _____ = 556	**f.** 550 − 246 = _____ ; 246 + _____ = 550

6. Subtract using mental math methods.

a. 15 − 7 = _____ 55 − 7 = _____	**b.** 13 − 5 = _____ 93 − 5 = _____	**c.** 82 − 77 = _____ 45 − 41 = _____
d. 80 − 71 = _____ 100 − 95 = _____	**e.** 56 − 40 = _____ 56 − 43 = _____	**f.** 78 − 35 = _____ 33 − 4 = _____

7. Find what numbers are missing.

a.
$$\begin{array}{r} 2\square 4 \\ +\ 4\ 7\ 7 \\ \hline 7\ 3\ 1 \end{array}$$

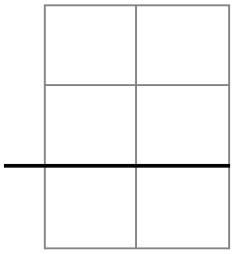
b.
$$\begin{array}{r} 5\square 9 \\ +\ \square\ 2\ 5 \\ \hline 9\ 1\ 4 \end{array}$$

c.
$$\begin{array}{r} 2\ 0\square \\ +\ 6\square\ 6 \\ \hline 8\ 9\ 2 \end{array}$$

d.
$$\begin{array}{r} 6\ 8\square \\ +\ \square\ 1\ 9 \\ \hline 9\ 0\ 0 \end{array}$$

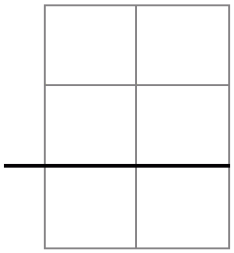
8. Solve.

a. Some people are riding on the bus. At the bus stop, 13 people get on. Now there are 52 people on the bus. How many were there originally?



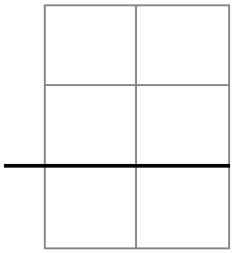
b. Molly has 23 stuffed toys that she likes, and 16 that she does not care for.

How many stuffed toys does Molly have?

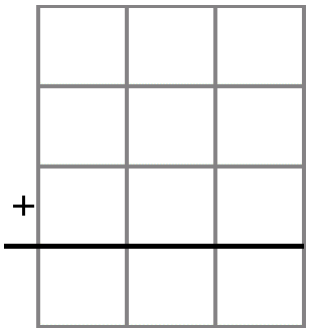


c. Molly gave the 16 toys she does not like to her sister Annie. Now, Annie has 33 toys.

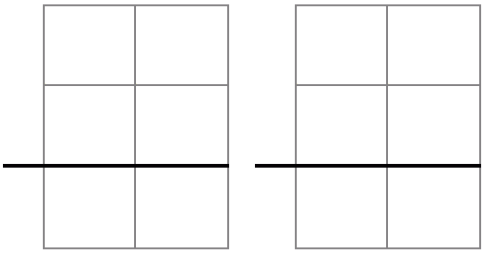
How many toys did Annie have before?



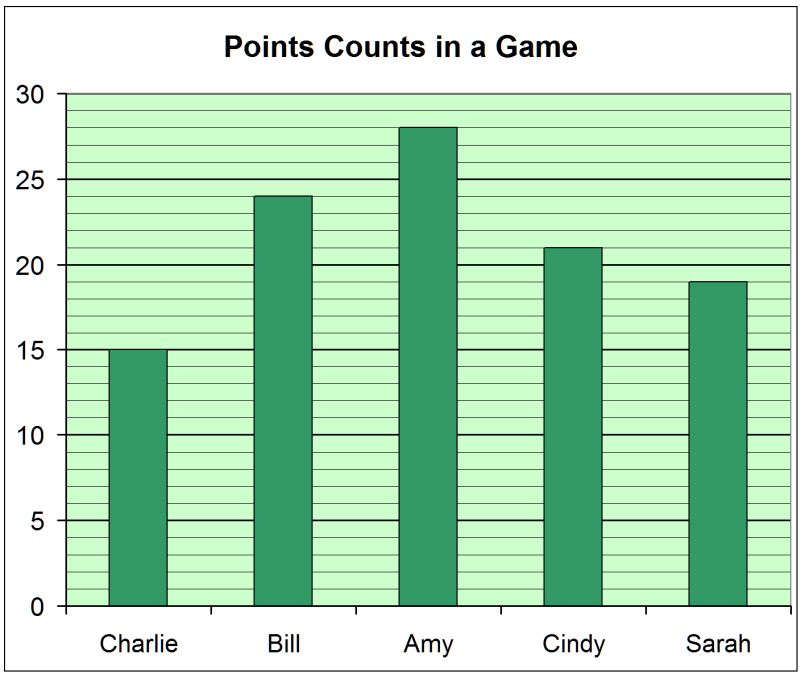
d. Jessica had 465 points in a computer game. She played and got 145 more points. Then she also got a 90-point bonus! How many points does Jessica have now?



e. Olivia did 26 jumping jacks, which was 14 fewer jumping jacks than what her brother Aaron did. How many jumping jacks did Aaron do?



9. **a.** Fill in the table with how many points the children got in the game.



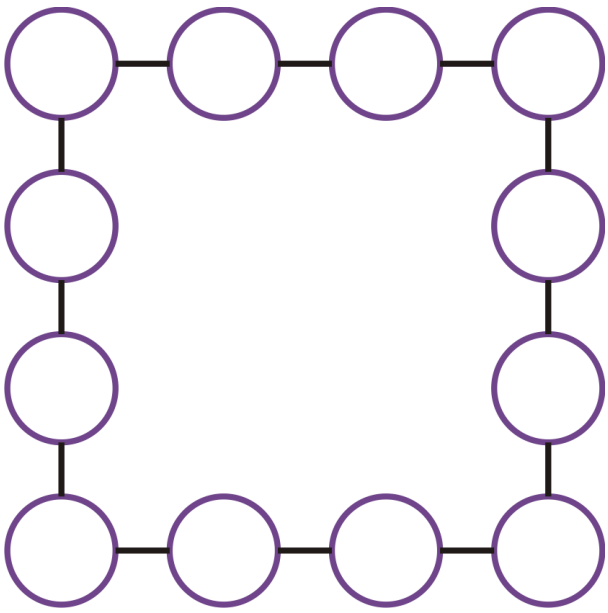
CHILD	POINTS
Charlie	15
Bill	
Amy	
Cindy	
Sarah	

b. How many fewer points did Bill get than Amy?

c. How many more points did Cindy get than Charlie?

Can you place numbers from 1 through 12 into the circles so that the sum of each connecting line is 26?

Hint: The numbers going to the top corners are 7 and 6, and the numbers going to the bottom corners are 5 and 8.



Chapter 9: Money
Introduction

In chapter 9, students first count coins and bills, and learn to write money amounts in cents or in dollars. Then we practice finding change, starting with very easy problems, such as buying a 40¢ item and paying with $1. Students also learn to find change by counting up. Only small money amounts are used. If you like, you can use real or fake money and set up a play store for these exercises.

Lastly, students add small money amounts in columns (where numbers are written under each other). This topic requires that they have mastered regrouping in addition as has been studied in chapter 8.

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

The Lessons

Helpful Resources on the Internet

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

US Money Worksheets
Count common US coins or bills. You can choose which coins/bills will be used, and how many coins/bills are shown at most. Other currencies (Euro, Canadian, Australian, British, and South African) are available at www.homeschoolmath.net/worksheets
http://www.homeschoolmath.net/worksheets/money.php

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

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

Counting Money Activity from Harcourt
Count the coin value and type it into the box and click "Check".
http://www.hbschool.com/activity/counting_money/

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

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

Coins and Medals from U.S. Mint
History and pictures of the circulating coins, commemorative coins, Native American $1 Coin Program, and the Presidential $1 Coin Program. Learn also how coins are made and take a virtual tour around the mint.
http://www.usmint.gov/kids/coinsMedals

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Change

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

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

You give: **Your change:**

50¢ **10¢**

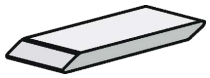
The clerk gives you back the *difference* between the price and what you paid.

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

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

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

a.



Price: 20¢

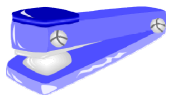
You give:

_____¢

Your change:

_____¢

b.



Price: 30¢

You give:

_____¢

Your change:

_____¢

c.

Price: 35¢

You give:

_____¢

Your change:

_____¢

d.

Price: 17¢

You give:

_____¢

Your change:

_____¢

e. **You give:** **Your change:**

Price: 22¢ _____¢ _____¢

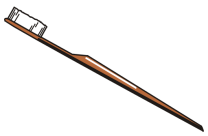
f. **You give:** **Your change:**

Price: 11¢ _____¢ _____¢

g. **You give:** **Your change:**

Price: 60¢ _____¢ _____¢

h. **You give:** **Your change:**



Price: 80¢ _____¢ _____¢

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

a. You buy a drink for 55¢.

You have:

Change: _____ ¢

b. You buy raisins for 33¢.

You have:

Change: _____ ¢

c. You buy a toy for 46¢.

You have:

Change: _____ ¢

d. You buy a book for 88¢.

You have:

Change: _____ ¢

e. You buy a basket for 75¢.

You have:

Change: _____ ¢

f. You buy crayons for 63¢.

You have:

Change: _____ ¢

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Chapter 10: Exploring Multiplication
Introduction

The last chapter of *Math Mammoth Grade 2* covers the concept of multiplication, its connection with repeated addition and some easy multiplication practice.

The lessons here are self-explanatory. The student first learns the meaning of multiplication as "many times the same size group". Then we practice writing multiplication as repeated addition and vice versa. Number line jumps are another way to illustrate multiplication.

The actual study and memorization of the multiplication tables is in the third grade. However, you can certainly help your child to notice the patterns in the easy tables of 2, 5, and 10, and encourage their memorization.

If the time allows and the child is receptive, you can study multiplication tables even further at this time.

The Lessons

Helpful Resources on the Internet

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

Math Dice Game for Addition and Multiplication
Instructions for three simple games with dice; one to learn the concept of multiplication, another to practice the times tables, and one more for addition facts.
http://www.teachingwithtlc.blogspot.com/2007/09/math-dice-games-for-addition-and.html

Explore the Multiplication Table
This applet visualizes multiplication as a rectangle.
http://www.mathcats.com/explore/multiplicationtable.html

Multiple Counting Practice
Click on the numbers on the grid to skip count.
http://www.hsuppappserv.com/multiplecounting/multiplecounting/

Multiplication Memory Game
Click on corresponding pairs (problem-answer).
http://www.dositey.com/addsub/memorymult.html

Multiplication Mystery
Drag the answer tiles to the right places in the grid as they are given, and a picture is revealed
http://www.harcourtschool.com/activity/mult/mult.html

Multiplication.com Interactive Games
A bunch of online games just for the times tables.
http://www.multiplication.com/interactive_games.htm

Skip Counting Game
Click the answer on the number line. You have 2 minutes to gain as many points as you can.
http://www.mathsisfun.com/numbers/skip-counting-game.html

Skip Count Advanced
Choose the number to skip count by. Then try to hit the fruit with the correct number.
http://www.sheppardsoftware.com/mathgames/earlymath/SkipCountAdvanced.htm

Counting Game
Choose a number for skip-counting. Then finish filling the number line before the time runs out.
http://members.learningplanet.com/act/count/free.asp

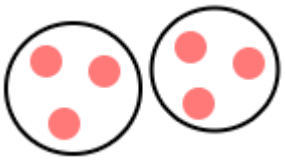
Online Skip Counting Games
A collection of games for skip-counting.
http://www.free-training-tutorial.com/skip-counting-games.html

Many Times the Same Group

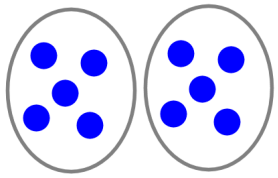
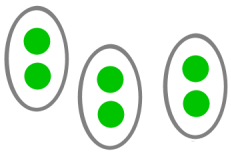
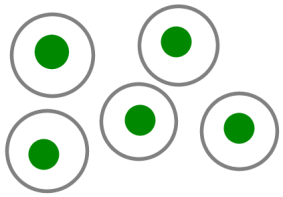
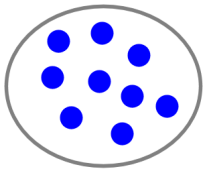
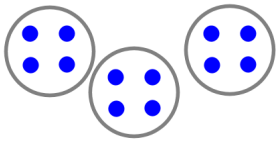
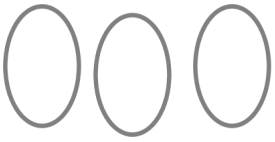
1. Write.

a. 2 times the word "CAT"	**b.** 3 times the word "ME"	**c.** 5 times the word "YOU"
d. 0 times the word "FROG"	**e.** 4 times the word "SCHOOL"	**f.** 1 time the word "HERE"

2. Draw groups of balls.

 **a.** 2 times a group of 3 balls	**b.** 3 times a group of 5 balls	**c.** 1 time a group of 7 balls
d. 4 times a group of 1 balls	**e.** 0 times a group of 2 balls	**f.** 3 times a group of 3 balls
g. 0 times a group of 8 balls	**h.** 4 times a group of 0 balls	**i.** 5 times a group of 2 balls

3. Fill in the missing parts.

 **a.** _2_ times _5_	 **b.** _____ times _____	 **c.** _____ times _____
 **d.** _____ times _____	 **e.** _____ times _____	 **f.** _____ times _____

5 × 3 This means "5 times a group of 3." It is called **multiplication**.	2 × 7 This means "2 times a group of 7." You *multiply* 2 times 7.

4. Now it is your turn to draw! Notice also the symbol × which is read "times."

a. 2 times 4 2 × 4	**b.** 3 times 6 3 × 6	**c.** 1 times 7 1 × 7
d. 6 times 1 6 × 1	**e.** 4 times 0 4 × 0	**f.** 2 times 2 2 × 2