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# Foreword

Math Mammoth Grade 1, Canadian Version, comprises a complete math curriculum for the first grade mathematics studies. This curriculum is essentially the same as the U.S. version of Math Mammoth Grade 1, only customized for Canadian audiences in a few aspects (listed below). The curriculum meets the Common Core Standards in the United States, but it may not perfectly align to the first grade standards in your province.

The Canadian version of Math Mammoth has been customized for Canadian audiences in these aspects:

- The currency used in the money chapter (chapter 10) is the Canadian dollar. (The download version of the curriculum also includes this chapter for the U.S., British, European, South African, Australian, and New Zealand currencies.)
- The spelling conforms mostly to American English, taking into account a few key differences where Canadian English follows British English.
- Large numbers are formatted with a space as the thousands separator (such as 12 394). (Decimals are formatted with a decimal point, as in the US version.)
- The pages are formatted for Letter-size paper 8 1/2 by 11 inches.

The main areas of study in Math Mammoth Grade 1 are:

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

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

This book, the 1-A worktext, covers addition, subtraction, and word problems (chapters 1 and 2), place value with two-digit numbers (chapter 3), and telling time (chapter 4). The book 1-B covers addition and subtraction facts, shapes, fractions, measuring, adding and subtracting two-digit numbers, graphs, and counting coins.

I heartily recommend that you read the full user guide in the following pages.

*I wish you success in teaching math!*

*Maria Miller, the author*

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# User Guide

Note: You can also find the information that follows online, at <https://www.mathmammoth.com/userguides/>.

## Basic principles in using Math Mammoth Complete Curriculum

Math Mammoth is mastery-based, which means it concentrates on a few major topics at a time, in order to study them in depth. The two books (parts A and B) are like a “framework”, but you still have a lot of liberty in planning your child’s studies. You can even use it in a *spiral* manner, if you prefer. Simply have your student study in 2-3 chapters simultaneously. In first grade, I suggest studying chapters 1-3 in order, but you can be flexible with the other chapters and schedule them earlier or later.

Math Mammoth is not a scripted curriculum. In other words, it is not spelling out in exact detail what the teacher is to do or say. Instead, Math Mammoth gives you, the teacher, various tools for teaching:

- **The two student worktexts** (parts A and B) contain all the lesson material and exercises. They include the explanations of the concepts (the teaching part) in blue boxes. The worktexts also contain some advice for the teacher in the “Introduction” of each chapter.

The teacher can read the teaching part of each lesson before the lesson, or read and study it together with the student in the lesson, or let the student read and study on his own. If you are a classroom teacher, you can copy the examples from the “blue teaching boxes” onto the board and go through them on the board.

- There are hundreds of **videos** matched to the curriculum available at <https://www.mathmammoth.com/videos/>. There isn’t a video for every lesson, but there are dozens of videos for each grade level. You can simply have the author teach your child or student!
- Don’t automatically assign all the exercises. Use your judgment, trying to assign just enough for your student’s needs. You can use the skipped exercises later for review. For most students, I recommend to start out by assigning about half of the available exercises. Adjust as necessary.
- Each chapter introduction contains a **list of links to various free online games** and activities. These games can be used to supplement the math lessons, for learning math facts, or just for some fun.
- The student books contain some **mixed review lessons**, and the digital curriculum also provides you with additional **cumulative review lessons**. These are available as a separate book in the printed product.
- There is a **chapter test** for each chapter of the curriculum, and a comprehensive end-of-year test included in the digital version or available for purchase in a separate printed book..
- The **worksheet maker** allows you to make additional worksheets for most calculation-type topics in the curriculum. This is a single html file. You will need Internet access to be able to use it.
- You can use the free online exercises at <https://www.mathmammoth.com/practice/>. This is an expanding section of the site, so check often to see what new topics we are adding to it!
- Some grade levels have **cut-outs** to make fraction manipulatives or geometric solids.
- The answer key is included when you purchase the digital version (the download). If you purchase the printed version, the answer key can be purchased as a separate book.

Sample worksheet from  
<https://www.mathmammoth.com>

## How to get started

Have ready the first lesson from the student worktext. Go over the first teaching part (within the blue boxes) together with your child. Go through a few of the first exercises together, and then assign some problems for your child to do on their own.

Repeat this if the lesson has other blue teaching boxes. Naturally, you can also use the videos at <https://www.mathmammoth.com/videos/>

Many students can eventually study the lessons completely on their own — the curriculum becomes self-teaching. However, students definitely vary in how much they need someone to be there to actually teach them.

## Pacing the curriculum

Each chapter introduction contains a suggested pacing guide for that chapter. You will see a summary on the right. (This summary does not include the optional lessons, nor time for the optional tests.)

Most lessons are 2 pages long, intended for one day. Some lessons are 3 pages, again intended for one day but you can take two if needed. There are also a few optional lessons, not included in the tables on the right.

It can also be helpful to calculate a general guideline as to how many pages per week the student should cover in order to go through the curriculum in one school year.

| Worktext 1-A |         | Worktext 1-B |         |
|--------------|---------|--------------|---------|
| Chapter 0    | 6 days  | Chapter 5    | 15 days |
| Chapter 1    | 22 days | Chapter 6    | 18 days |
| Chapter 2    | 19 days | Chapter 7    | 7 days  |
| Chapter 3    | 17 days | Chapter 8    | 24 days |
| Chapter 4    | 6 days  | Chapter 9    | 5 days  |
| <b>TOTAL</b> | 70 days | Chapter 10   | 9 days  |
|              |         | <b>TOTAL</b> | 72 days |

The table below lists how many pages there are for the student to finish in this particular grade level, and gives you a guideline for how many pages per day to finish, assuming a 170-day (34-week) school year. The page count in the table below *includes* the optional lessons.

### Example:

| Grade level   | School days | Days for tests and reviews | Lesson pages | Days for the student book | Pages to study per day | Pages to study per week |
|---------------|-------------|----------------------------|--------------|---------------------------|------------------------|-------------------------|
| 1-A           | 83          | 8                          | 149          | 75                        | 2                      | 10                      |
| 1-B           | 87          | 10                         | 151          | 77                        | 2                      | 10                      |
| Grade 1 total | 170         | 18                         | 300          | 152                       | 2                      | 10                      |

The table below is for you to fill in. Allow several days for tests and additional review before tests — I suggest at least twice the number of chapters in the curriculum. Then, to get a count of “pages to study per day”, **divide the number of lesson pages by the number of days for the student book**. Lastly, multiply this number by 5 to get the approximate page count to cover in a week.

| Grade level   | Number of school days | Days for tests and reviews | Lesson pages | Days for the student book | Pages to study per day | Pages to study per week |
|---------------|-----------------------|----------------------------|--------------|---------------------------|------------------------|-------------------------|
| 1-A           |                       |                            | 149          |                           |                        |                         |
| 1-B           |                       |                            | 151          |                           |                        |                         |
| Grade 1 total |                       |                            | 300          |                           |                        |                         |

Sample worksheet from  
<https://www.mathmammoth.com>

Now, something important. Whenever the curriculum has lots of similar practice problems (a large set of problems), feel free to **only assign 1/2 or 2/3 of those problems**. If your student gets it with less amount of exercises, then that is perfect! If not, you can always assign the rest of the problems for some other day. In fact, you could even use these unassigned problems the next week or next month for some additional review.

In general, 1st-2nd graders might spend 25-40 minutes a day on math. Third-fourth graders might spend 30-60 minutes a day. Fifth-sixth graders might spend 45-75 minutes a day. If your student finds math enjoyable, they can of course spend more time with it! However, it is not good to drag out the lessons on a regular basis, because that can then affect the student's attitude towards math.

### Working space, the usage of additional paper, and mental math

The curriculum generally includes working space directly on the page for students to work out the problems. However, feel free to let your students use extra paper when necessary. They can use it, not only for the “long” algorithms (where you line up numbers to add, subtract, multiply, and divide), but also to draw diagrams and pictures to help organize their thoughts. Some students won't need the additional space (and may resist the thought of extra paper), while some will benefit from it. Use your discretion.

Some exercises don't have any working space, but just an empty line for the answer (e.g.  $200 + \underline{\hspace{1cm}} = 1000$ ). Typically, I have intended that such exercises be done using *mental math*.

However, there are some students who struggle with mental math (often this is because of not having studied and used it in the past). As always, the teacher has the final say (not me!) as to how to approach the exercises and how to use the curriculum. We do want to prevent extreme frustration (to the point of tears). The goal is always to provide SOME challenge, but not too much, and to let students experience success enough so that they can continue to enjoy learning math.

Students struggling with mental math will probably benefit from studying the basic principles of mental calculations from the earlier levels of Math Mammoth curriculum. To do so, look for lessons that list mental math strategies. They are taught in the chapters about addition, subtraction, place value, multiplication, and division. My article at [https://www.mathmammoth.com/lessons/practical\\_tips\\_mental\\_math](https://www.mathmammoth.com/lessons/practical_tips_mental_math) also gives you a summary of some of those principles.

### Using tests

For each chapter, there is a **chapter test**, which can be administered right after studying the chapter. **The tests are optional**. Some families might prefer not to give tests at all. The main reason for the tests is for diagnostic purposes, and for record keeping. These tests are not aligned or matched to any standards.

In the digital version of the curriculum, the tests are provided as PDF files. You can edit them (such as to change the numbers in them) to provide a different test using PDF apps that have editing capabilities. You can even use the annotation tools (such as text boxes) available in most PDF apps. Remember to save the edited file under a different file name, or you will lose the original.

The end-of-year test is best administered as a diagnostic or assessment test, which will tell you how well the student remembers and has mastered the mathematics content of the entire grade level.

### Using cumulative reviews and the worksheet maker

The student books contain mixed review lessons which review concepts from earlier chapters. The curriculum also comes with additional cumulative review lessons, which are just like the mixed review lessons in the student books, with a mix of problems covering various topics. These are found in their own folder in the digital version, and in the Sample Tests & Cumulative Reviews book in the print version.

Sample worksheet from  
<https://www.mathmammoth.com>

The cumulative reviews are optional; use them as needed. They are named indicating which chapters of the main curriculum the problems in the review come from. For example, “Cumulative Review, Chapter 4” includes problems that cover topics from chapters 1-4.

Both the mixed and cumulative reviews allow you to spot areas that the student has not grasped well or has forgotten. When you find such a topic or concept, you have several options:

1. Check if the worksheet maker lets you make worksheets for that topic.
2. Check for any online games and resources in the Introduction part of the particular chapter in which this topic or concept was taught.
3. If you have the digital version, you could reprint the lesson from the student worktext, and have the student restudy that.
4. Perhaps you only assigned 1/2 or 2/3 of the exercise sets in the student book at first, and can now use the remaining exercises.
5. Check if our online practice area at <https://www.mathmammoth.com/practice/> has something for that topic.
6. Khan Academy has free online exercises, articles, and videos for most any math topic imaginable.

### Concerning challenging word problems and puzzles

While this is not absolutely necessary, I heartily recommend supplementing Math Mammoth with challenging word problems and puzzles. You could do that once a month, for example, or more often if the student enjoys it.

The goal of challenging story problems and puzzles is to **develop the student’s logical and abstract thinking and mental discipline**. I recommend starting these in fourth grade, at the latest. Then, students are able to read the problems on their own and have developed mathematical knowledge in many different areas. Of course I am not discouraging students from doing such in earlier grades, either.

Math Mammoth curriculum contains lots of word problems, and they are usually multi-step problems. Several of the lessons utilize a bar model for solving problems. Even so, the problems I have created are usually tied to a specific concept or concepts. I feel students can benefit from solving problems and puzzles that require them to think “out of the box” or are just different from the ones I have written.

I recommend you use the free Math Stars problem-solving newsletters as one of the main resources for puzzles and challenging problems:

#### Math Stars Problem Solving Newsletter (grades 1-8)

<https://www.homeschoolmath.net/teaching/math-stars.php>

I have also compiled a list of other resources for problem solving practice, which you can access at this link:

<https://l.mathmammoth.com/challengingproblems>

Another idea: you can find puzzles online by searching for “brain puzzles for kids,” “logic puzzles for kids” or “brain teasers for kids.”

### Frequently asked questions and contacting us

If you have more questions, please first check the FAQ at <https://www.mathmammoth.com/faq-lightblue>

If the FAQ does not cover your question, you can then contact us using the contact form at the Math

Mammoth.com website.

[Sample worksheet from](#)

<https://www.mathmammoth.com>

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# Chapter 0: Kindergarten Math Review

## Introduction

This chapter is optional. You can use it to check that your child/student has mastered the important concepts of kindergarten math. The lessons do not review every concept from kindergarten math, but they do cover the ones I have deemed important:

- writing the numerals from 0 to 20
- reciting the counting sequence up to 100
- counting up to 20 individual items
- comparing numbers between 1 and 10
- the concepts of addition and subtraction; representing addition and subtraction with drawings
- understanding that a number can be decomposed into pairs in more than one way (e.g.  $6 = 3 + 3$  but also,  $6 = 2 + 4$ )
- solving very simple addition and subtraction word problems (within 0-10)
- correctly naming basic shapes

We will practise several of these still in first grade, but the skills that are essential before going on to the other chapters in Grade 1 are being able to correctly count up to 20 items, being able to write the numerals from 0 to 20, and the basic concepts of addition and subtraction.

Please note: decomposing the numbers from 11-19 as sums of “10 + some number” will also be covered in detail later in grade 1. The reason it is introduced in kindergarten is to *prepare* children to learn place value. Before going on to chapter 1 of Math Mammoth Grade 1, it is essential is that the child is able to recite the counting sequence at least up to 20, and to write those numerals. It is not essential for the child to understand that 18 is  $10 + 8$ ; that will be covered in chapter 3.

### Pacing Suggestion for Chapter 0

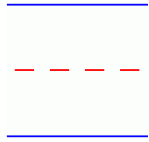
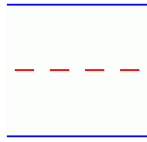
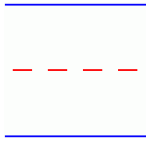
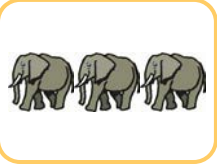
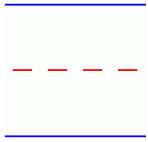
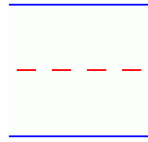
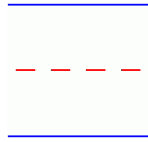
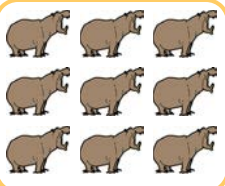
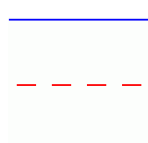
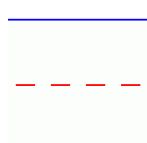
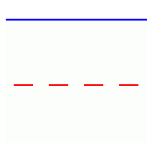
| The Lessons in Chapter 0           | page | span     | suggested<br>pacing | your<br>pacing |
|------------------------------------|------|----------|---------------------|----------------|
| Counting and Writing Numbers ..... | 12   | 2 pages  | 1 day               |                |
| Teen Numbers and Comparing .....   | 14   | 2 pages  | 1 day               |                |
| Two Groups and a Total .....       | 16   | 2 pages  | 1 day               |                |
| Addition .....                     | 18   | 2 pages  | 1 day               |                |
| Subtraction as “Taking Away” ..... | 20   | 2 pages  | 1 day               |                |
| Shapes and Positions .....         | 22   | 2 pages  | 1 day               |                |
| TOTALS                             |      | 12 pages | 6 days              |                |

# Counting and Writing Numbers

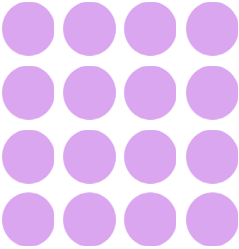
1. **To the teacher:** This exercise is to be done orally.

- a. Ask the student to count from 40 to 60.      b. Ask the student to count from 87 to 100.  
c. Ask the student to count from 10 to 100 by tens.

2. Count and write the number.

|                                                                                       |                                                                                    |                                                                                       |                                                                                     |                                                                                         |                                                                                      |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| a.   |   | b.   |   | c.   |   |
| d.   |   | e.   |   | f.   |   |
| g.  |  | h.  |  | i.  |  |

3. Count and write the number.

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

4. Group (draw a large circle around) the given number of items.



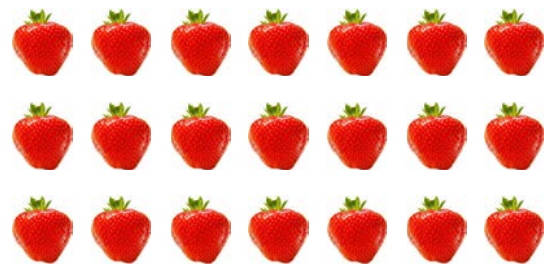
a. Make a group of eleven marbles.



b. Make a group of sixteen chicks.



c. Make a group of seventeen stars.



d. Make a group of nineteen strawberries.

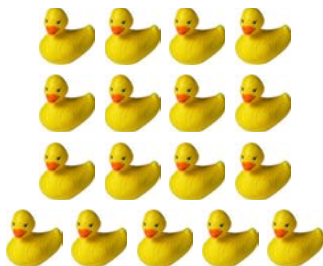
5. Count and write the number.



a. \_\_\_\_\_



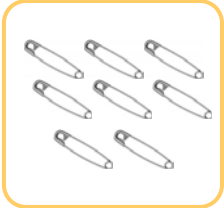
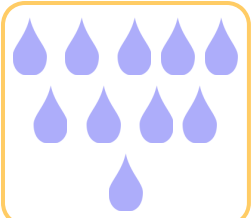
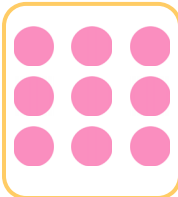
b. \_\_\_\_\_



d. \_\_\_\_\_

# Teen Numbers and Comparing

1. Circle the group that has MORE things. Circle both if they have the same number of things.

|                                                                                                                                                                                              |                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>a.</p> <div>   </div>   | <p>b.</p> <div>   </div>   |
| <p>c.</p> <div>   </div>   | <p>d.</p> <div>   </div>   |
| <p>e.</p> <div>   </div> | <p>f.</p> <div>   </div> |

2. Circle the bigger number.

|           |            |           |
|-----------|------------|-----------|
| a. 9    7 | b. 8    10 | c. 5    4 |
|-----------|------------|-----------|

3. Circle the smaller number.

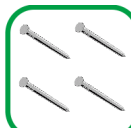
|           |           |           |
|-----------|-----------|-----------|
| a. 1    4 | b. 5    6 | c. 9    8 |
|-----------|-----------|-----------|

4. Write the number that is 1 more.

|             |             |             |
|-------------|-------------|-------------|
| a. 8 _____  | b. 6 _____  | c. 3 _____  |
| d. 12 _____ | e. 16 _____ | f. 19 _____ |

# Basic Addition

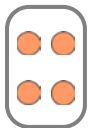
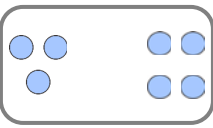
1. In the second box, draw enough things to show the second number. Then add.

|                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>a.  </p> <p><math>2 + 1 = \underline{\hspace{2cm}}</math></p> | <p>b.  </p> <p><math>3 + 2 = \underline{\hspace{2cm}}</math></p> | <p>c.  </p> <p><math>1 + 2 = \underline{\hspace{2cm}}</math></p> |
| <p>d.  </p> <p><math>4 + 1 = \underline{\hspace{2cm}}</math></p> | <p>e.  </p> <p><math>2 + 3 = \underline{\hspace{2cm}}</math></p> | <p>f.  </p> <p><math>0 + 4 = \underline{\hspace{2cm}}</math></p> |

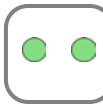
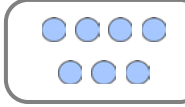
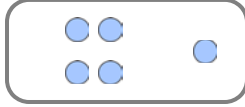
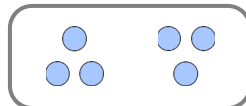
2. Add. Compare the two additions in each box. What do you notice?  
(You can draw marbles to help.)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                              |                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <p> </p> <p>a. <math>2 + 3 = \underline{\hspace{2cm}}</math></p> <p> </p> <p><math>3 + 2 = \underline{\hspace{2cm}}</math></p> | <p>b. <math>1 + 2 = \underline{\hspace{2cm}}</math></p> <p><math>2 + 1 = \underline{\hspace{2cm}}</math></p> | <p>c. <math>3 + 1 = \underline{\hspace{2cm}}</math></p> <p><math>1 + 3 = \underline{\hspace{2cm}}</math></p> |
| <p>d. <math>1 + 4 = \underline{\hspace{2cm}}</math></p> <p><math>4 + 1 = \underline{\hspace{2cm}}</math></p>                                                                                                                                                                                                                                                                                                                                                               | <p>e. <math>0 + 2 = \underline{\hspace{2cm}}</math></p> <p><math>2 + 0 = \underline{\hspace{2cm}}</math></p> | <p>f. <math>5 + 0 = \underline{\hspace{2cm}}</math></p> <p><math>0 + 5 = \underline{\hspace{2cm}}</math></p> |

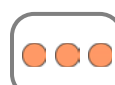
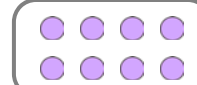
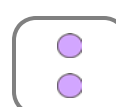
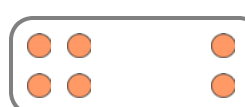
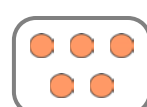
# Comparisons

|                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                          |                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
|  $<$ <br>$4 < 6$<br>Four is <u>less than</u> six. |  $>$ <br>$3 + 4 > 5$<br>Three plus four is <u>greater than</u> five.<br>(Because 7 is greater than 5.) | $<$ means<br>“IS LESS THAN”<br><br>$>$ means<br>“IS GREATER THAN” |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|

1. Fill in the missing numbers.

|                                                                                                                                                                                                           |                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  $<$ <br>a. _____ $<$ _____ + _____     |  $>$ <br>b. _____ $>$ _____ + _____     |
|  $>$ <br>c. _____ + _____ $>$ _____ |  $<$ <br>d. _____ + _____ $<$ _____ |

2. Compare, writing  $<$  or  $>$  in the box. Also, fill in the missing numbers.

|                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <br>a. _____ <span style="border: 1px solid black; display: inline-block; width: 30px; height: 30px; vertical-align: middle;"></span> _____ + _____ |  <br>b. _____ <span style="border: 1px solid black; display: inline-block; width: 30px; height: 30px; vertical-align: middle;"></span> _____ + _____ |
|  <br>c. _____ + <span style="border: 1px solid black; display: inline-block; width: 30px; height: 30px; vertical-align: middle;"></span> _____       |  <br>d. _____ + <span style="border: 1px solid black; display: inline-block; width: 30px; height: 30px; vertical-align: middle;"></span> _____       |

# Basic Subtraction

From five bananas  
we take away three.  
(Cover three bananas.)



$$5 - 3 = 2$$

There are two left.

*Five minus three equals two.*

1. Write a subtraction sentence to match each picture.



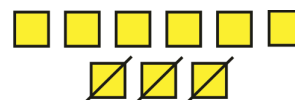
a.  $5 - 1 = \underline{\quad}$



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



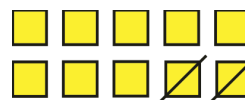
c.  $\underline{\quad} - \underline{\quad} = \underline{\quad}$



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

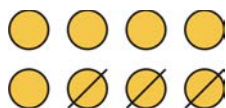


e.  $\underline{\quad} - \underline{\quad} = \underline{\quad}$



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

2. Solve. Draw dots and cross out some of them to match the subtraction problem.



a.  $8 - 3 = \underline{\quad}$

b.  $5 - 1 = \underline{\quad}$

c.  $10 - 7 = \underline{\quad}$

d.  $9 - 5 = \underline{\quad}$

e.  $10 - 4 = \underline{\quad}$

f.  $8 - 6 = \underline{\quad}$

## Two Subtractions from One Addition

From one addition fact, you can make TWO subtraction facts:

$$3 + 4 = 7$$



$$7 - 4 = 3$$

or



$$7 - 3 = 4$$

Take away the carrots in the bottom row.

Take away the carrots in the top row.

Sometimes the two subtraction facts are the same:

$$2 + 2 = 4$$



$$4 - 2 = 2$$

or



$$4 - 2 = 2$$

Take away the carrots in the bottom row.

Take away the carrots in the top row.

1. Write one addition and two subtraction equations. First subtract the things in the bottom row, then the ones in the top row.



a.  $1 + 3 = \underline{4}$

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

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



b.  $2 + 3 = 5$

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

or  $5 - \underline{\quad} = \underline{\quad}$



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

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



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

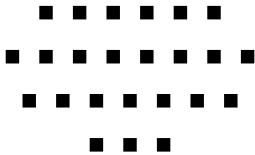
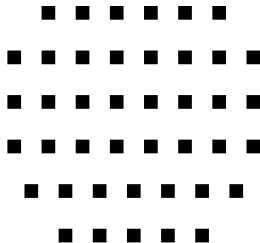
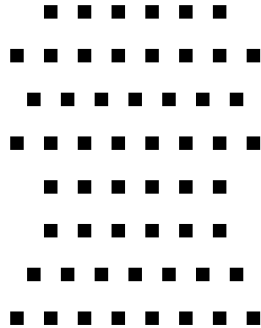
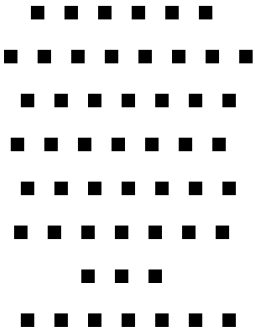
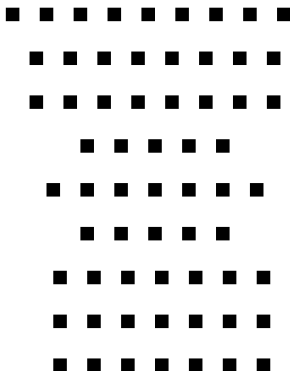
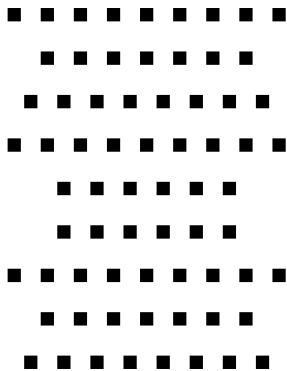
$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

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

# Counting in Groups of 10

When counting many items, it is much quicker to count them if we first group them into **groups of ten**.

- Counting Activity 1.** (Optional) Put some small items on a table. Ask the child to make groups of ten. Then ask the child to count the groups of ten and the individual items left over. Do not yet use the words eleven, twelve, twenty, thirty, forty, *etc.*, but instead use “*four tens and six*”, “*seven tens and one*”, *etc.* Repeat with different amounts of items, taking turns.
- Count in groups of TEN. Count ten dots, and circle them. Write how many groups of ten you get. Write how many ones are left over.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">groups<br/>of ten</div> <div style="text-align: center;">ones</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">a.</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"></div> </div>   |  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">groups<br/>of ten</div> <div style="text-align: center;">ones</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">b.</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"></div> </div>  |  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">groups<br/>of ten</div> <div style="text-align: center;">ones</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">c.</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"></div> </div>  |
|  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">groups<br/>of ten</div> <div style="text-align: center;">ones</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">d.</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"></div> </div> |  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">groups<br/>of ten</div> <div style="text-align: center;">ones</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">e.</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"></div> </div> |  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">groups<br/>of ten</div> <div style="text-align: center;">ones</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;">f.</div> <div style="border: 1px solid black; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center;"></div> </div> |

3. **Counting Activity 2.** You need: Small items to count, such as sticks, beads, or beans. Containers, such as small bags or bowls. (If using sticks, rubber bands work well to group them.)

Before the game: Place 10 of the items in the middle and the rest in a pile on the side.

Play: On their turn, each player adds one more item to the middle pile on the table, and names the number that is formed. Whenever a whole ten is completed, those ten items are grouped together with a rubber band or by placing them in a small bag or bowl.

In this lesson, use only the number words from one to ten when counting in this game. Words like eleven, thirteen, fifty, sixty, *etc.* are not allowed. For example, eleven is said as “ten and one”, twelve is “ten and two”, twenty is “two tens”, twenty-five is “two tens and five”, *etc.*

Variation: Each player adds *two* (or more) items to the pile instead of just one.

This abacus has ten rows of 10 beads. Each bead counts as *one*.

These ten rows of 10 make a total of **one hundred** beads. That is why we call this abacus a **100-bead abacus**.

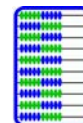
With it, we can illustrate numbers from 1 to 100. For example, to show 6 tens and 2 ones on the abacus, move six entire rows, plus two beads from the seventh row, to one side of the abacus.



4. Make these amounts with the 100-bead abacus.

- |                   |                   |                   |
|-------------------|-------------------|-------------------|
| a. 6 tens, 5 ones | e. 2 tens, 1 one  | i. 4 tens, 6 ones |
| b. 2 tens, 7 ones | f. 8 tens, 9 ones | j. 6 tens         |
| c. 7 tens         | g. 9 tens, 3 ones | k. 7 tens, 1 one  |
| d. 1 ten, 5 ones  | h. 1 ten, 1 one   | l. 1 ten, 8 ones  |

5. **Activity 3.** This is an activity for two people. Take turns telling each other what number to make on the abacus, such as “7 tens and 9” or “1 ten and 7”.



(Do not proceed farther until the student has mastered this! This is the foundation for understanding place value, and thus is a crucial concept.)

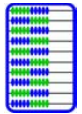
Sample worksheet from  
<https://www.mathmammoth.com>

# Naming and Writing Numbers 1

Learn the names of the numbers that consist of entire tens:

|                        |        |             |       |              |         |
|------------------------|--------|-------------|-------|--------------|---------|
| ten =                  | ten    | four tens = | forty | seven tens = | seventy |
| two tens =             | twenty | five tens = | fifty | eight tens = | eighty  |
| three tens =           | thirty | six tens =  | sixty | nine tens =  | ninety  |
| ten tens = one hundred |        |             |       |              |         |

1. Say the number names above, from ten to a hundred, aloud a few times while also making those numbers on the 100-bead abacus. It almost sounds like a rhyme! You can also use bags with 10 items in each.



We use the words twenty, thirty, forty, fifty, *etc.* when naming numbers. We write the number of tens and the number of ones next to each other with numerals.

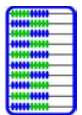
**Examples:** “6 tens and 7 ones” is sixty-seven, or 67.

“4 tens and 5 ones” is forty-five, or 45.

“2 tens and 2 ones” is twenty-two, or 22.

We will look at the numbers between 10 and 20 in the next lesson.

2. Make these numbers with the 100-bead abacus and **name** them (orally). Lastly, write them with numerals.



- |                  |           |                  |       |
|------------------|-----------|------------------|-------|
| a. 5 tens 6 ones | <u>56</u> | f. 3 tens 5 ones | _____ |
| b. 7 tens 2 ones | _____     | g. 2 tens 3 ones | _____ |
| c. 2 tens 1 one  | _____     | h. 8 tens 7 ones | _____ |
| d. 3 tens 1 one  | _____     | i. 9 tens 4 ones | _____ |
| e. 4 tens 8 ones | _____     | j. 6 tens 6 ones | _____ |

# Whole and Half Hours 1

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



The hour hand points to four – it is four hours, or “four o’clock.”

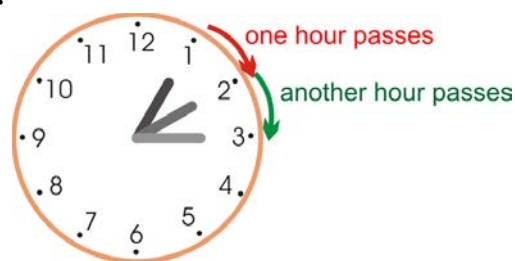


The hour hand points to eleven – it is eleven hours, or “eleven o’clock”.

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

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

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



On this clock, the hour hand pointed to 5 when it was five o’clock. Then it moved to **halfway** between 5 and 6. We say it is **half past five**.

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

The hour hand will *also* take a half hour to move from half past five to six o’clock.



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

In half an hour from now, it will be nine o’clock.

In an hour from now, it will be half past nine.



# Chapter 4 Review

1. Tell or write the time using the expressions *o'clock* or *half past*.

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

2. Write the time using numbers.

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

3. Match the digital clock to the correct analogue clock.



4. Write the time at a half-hour later. Use numbers.

|                    |         |          |          |         |         |
|--------------------|---------|----------|----------|---------|---------|
| Now:               | a. 5:00 | b. 10:30 | c. 12:00 | d. 1:30 | e. 5:30 |
| A half-hour later: |         |          |          |         |         |

5. Fill in either “AM” or “PM.”

|                                     |                                                |                                                    |
|-------------------------------------|------------------------------------------------|----------------------------------------------------|
| a. Jack wakes up.<br>It is 8 _____. | b. Jack plays in the afternoon. It is 3 _____. | c. Jack is sleeping.<br>It is dark. It is 2 _____. |
|-------------------------------------|------------------------------------------------|----------------------------------------------------|