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## Math Mammoth Division 2

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# Introduction

*Math Mammoth Division 2* is a continuation from the *Math Mammoth Division 1* book. It includes lessons on division, long division, remainder, problem solving, average, divisibility, and factors. The book is most suitable for fourth grade.

We start out by reviewing basic division with single-digit numbers. Then students study division terms and dividing by whole tens and hundreds.

The lesson *Finding Fractional Parts with Division* shows an important relationship between fractions and division. For example, we can find  $\frac{3}{4}$  of a number by first finding  $\frac{1}{4}$  (divide by 4), then multiplying that result by 3.

Next we briefly study the order of operations, this time including divisions in the problems.

In the lesson *The Remainder, Part 1*, we study the concept of remainder, first using pictures and small numbers. In the second lesson on remainder, we still use small numbers, but students work the problems using the long division symbol or “corner,” as I like to call it. That is of course preparing them for long division.

Next, long division is taught in several small steps over many lessons. We start with the situation where each of the thousands, hundreds, tens, and ones can be divided evenly by the divisor. Then is introduced the remainder in the ones. Next comes the situation where we have a remainder in the tens. Finally, we have a remainder in the hundreds, and so on. We also have lots of word problems to solve.

After long division is mastered, we study the concept of average and problem solving involving a fractional part of a whole. I have included many bar diagrams and pictorial representations of these problems to help the students.

The last section deals with elementary number theory topics. We study some basic divisibility rules (though not all of them), prime numbers, and find all factors of a given two-digit number.

*Answers are at the end of the book.*

*I wish you success in teaching math!*

*Maria Miller, the author*

## Helpful Resources on the Internet

### *Long division*

#### **MathFrog Dividerama!**

Interactive long division practice. Guided help available optionally.

<http://cemc2.math.uwaterloo.ca/mathfrog/english/kidz/div5.shtml>

#### **Snork's Long Division Game**

Interactive and guided long division practice that only accepts correct answers and truly guides the student step-by-step through long division problems.

<http://www.kidsnumbers.com/long-division.php>

#### **Mr. Martini's Classroom: Long Division**

An interactive long division tool.

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

#### **Double-Division.org**

Another form of long division algorithm - takes the guesswork away from estimating how many times the divisor goes into what needs to be divided. Also called 1-2-4-8 division.

<http://www.doubledivision.org/>

#### **Short Division**

A page that explains short division in detail. Short division is the same algorithm as long division, but some steps are only done in one's head, not written down.

<http://www.themathpage.com/ARITH/divide-whole-numbers.htm>

### *Factors and primes*

#### **Arrays and factors**

Drag rectangles to show the factorizations of a given number.

<http://www.shodor.org/interactivate/activities/factors2/index.html>

#### **Factor Game**

Interactive game to practice divisibility among numbers 1-100. Play against the computer or a friend.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=12>

#### **Factor Feeder**

Eat factors of the given number, and avoid numbers that are not factors of the given number in this Pacman-style game. Use Arrow Keys to move.

<http://hoodamath.com/games/factorfeeder.php>

#### **Sliding Tile Factorization Game**

Slide a number over another to capture it, if it is a factor of the other. Number 1 is only supposed to be used to capture a prime number.

[http://www.visualmathlearning.com/Games/sliding\\_factors.html](http://www.visualmathlearning.com/Games/sliding_factors.html)

#### **Octopus Factors**

Move counters up the legs of an octopus but only when the number on the circle is a multiple of the number on the card.

<http://www.counton.org/games/map-numbers/octopus/>

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

### **Factors Millionaire Game**

A millionaire game where the questions have to do with factors, prime numbers, and the greatest common factor.

<http://www.math-play.com/Factors-Millionaire/Factors-Millionaire.html>

### **Not a Factor**

Choose a number that is NOT a factor of the given number.

[http://www.helpingwithmath.com/resources/games/target\\_factors01/not\\_factor.html](http://www.helpingwithmath.com/resources/games/target_factors01/not_factor.html)

### **Factors and Remainders**

An interactive animation demonstrating factors and remainders. Choose a number and its possible divisor. The animation shows boxes (as given by the number) arranged into rows of (possible divisor), and you can SEE if there is any remainder.

<http://www.absorblearning.com/media/item.action?quick=ml>

### **Snake**

Eat factors, multiples, and prime numbers in this remake of the classic game.

<http://www.pompuzzle.com/Snake>

### **Product game**

For two players; each selects a factor, the computer colors the product - whoever gets four in a row wins.

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=29>

### **Primes, Factors and Divisibility—Explorer at CountOn.org**

Lessons explaining divisibility tests, primes, and factors.

<http://www.counton.org/explorer/primes>

*The following games can be used to practice basic division facts, if the student has not mastered them.*

### **A+ math games**

Practice all four basic operations with math bingo (matho), hidden picture games, or concentration games.

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

### **Math Magician games**

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

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

### **Division Practice at AAAMath**

Learn or practice basic division facts, and more.

<http://www.aaastudy.com/div39hx3.htm>

### **Cross the Swamp**

Help Little Ron move from log to log across the swamp and practice multiplication/division or addition/subtraction.

<http://www.bbc.co.uk/schools/starship/maths/crosstheswamp.shtml>

### **Math Car Racing**

Keep ahead of the computer car by thinking logically, and practice any of the four operations.

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

### **Arithmetic Game**

Find numbers to fit an equation that may use all four operations.

<http://www.primarygames.com/math/arithmeticgame/index.htm>

**Sample worksheet from**

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

## Primary Games

A collection of games. The following links open the evaluation versions of some division-related games. The game collections themselves are sold at

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

- Eggs on Legs  
<http://www.primarygames.co.uk/PG5/Eggs/Div/eggsdiv.html>
- DiviPods  
<http://www.primarygames.co.uk/pg4/Divipods/divipods.html>
- Division Divers  
<http://www.primarygames.co.uk/pg3/ddivers/ddivers.html>
- Sum Sense - Division  
<http://www.primarygames.co.uk/pg2/sumsense/sumdiv.html>

## Free worksheets for order of operations

Generate printable & customizable worksheets for order of operations. Choose from five operations and parentheses. You can choose the number range used, number of problems, and more.

[http://www.homeschoolmath.net/worksheets/order\\_of\\_operations.php](http://www.homeschoolmath.net/worksheets/order_of_operations.php)

## My Dear Aunt Sally

A fun game you can play online for free, or purchase as an app. Choose whole numbers, integers, fractions, decimals, or rational numbers, and then which of the five operations to use. In the game, you need to place the given numbers into two expressions so that the operations make the two expressions have the same value.

<http://www.mydearauntsally.com>