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Introduction

Math Mammoth Subtraction 1 deals with various concepts related to basic subtraction, and with basic addition and subtraction facts within 0-10. Most of the problems in the book only use numbers up to 10, but a few include numbers between 10 and 20.

The concept of subtraction is easy to illustrate with the idea of "taking away". If your child does not yet know the word "minus", it is a good idea to introduce it *first orally*. Simply use blocks, rocks, or other concrete objects. For example, show the child eight blocks, and take away three blocks. Then use both kinds of wordings: "*Eight blocks, take away three blocks, leaves five blocks. Eight blocks **minus** three blocks **equals** five blocks.*"

Play with the blocks or other concrete objects until the child can use the words "minus" and "equals" in his/her own speech. This will make it much easier to introduce the actual written symbols.

The next step would be to abandon concrete objects and use semi-concrete illustrations or pictures. That is where this book starts with the lesson **Subtraction Is "Taking Away"**. At this stage, the child can still figure out the subtraction problems by simply counting how many objects are left.

So, how does the student learn how to subtract without actually counting concrete objects or pictures? As a transitional strategy, we will study **counting down**: the student solves 9 − 3, for example, by counting down three steps from nine: eight, seven, six. So the answer is six.

However, the final goal is to learn to *use the addition facts* to find the answer to subtraction problems. For example, once the student knows that 5 + 5 = 10, then this fact is used to solve 10 − 5 = 5. For this purpose, the student must learn well the connection between addition and subtraction. This is why this book concentrates heavily on the connection between addition and subtraction with several lessons, ending up with the concept of fact families.

Besides "taking away", subtraction is also used for these two situations:

- **Finding how much more one number is than another.** Note that no one "takes away" anything in this situation. For example, if you have 3 dollars and you need 6 dollars, how many more dollars do you need? The student is instructed to write a *"how many more"* addition problem for this, which looks like this: 3 + ___ = 6. We also call these problems "missing addend" problems. It can be solved by remembering the addition fact 3 + 3 = 6, or by subtracting 6 − 3 = 3.
- **Two (or more) parts (of something) make up a whole.** If you know the whole and one of its parts, you can figure out the other part. For example, if there are 10 white and red flowers, and seven of them are white, how many are red? We know the "parts" (the red and white flowers) add up to 10, so we write an addition 7 + __ = 10. Again, this can be solved by subtracting, or simply by knowing the addition fact 7 + 3 = 10.

These two situations are dealt with in several lessons in the book and are found in various word problems throughout the book.

In the latter part of the book, we encounter several lessons named *Addition and Subtraction Facts with...* They aim at helping the child to memorize the basic addition and subtraction facts. We are approaching it from the concept of fact families.

These lessons have a lot of practice problems. Use your judgment as to whether your child will need to do all of the problems. If he/she masters the facts quickly, you can skip some of them.

Besides the written problems, I encourage you to use games that are explained below. Children like to play, and using the addition and subtraction facts in a game gives them fun and education in the same "package".

I hope you find this book helpful in your math teaching !

Maria Miller, the author

Games

10 Out (or *5 Out* or *6 Out etc.)*

You need: lots of number cards with numbers 1-10, such as regular playing cards without the picture cards, Uno cards without the special cards, etc.

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

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

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

Adaptations:
* Deal more cards instead of seven.
* Deal less cards if there are very many players or the players are young.
* Allow players to discard three cards that add up to 10.
* Instead of ten, players discard cards that add up to 9, 8, 11, or some other number. Use the picture cards for 11, 12, and 13.

Some Went Hiding

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

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

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

Subtraction Battle

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

Rules: In each round, each player is dealt two cards face up, and has to subtract the smaller from the bigger number. The player with the biggest difference (answer) gets all the cards from the other players. After enough rounds so that all cards are used up, the player with most cards wins.

If there is a tie, such as two players have the answer 5, those players get additional two cards and 'battle' with those to resolve the tie.

Adaptations:
* This game is easily adapted for addition, multiplication, and fractions. You can also use dominoes instead of two playing cards.

Helpful Resources on the Internet

Use these free online resources to supplement the "bookwork" as you see fit.
You can access an up-to-date online version of this list at
www.mathmammoth.com/weblinks/subtractions_1.htm

Kids' Subtraction Quiz from Mr. Martini's Classroom
Five problems to solve online. You can choose the highest number used from the list of numbers below the quiz.
http://www.thegreatmartinicompany.com/Math-Quick-Quiz/subtraction-kid-quiz.html

Subtraction Mystery Picture
Find out the picture behind the tiles by solving subtraction questions within 0-10.
http://www.dositey.com/2008/addsub/Mystery4.htm

Matching Pictures to Number Sentences
Find the correct number sentence to go along with the picture.
http://www.haelmedia.com/html/mc_m1_001.html

Addition and Subtraction Game from The Little Animals Activity Centre
Solve simple addition and subtraction problems by clicking on the ladybug with the right answer.
http://www.bbc.co.uk/schools/laac/numbers/chi.shtml

Subtraction Game from Count Us In
Subtract two numbers which bowls a ball down a bowling alley lane.
http://www.abc.net.au/countusin/games/game8.htm

Take It Away
Subtract and click on the correct answer.
http://www.primarygames.com/takeaway/start.htm

Subtraction Pinball
When the ball hits numbers, it defines a problem. Next you choose the correct answer.
http://www.playkidsgames.com/games/pinball/subtraction/defaultk1.htm

Simple Subtraction
Help the duck fly faster by clicking on the cloud with the correct answer.
http://www.toonuniversity.com/flash.asp?err=513&engine=12

Save the Apples!
Click on the correct basket to get the monkey to carry the apple basket. A crocodile is waiting!
http://www.playkidsgames.com/games/apples/savetheApples.htm

Busy Bees
Figure out how many of the 10 bees went inside the hive.
http://www.hbschool.com/activity/busy_bees/index.html

Soccer Subtraction
Click to make the players disappear until the subtraction sentence is true.
http://www.ictgames.com/soccer_subtraction.html

Exuberant Eye Games
Practice your basic facts with these kid-appealing simple games.
http://www.games.exuberanteye.com/

Mental Maths Practice
Online practice of sets of 10 addition and subtraction questions; timed
http://www.teachingtreasures.com.au/maths/mental-maths/yr1-maths-pg1.htm

Math Facts Practice at playKidsgames.com
Time practice with various skill levels.
http://www.playkidsgames.com/games/mathfact/default.htm

Number Bond Machines
Practice which two numbers add up to a given number.
http://www.amblesideprimary.com/ambleweb/mentalmaths/numberbond.html

Online Subtraction Flash Cards
http://www.thegreatmartinicompany.com/WebMozilla/subtractionm.html
and
http://www.thegreatmartinicompany.com/WebMozilla/subtractionmfill.html

Number Line Bounce
Arrange the given bounce arrows on a number line using addition and subtraction until you reach the target number. Since it uses several operations, it *is challenging* for first graders, but give it a try.
http://nlvm.usu.edu/en/nav/frames_asid_107_g_1_t_1.html

Math Carts
A downloadable racing game for young students to memorize addition and subtraction facts. Children choose various animal themed carts and unlock new carts and race tracks as they progress through the facts. There are three difficulty levels.
Price: Free
http://sandbox.yoyogames.com/games/163070-math-carts

Tux Math
A versatile arcade game for math facts with many options. Includes all operations. You need to shoot falling comets that can damage penguins' igloos. See also my review.
Price: Free
http://sourceforge.net/projects/tuxmath

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/mathmammoth#p/u/3/DUiA06UdJl0

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/mathmammoth#p/u/14/jdIzuGPRhRQ