Tips for Helping at Home

Questions to ask:

- What is it that you don't understand (have your child be specific)?
- What about putting things in order?
- Could you try it with simpler numbers?
- Can you guess and check?
- Does this make sense?
- What can you do to explain your answer to show others what you are thinking?
- Does your answer seem reasonable?


When you and your child are buying something, figure out together what the change will be. If you buy an item that costs $3.89 and give the clerk $5.00, figure out how much you should get back.

0 0 2 4 5 3 2 .1

If you drive, show your child the odometer on your car and ask them to help you figure out how far it is to the grocery store or the playing field; if you start at 24,532.1 miles and when you get there the odometer reads 24,533.8, how far have you gone?

Another way children can get experience working with decimals is by walking, running, or riding their bikes on routes where they know the distances. Help your child figure out how far it is to different places in your neighborhood. If there are any fun runs, bike rides, or walks for charities in your community, try to get involved in them. Many of these events involve distances with decimal amounts like 3.1 or 6.2 miles. These are excellent opportunities for children to get fit, to contribute to their community, and of course to become better mathematicians.!

Mathematical Emphasis

Investigation 1—Everyday Uses of Money

- Exploring number relationships in the context of money
- Developing Strategies for combining numbers, particularly money amounts
- Using Landmark numbers to compare and find differences between two quantities
- Using standard addition and subtraction notation to record combining and comparing situations
- Using the calculator to solve problems
- Interpreting decimals on the calculator as amounts of money

Investigation 2—How Far? Measuring in Miles and Tenths

- Estimating Local distances in miles and tenths of miles; developing a sense of approximate length of a mile and 1/10 of a mile
- Comparing and combining decimal numbers and finding differences between these numbers
- Seeing the relationships of decimal part to the whole
- Measuring distances on maps using a scale
- Becoming familiar with common decimals and fraction equivalents
- Estimating and calculating sums of quantities that include decimal portions

Investigation 3—Calculating Longer Distances

- Measuring distances on maps using a scale
- Comparing and combining numbers in the hundreds and thousands
- Using standard addition and subtraction notation to record combining and comparing problems

Websites

- **http://www.aaamath.com/add.html** (addition practice)
- **http://www.gameslib.com/games/1477** (subtraction action)

Investigations in Number, Data, and Space

Grade 4

Money, Miles, and Large Numbers

Addition and Subtraction

Everett Public Schools

Vocabulary

estimate: to calculate approximately the amount of or value of something mentally.

multiple: a number that can be divided by another number without remainders; the multiples of 10 are 1, 2, 5, and 10.

sum: an amount obtained as a result of adding numbers.

difference: the amount that remains after one quantity is subtracted from another.

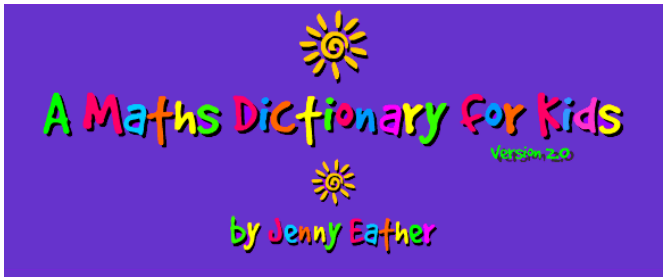
decimal: A linear array of digits that represents a real number, every decimal place indicating a multiple of a negative power of 10. For example, the decimal 0.1 = $^{1}/_{10}$, 0.12 = $^{12}/_{100}$, 0.003 = $^{3}/_{1000.}$

negative integers: A member of the set of negative whole numbers {-1, -2, -3, . . . }, and zero {0}.

positive integers: A member of the set of positive whole numbers {1, 2, 3, . . . }.

Glossary

http://www.amathsdictionaryforkids.com/



Keeping Track of Addition and Subtraction

A good addition strategy, when you are adding large numbers using metal math is to jot down steps so you don't lose track of your procedure: For example, suppose you are adding the four numbers below. You might want to jot down the partial sums like this as you add from left to right:

1540	3000 (the sum of the 1000 and 2000)
347	1700 (the sum of 500, 300, and 900)
2063	150 (the sum of 40, 40, 60, and 10)
+ 918	18 (the sum of 7, 3, and 8)

Now you can easily add the partial sums in your head and write down the results.

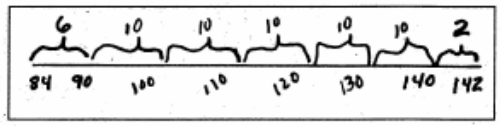
Jotting down steps - helps students remember their approaches and helps them explain how they arrived at an answer.

As an example, Karen is adding up several prices, Here is what she might think and write:

$2.07 + $1.49 + $1.99

Karen thinks:	*She records:*
I'll make $1.49 into $1.50 and $1.99 into $2.00.	$3.50
Then I'll add 2 more dollars from the $2.07.	$5.50
I'll add on the 7 cents from the $2.07.	$5.57
Now I'll subtract the 2 extra cents I put on at the beginning.	$5.55

A good strategy to use for comparing numbers or subtraction is to use a number line notation. For example, suppose the class is comparing right and left handfuls of beans: "I have 84 beans in my right hand and 142 in my left. How many more could I hold in my left hand?" A student could write:



Adding up the sums of the "jumps" between 84 and 142 gives the student the difference (answer to the subtraction problem) between the two numbers.

Mental math activities are exercises in number sense, providing students the opportunity to solve problems using different strategies, which enhances the understanding of number.

When given a mental math problem: 1000 - 638 = ?

Here is an example of how a student might solve it.

1000 - 600 = 400
400 - 38 is like 400 - 40 = 360
add back 2, since it's really 38
360 + 2 = 362

By "taking notes" the student is able to solve the problem successfully.

Economopoulos, K. Investigations in Number, Data, and Space: Money, Miles and Large Numbers. Dale Seymour, 1998.

Capture 5

Materials: 100 chart, deck of Change Cards*, 12 markers of one color, game piece for each player, paper.

Players: Two players or two teams

How to Play: The object is to collect 5 game markers.

1. Place 12 markers on the 100 chart, so each marker is on a different number. Deal 5 "change cards" to each player or team and place the remaining cards face down. Players put their game pieces anywhere on the 100 chart.

2. On a turn, move your game piece using any combination of your change cards to land on a square with a marker. You can use any number of cards from 1 to 5.

3. If you land exactly on a square with a marker, capture it by taking it off the board. You can only capture one maker during a turn, and it must be the last square you land on.

4. Record your moves in an equation. If you begin on 45, and use the cards +2, +10, +3, you record: 45 + 2 + 10 + 3 = 60.

5. Place the "change cards" you used face down in a discard pile. Take cards from the top of the deck to replace them. If the deck of "change cards" is use up, shuffle the discard pile and turn it face down again.

6.The first player or team to capture 5 markers wins.

*You can make your own Change Cards by cutting small pieces of paper and labeling them:

Four of each: +1, -1, +2, -2, +10, -10, +20, -20; Two each: +3, -3, +30, -30 (forty cards total)

You can also create your own 100 chart or get one from your teacher.