

## Ten Things you can do *Right Now* to Help your Child Learn Math

### Tip #1 - Simple Addition

Take out a deck of cards and remove the court cards (Jacks, Queens and Kings) and the Joker. If you count the Ace as 1, you can use the cards as a kind of flash cards, only better.

If you have a child who can't add yet, put two cards next to each other. He says the name of one, and then counts one higher for every spot on the other card (of course not counting the little spots under the number in the corner).

For example, put a two next to a six. The child says "six" and touches each spot on the other card. Each time he does, he count one higher, in this case, he'd put his finger on the first spot of the 2 card and say, "seven." When he puts his finger on the second spot of the 2 card, he says, "eight". Now he says, "Two plus six make eight."

This is better than adding on fingers for a couple of reasons. First, he gets to see the spots next to each other, and they are separate from his body. This helps develop abstract symbolism.

Second, kids run out of fingers when they have to add over ten (at least most kids do!) The first real mathematical trauma for a child is when they try to add something like 9 and 2, and all of a sudden the fingers run out.

That problem is neatly taken care of with cards. Put out a 7 and a 6. The child says, "seven," then keeps counting as he touches the spots on the six, calling off, "eight, nine, ten, eleven, twelve, thirteen. Seven plus six equals thirteen!"

Don't forget to have them say the final sentence. That's what helps "lock it in" for them.

The nice thing about this is you can shuffle the cards and take out pairs and do this with your child until you run out of cards. You will have done 20 examples. Then you can take a break. But kids love this. It sure beats doing math worksheets! (Kids hate those things.) Make sure you let them run through at least one deck a day. In a few days, the child will have all his "addition facts" (which is a kind of creepy term, if you ask me) down *cold*.

### Tip #2 - More simple addition

When you are in a car, have your child add up all the digits on license plates. Skip the letters. AX76B93 would add up to 25. See how many they can add correctly in 10 minutes. It may drive you nuts, but they will learn to add.

### **Tip #3 – Slightly Complex complex addition**

Use the same deck of cards as in Tip # 1, but just use one suit, like the clubs. You will have the Ace to ten of clubs. If the ace counts as 1, and you add them all up, they will add up to 55. Now have the child shuffle the cards and turn them over one at a time, adding them as quickly as she can.

She will always know the final answer should be 55. If she arrives at anything else, she's done it wrong. If she arrives at 55, she's done it right. No need to check "the back of the book" or the dreaded calculator for the answer.

Want to make it more complicated? Use two suits, they add up to 110. Three suits add up to 165 and the whole deck of forty cards (without court cards) adds up to 220. If a child can add to that correctly in a few minutes, you can stop worrying that they'll ever have problems in math.

### **Tip #4 – (Almost) The Same as above for Multiplication**

Take two cards and have your child say the number of the first one as he touches the first spot on the other card, and count by that amount each time he touches one of the other spots. Let's say you have a four and a nine. He says, "Nine," as he touches a spot on the four. He touches another spot, and says "eighteen", another spot is "twenty-seven" and the last spot is "thirty-six." Then he says "four times nine is thirty-six."

A twist on this is that before you go to the next pair, he has to do the same thing the other way around, this time counting by fours and touching nine spots. This will "lock in" the fact that it doesn't matter what order you multiply numbers by. That's called the commutative law of multiplication, by the way, because the numbers can "commute" (travel) to either side of the multiplication sign without affecting the outcome.

### **Tip #5 – Got Dominoes?**

I used to teach at a Job Corps facility in upstate New York. Job Corps is a horrible organization, but the kids it is mandated to help are some of the coolest kids I ever met. I loved working with them (mostly inner city NY kids) but I hated the administration and the way Job Corps is set up.

Although Job Corps treated the kids like they were hopeless losers (they weren't), some of those kids could do basic arithmetic better than any kid from the local "good schools." Most of the kids whose arithmetic was the best were from Latin-American or Caribbean countries, where they played dominoes.

There are many ways to play. You can get cheap sets at many dollar-stores, and you can find sets in any mall or toy store. Read the instructions and start playing with your child. They'll love to play, and pretty soon they'll be playing (and beating) their friends. Don't even mention math – they'll never suspect this was a "lesson." (You sneaky devil, you!)

### **Tip #6 – Alphabetize Words**

This is not exactly a math exercise, but it does help children work with patterns. That helps foster mathematical thinking.

This one is simple. Say a word, and the child has to alphabetize it without writing it down.

Start off easy. “Cat. A-C-T, cat.”

“Bubble. B-B-B-E-L-U, Bubble.”

It sounds funny. It is funny. You can’t help but giggle when you try it.

Once you start getting notes from your child’s teacher that she is driving everyone nuts by doing this in class, you will know you have done your job well. Have fun.

### **Tip #7 – One in a Million**

This one is meant to foster a sense of magnitude (mathematical size) in your child. Generally, we talk about the “Order of Magnitude” of something, and we mean, more or less, what size it is compared to something ten, one hundred, one thousand, ten thousand, etc. times smaller or larger than itself.

In the “One in a Million” exercise, you say, “I’m one in a million (thousand, hundred, etc.), what could I be?”

It doesn’t have to be exact. If you’re one in a million, you could be one person from a fairly large city. You could be one of the dollars in your rich uncle’s bank account (lucky you!) You could be one of the bytes in a megabyte. A car on a large freeway at rush hour in a huge city.

OK, let’s make it easier. “I’m one in a thousand? What could I be?”

- One of the workers in a huge office building.
- One of the people on a commuter train.
- One of the pennies in twenty one-dollar rolls of coins.
- One of the dates on about three yearly calendars.

“I’m one in ten-thousand, what could I be?”

Somebody at a:

- race-track
- large concert hall
- stadium.
  
- A fish in a large lake
- A car in a parking lot at a large airport

I think you get the picture by now.

### **Tip #8 – Easy Fractions**

Get that deck of cards out again. This time we are not interested in the values, just the amount of cards. Take a bunch (it doesn't matter how many). Turn some of them over, and mix the cards together, some face up, some face down.

Now lay out the cards next to each other. The object is to tell how many of the total are face up and how many are face down.

For example, there are thirteen cards. Two are face up. "Two-thirteenths of the cards are face up, and eleven-thirteenths of the cards are face down."

It's an easy exercise, but it will make fractions much easier when your child is faced with them at school.

### **Tip #9 – How many Spiders?**

Spiders have eight legs, right? So you say, "I see sixty-four (or any other multiple of 8) legs. How many spiders?" Now they have to simply divide by eight to get the answer. Start out simple, though. "I see sixteen legs. How many spiders?"

You can start with people. "I see eight legs. How many people?"

Then move up to dogs or cats. Then up to spiders.

Don't mention division. Just play the game. The child may have to count, or find his or her own strategy for figuring out how to get the answer. That is fine. Just start easy and work your way up.

### Tip #10 – Spatial Reasoning

I saved the hardest one for last. This is for older children. Get them used to walking into a room and estimating the square footage and cubic footage of the room.

Example, I walk into a room and have to estimate its width. I know my size (let's say I am five feet tall). I imagine myself lying on the floor. How many of me would I need to fill the width? Three? Okay, the room is 15 feet wide. How many of me long is it? About four and a half of me? So the room is about 22 or 23 feet long. Say 22.

To figure the square footage, I'd have to estimate 15 times 22. Let's call it 15 times 20, plus two more groups of 15.

$15 * 20$  is the same as  $15*2*10$ .

$15*2$  is 30

$30*10$  is 300.

Plus the two groups of 15, which makes 30, gives me a total of  $300+30$

Which is 330.

So the room has approximately 330 square feet.

Most rooms are about eight feet high. To get the cubic feet, you'd have to multiply 330 by 8.

That is not always easy to do in your head, but you can do  $330*10$  in your head and subtract  $330*2$  from it.

That would be  $3300 - 660$ . Can you do that in your head? Yes? Great! You'll be a whiz at this. No? No problem. Get used to doing this exercise a few times a day as you enter different rooms, and you'll soon be able to do it with no problem.

In a few days, you'll probably have memorized the square and cubic footages of all the rooms in your house. From then on, just by knowing their sizes, you'll be able to estimate the sizes of other rooms just by walking into them.

For example, I know the size of my bedroom is  $12*20*8$ . I can break rearrange that to be  $8*12*2*10$ .

$8*12=96$

$96*2=192$

$192*10=1920$ .

So my room has about 2,000 cubic feet.

When I walk into your room, just by eyeballing it I know it's about  $1 \frac{1}{2}$  times the size of my room.

I can immediately state that it is about 3,000 cubic feet.

Believe it or not, there used to be guys at carnivals who could guess peoples weight, usually for a quarter. If he guessed within a pound or so, he'd keep the quarter. If not, you get your quarter back, and you'd win a prize. They did it using a similar method to the one described here.

Think you could get your child good enough to reckon square or cubic feet so that they could "guess" (and really mean figure it out) within 10 square feet, or 100 cubic feet, in a few seconds?

### **The Final (and maybe the best) Tip of them All**

There is one more thing that you can do to help your child with math right now. Head out to <http://mathmojo.com> and check out the free lessons on subtraction from left to right, and the lessons about the abax.

Also, if your child is not 100% solid with his or her multiplications, to the point that they can do it without hesitation (no saying “um, let’s see...” first), you really should check out the booklet “Numbers Juggling - Times Without the Tables” at <http://learn2multiply.com>

It is inexpensive and easy to read and apply. If you understood what you read hear, that booklet will be a cinch. There is a great method in it that teaches the upper multiplications ( the “six to tens times-tables”) in a way that your child will be able to use within minutes after she reads it. No more fumbling for the answer, and not being sure. No rote memorization. No drill-and-kill.

There are quite a few bonuses that come with the booklet, including a seven-part e-mail course that covers the deeper math behind the method (that’s for *your* curiosity), along with an alternative method to do the multiplications on your fingers. (Surprise! It’s not the method that you may have learned for the nines-times tables. It’s better. It works for *all* the digits from 6-10, not just nine). Click the link above to check it out.

This is a vastly superior way to teach a child the “multiplication facts.” I hope you’ll give it a try.

Wishing you all the best in your learning and teaching endeavors.

Yours truly,

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P.S. Don’t hesitate to e-mail or call if you have any questions about Math Mojo!