

Focal Point

educational services

30 second math

30 simple lessons for your Pre-K – Kindergartner



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Introduction

Each lesson begins by telling you what prior games to master before you begin. Some games can be done at the same time, and you can alternate them. Just make sure you have mastered any prior requirements to any game you begin.

In each game, I have given you a “how you know you’re done” section. This tells you what to watch for to know your child has mastered this game.

This does not mean that you have to stop playing any game your child enjoys. Sometimes kids master a game and still want to repeat it; they are building confidence, so feel free to continue as long as they enjoy the game.

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I have deliberately not matched age levels to the games. As an Educational Therapist, I have a firm belief that there is no such thing as a Kindergarten math level.

All minds are different, and furthermore, we do not want them to be the same. The same child who moves through the following set of games slowly will move through a different activity with lightning speed. The child with an aptitude for math will struggle in another arena. I would argue that this is good.

One of my best friends in the world has a completely different mental setup than I do. She has a methodical mind, and corporate lawyers rely on her expertise in their bids and contracts. If any little

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detail is out of place, she will notice and correct it. She is incredibly good at her job.

On the other hand, I would fail miserably at her job. I have difficulty noticing details, glossing over the little things in favor of the big picture. But when my friend and I were in college, I was the one who could pick up more information more quickly in the classroom. That environment played to my strengths.

Guess who I ask to edit my books? Yep – my friend Amy – without whom I doubt I would be here today. Before you begin, I want you to understand the one thing we forget too often in education: ***minds are different.***

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A strength in one situation can be a weakness in another. Your child has unique and beautiful gifts. It's your job to encourage, inspire, and build up, regardless of where those strengths lie.

My child has been a little comeuppance to me, as yours no likely is for you. She's an athlete, where I was an uncoordinated, bookish kid. She gets me out doing all kinds of things I would not ordinarily do. And I have to push her to do any reading at all. This child is so different from me that I have difficulty relating – but I can still encourage her strengths.

That being said, I am giving you a way to unlock your child's potential in mathematics: ***the key to math is understanding why it works.***

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No matter what kind of mind your child has – he will excel through understanding. Then he can get the right answers consistently – and quickly. All of the games in this book are geared toward your helping your child understand why math works.

I highly recommend Montessori schools and preschools for this reason. Maria Montessori was a math genius. People who are considered math geniuses always have an understanding of why they move the numbers around on the page. That's how they remember the different formulas. No one can memorize it all without understanding and succeed.

Math geniuses usually know shortcuts as well. This book sets the foundation for four simple shortcuts that I will begin showing you in my next book. These four shortcuts will take your child through

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addition, subtraction, multiplication and division quickly and easily. But the setup begins here – before Kindergarten.

You're on your way to helping your child succeed and excel in math. Congratulations.

Learning Resistance

How to Help Effectively

In my learning center, the biggest problem I confront with my students is not learning disabilities, intelligence or aptitude. It is learning resistance.

I am a firm believer that learning resistance is taught in the early learning experiences, and I have seen with my own eyes that it can absolutely cripple a student in school.

When a child resists a new experience, it is easy to rely on some method of forceful persuasion to get her to start the activity. I have seen plenty of well-

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meaning parents pull their kids into the swimming pool before the child felt safe, and, in the short run, it does get the child into the pool. In the long run, it backfires.

The child who was pushed ahead of her own safety level will start to anticipate the feeling of being pushed, the feeling of being unsafe. Whenever she feels this feeling, she will want to put on the brakes, so that she can feel safe again. She may do this by pouting, crying, shutting down, or she may become antagonistic, a smart-alec.

When you encounter learning resistance in your child – SLOW DOWN! Don't try to push your way through it.

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You can allow for more movement if you have a high energy child, go back to a previous game, or modify any game through your assistance.

Throughout the exercises, I have found ways to humorously help you to slow down and not push. As a parent, I know how desperately I want my child to succeed, to excel.

As an educational therapist, I know how devastating this can be to the child. A well-meaning parent can push a beloved child too much. And the results are the opposite of what you want.

The Importance of Consistency

The secret to success is consistency.

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There is no substitute for repetition over time. Too often, we get into a new idea and have great gusto for the plan. We overdo it, and then make up for the overdoing by taking some time off.

I hope you feel a great amount of enthusiasm as you begin these exercises with your little one – but pace yourself. Watch where your child is, and set your pace to the child's.

Visualize this end result: at the end of the month or year, you can look back and see that you played math games more often than not. There were days and maybe even weeks where you took a break. But then you got going again, and the net result in 52 weeks was more practice than vacation.

Counting Out Loud

What to Know Before you Begin

This is the beginning: your child does not need any prior experience for this game.

30 second counting

No child is too young for this lesson. It begins with you counting from 1—10 in front of your baby.

Virtually everyone reading this has a child with 10 fingers and toes — use them.

The first step to math master is reciting a series of sounds, “One, two, three....” and so on. At this stage your child has absolutely no understanding of what those sounds mean — but you must first accomplish

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this milestone before moving on.

So count out loud as you drive down the road, as you change the diapers, as you cuddle and play with your little one.

My child surprised me at 19 months by counting to 10 in her car seat while we were on the way to our Christmas Eve service. I had been counting with her in only 30-second increments, and could not believe it could make a difference.

Consistency

After my little one counted out loud the first time, it was months before she could do it consistently. Seven was frequently missing (apparently she didn't need seven).

Keep counting together until your child can do it

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correctly on her own. Don't concern yourself with how long this takes; just keep counting.

How You Know You're Done

You will know you are done with this step when your child can consistently count 1—10 by himself. This may take a year — but who cares? You have time.

Counting the Quarters

Before You Begin, Master These Games

This is the beginning: your child does not need any prior experience for this game.

Thank goodness I had coin laundry

When my little girl was about two, we were poor and the laundry machines were across the parking lot from our apartment. I would place the four quarters into her hand one at a time, counting one, two, three, four. As she put the quarters into the machine, I counted again: one, two, three four.

Within a decade of beginning this game, she was counting out loud: one, two, three, four. Okay, it wasn't really a decade — but things take a long time

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with the little people, and you just have to keep doing it until they demonstrate that they understand you.

Variations on a theme

So not all of you have coin laundry — and I don't want you to move your family into my old hood just to teach this lesson. How about the little horsie machines in the malls and grocery stores?

If you would normally give your child coins to ride or buy the sticky goo toy that she's going to get all over the carseat — use the method I describe above.

The importance of this lesson is the moving of objects one at a time as you count. You are building the idea of one-to-one correspondence.

This means that I count 1, 2, 3 in relation to how

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many objects I am counting. I do not count 1, 2, 3 while pointing at one object. If you demonstrate this by handing one object at a time as you count, then your child will imitate you.

You want it to become a habit to move after saying each number name. A toddler may not understand the concept, but can imitate you and make a habit that will help her to understand this idea when her cognitive development catches up.

How You Know You're Done

You will know you are done with this step when your child can consistently count the coins as she drops them in the slot, or hands them back to you. She should be counting a number each time she drops a coin in.

She has not understood the lesson if she's saying the

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numbers from 1—10 in rapid-fire fashion while dropping 4 coins in the slot.

One object equals one word — that's the way counting works.

Alike and Different

Before You Begin, Master These Games

This is the beginning: your child does not need any prior experience for this game.

The Importance of Discrimination

Usually we use the word discrimination to discuss racial prejudice, but the real meaning of the word is telling one thing from another. This is a foundation skill in mathematics.

Here's why: the equals sign conveys the important piece of information that one thing is the same as another.

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This is going to set up a series of logical conclusions that will culminate in algebra. Yup, you heard me: the equals sign is the foundation of Algebra. If you want to impress your friends, you can tell them your child has mastered the foundation of Algebra when she gets this lesson!

How to Play the Game

Many objects in your house will work for this lesson. You just need something you buy in multiple copies. How about silverware? Pull out two identical spoons, and say, “these are alike.” Then pull out a kid-fork (no, I’m not advocating anything with a sharp edge for you potentially litigious readers), and say this is different – it has spikes.

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Then ask – which two are alike? Try it again with other objects. If this game is completely beyond your little person – don't push it. Just comment on things that are exactly alike, or what is different about two things.

Baby Genius will let you know she's understanding this lesson by saying, "Those are alike," and surprising you in the middle of Macy's.

How you know You're Done

You know you're done when your child can consistently identify whether two objects are alike or different.

There are many levels of this game: in the beginning, you will choose objects that are obviously

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different. As your child gets better at the game, you can increase the difficulty by choosing objects that are more similar and learning to discriminate between them.

It may take several years to get to where your child can differentiate between three or more objects that are quite similar. Just keep playing this game until your child is a master at difficult “alike and different” games.

Sometimes in the newspaper or in puzzle books, there are comics with “find seven differences between these two puzzles.” These are quite difficult, and they camouflage the differences between the two pictures.

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This is where you are heading – and you may not make that level of mastery until age 7 or more. Remember to start with objects in the real world before using puzzles from a book.

Kids are concrete thinkers: give yours the advantage of concrete experience.

Finger Counting

Before You Begin, Master These Games

This is the beginning: your child does not need any prior experience for this game.

Counting Fingers in Order

First, you have to decide what order to count your fingers. Before you decide I am an idiot for telling you that — consider that your preschooler is going to try to imitate your fingers. Most of us learned to show three fingers with our thumb holding our pinkie down and the three middle fingers up. Talk about complicated for little hands!

1. Start with the thumb counting 1.

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2. Thumb and index finger is 2.
3. Thumb, index and middle finger is 3.
4. It's hard to keep your pinkie down with all the other fingers up counting 4; alternatively, you can put the thumb down and count 4 with thumb down and 4 fingers up.
5. Five I think you can manage on your own.

I commuted an hour a day when my girl was little. We perfected counting on one hand with mommy holding up her fingers and talking to the little girl in the car seat in the back. My daughter can thank her car seat and my commute for her success in math; we did most of the games in this book while in the car.

Consistency

Start by counting your fingers in order 1, 2, 3, 4, 5. Always do it the same way so your child learns how this is done. As your child shows an interest, show him how to count his own fingers.

Continue counting 6, 7, 8, 9, 10 with the other hand. Please don't do this game while driving down the road unless someone else is at the wheel.

How You Know You're Done

You will know you're done when your child has a degree in rocket science. Or, you can stop doing this and move to the next game when your child starts counting with you. You can add other games before your child has all the finger positions down — she'll

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have it before kindergarten — if you want her to get it faster, look up your local 12 step group for overachieving moms.

Finger Counting With a Twist

Before You Begin, Master These Games

Your child should master finger counting in order before beginning this game. She should be counting out loud by herself as you hold up fingers before advancing to this step.

Let's mix it up

Your two to three year old can get this lesson, after you have been counting together on your fingers. Hold up 2 fingers and ask, “How many?” Say the answer and let your child repeat after you.

Continue holding up fingers 1—5 in various orders and giving the answers. Sooner than you think, your child will be answering at the same time as you do.

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That is your cue to stop answering — or at least wait 1—5 seconds before giving the answer.

The importance of this lesson

The human mind can perceive up to 5 objects dropped onto a table. If you drop more than 5 — people have to count or group and add to know how many are there.

Try this with some small object and another adult. Drop 2 and ask, “How many?” Then repeat with 1, 4 and 3. Notice how long it takes for the person to answer.

Now try the game with 6—9 objects. You will see an immediate delay; the person has to think before getting the answer.

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If an adult has to think before telling you that there are 6 objects — then your preschooler cannot look at your 7 fingers and recognize that there are 7. But he can learn to count and tell you that you are holding up 7 fingers.

With this game, you are teaching your child to visualize the quantities from 1 to 5 — the only quantities he is ever going to recognize instantly. The ability to visualize the small quantities is a key to math understanding. Later on, I will show you how to help your child with numbers too large to visualize.

How You Know You're Done

You will know you are done with this step when your child can consistently identify 1—5 fingers out

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of order. She should be able to do this instantly and without counting before you are finished with this game.

You will know you are done when your child can count and identify 6—9 fingers out of order. This will not be instant, but you are showing a visual method of realizing that 5 and 1 are 6, 5 and 2 are 7, and so on. Fingers are a quick and easy way to learn to visualize this, and I'll show you later how to use the same finger picture to establish the shortcuts for addition, subtraction, multiplication and division.

You will know you are done when your child consistently knows that all fingers are 10.

Counting Revisited

Before You Begin, Master These Games

This is the beginning: your child does not need any prior experience for this game. That being said, I would like you to have begun the previous games before this one. Mastery is not required, but a prior introduction is.

Counting Objects

For those of you who are saying, “Enough of the counting already!” I understand. I would not have dedicated the majority of the early math games to counting if it were not incredibly important.

Kids who can count well are way ahead of those who

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can't when kindergarten begins.

Any time you hand your child more than one thing (toys, food, etc...) hand them across one at a time and count them. "One potato, two potatoes, three potatoes, four." Have your child hand them back to you one at a time, counting as he does so. This only takes a few seconds, and you are building the idea of one-to-one correspondence.

One-to-one correspondence

This is the ability to count one number for each object — to use the series of sounds we memorized in order to identify how many things there are. One-to-one correspondence is the most important thing your preschooler will learn in math.

Until your child is consistent with this, you should always count things one at a time into their palm.

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Children who have been taught to count by counting the number of bananas in the picture often do not have one-to-one correspondence.

Remember that children are concrete thinkers: they need real-world experience. This is the difference between the picture of the bananas and handing individual bananas while counting. In the real-world, the concept is obvious; in a picture it is less clear for a little mind. So give your darling the advantage of real-world experience. It will make all the difference.

How You Know You're Done

You will know you are done with this game when your child can consistently identify 1—10 objects. Keep in mind that kids often learn things one day

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that they don't know the next. The key word here is consistency.

When my little girl was 2, she came into the living room and counted 4 marshmallows into my hand: 1, 2, 3, 4. Then she ate one. Her aunt was impressed and asked her how many marshmallows there were on the plate if she had 4 and she ate one. Without looking, my daughter answered, “3.”

I let the whole family be impressed and tell tales about my daughter's genius. The truth was – whenever you asked her how many – she always answered, “three.”

Sequences and Patterns

Before You Begin, Master These Games

This is the beginning: your child does not need any prior experience for this game.

What makes math work

Remember math is a lot more than numbers. People who are good at math understand a series of IDEAS that make the numbers work. Sequence is one important idea in understanding math.

Playing with Patterns

A pattern is anything that repeats in a predictable way. Children naturally love the predictable pattern

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in play. It can be completely random. I remember the first time my daughter played a pattern game with me. She was literally an infant on my lap.

She looked at me, then looked away. Then looked back and looked away. I laughed the first time she did it, then laughed again every time she did this. This became a standard for us from a very early age.

A two-year or three-year-old will find delight in any one-two action and response game. For example, a small child may say something to you, like “waaa,” you respond “boo,” and the child giggles and says “waa” again. Your job is to repeat the pattern.

Respond the second time the same way you did the first time. The child will giggle again, and repeat the first part of the pattern.

Patterns Again, and Again, and Again

I'll admit that I don't find the same joke funny ten times in a row. But I do enjoy playing with a child who finds it funny ten times in a row. I laugh because the child laughs each time, and that makes it fun for me. I also know that playing with predictable patterns is an important lesson for the child.

How You Know You're Done

Pattern play should happen spontaneously, and you make the most of it when it occurs. One time, I was rolling around and playing with my little girl:

1. I quoted a line from one of her movies, "Give the dog your food."
2. She jumped on me and giggled.

Kindergarten

3. Repeat. Giggle.
4. Repeat. Giggle.
5. Repeat. Giggle.

From an adult perspective, this is totally random, because the line from the movie had absolutely nothing to do with jumping on me. But once the pattern was established, it became an instant game. You have to let go of your adult need for it to make sense, and just repeat the sequence the way it happened the first time. The lesson is in noticing and repeating the pattern, nothing more.

You are done with this lesson when your child no longer wants to play this way with you. I'm not sure when this will happen for you, because it hasn't happened yet at my house. Giggle. It hasn't happened yet at my house. Giggle. It hasn't

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happened yet at my house. Giggle. It hasn't

happened yet at my house. Giggle.....

Counting Backwards

Before You Begin, Master These Games

- Counting Out Loud
- Finger Counting
- Finger Counting With a Twist

Counting down from 5

Now that your child is identifying 4 fingers each time you hold them up, start counting down on one hand. Start with 5 and count down one every time you put a finger down. Remember to use the same finger positions you learned earlier in finger counting.

Start by counting out loud while your child listens. Encourage her to join you. Soon you will be driving

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down the road, holding your hand up, and listening to your darling count down from five. Just don't get distracted in your excitement and hit the mailbox.

The edible version of this game will motivate your little subtracter. Put five small candies or grapes in front him — count, eat, count, eat until they are all gone.

The foundation of subtraction

So far, we have spent all our time counting forward. We have a really good basis for addition. The beginning of subtraction starts now.

Preschoolers can learn to count back from 5 to 1, whether you are using your fingers or Skittles. If your child goes into school with the ability to count backward, then she will get more answers correct at a younger age.

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Consider this: many kids decide they love or hate math in the early grades. We all enjoy being right; none of us likes to be wrong. Your child is much more likely to enjoy math if he has the experience of being right.

How You Know You're Done

When your child can count down from 5 to 1 without looking, she has mastered this game. As soon as this is accomplished, you should begin counting down from 10 to 1. As with counting forward — expect this to be more difficult. Count out loud with your child until she is counting with you. Then let your voice get quieter and quieter as she starts counting by herself.

Zero – the Importance of Nothing

Before You Begin, Master These Games

- Counting Out Loud
- Finger Counting
- Finger Counting with a Twist
- Counting Backward

Incorporating zero into the games

Once your child is comfortable counting down from five to one — add zero. Do this whether you are counting down on your fingers, counting the grapes as you eat them, or counting the number of plants you have left as you kill them because you are

spending all your time on these math games.

Much Ado About Nothing

The invention of zero is one of the most important accomplishments of mankind. No kidding. The ancient Romans didn't have zero, and could not multiply with their number systems. Along came the Arabic number system with its ten symbols including zero, and complex math was born. We would not know anywhere near as much as we do about our universe without zero; can you imagine calculating the distance in miles from the earth to the sun without using zeros? Or how about calculating the national debt? Hey, maybe we could get rid of zero and improve the economy.....

I tell kids that it is important to know when something is empty.

If your stomach is empty.....kids get that example.

How You Know You're Done

You know you are done when your child can consistently identify zero objects. That means, when you clear everything off the table, and ask, “Now how many do you have?” your child yells, “Zero!” and you have one of those wonderful mommy and me bonding moments that we all love.

And all for nothing.

Written Numbers

Before You Begin, Master These Games

- Counting Out Loud
- Zero—The Importance of Nothing

The Number Line

Write the numbers from 0—10 on a piece of paper. Point and count out loud with your child forward and then backward. Always do this three times in a row.

Taking Control

At first, your finger should be pointing to each number as you count. Since little ones are natural imitators, yours will soon be pointing with you. As

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soon as you are seeing that little finger pointing to the right numbers at the right time, let your child take control. I promise, this is not nearly as scary as it will be when they start driving — so enjoy your child’s ability to be in control of her own learning. You can hide the car keys later.

Why Three Times in a Row

I always tell kids: “the third time is the easiest.” The first time — you will count and your child will fumble along. The second, he will perform in a hit and miss fashion. The third time — he’s starting to get it.

Keep doing your counting games three times in a row, and soon you will be pretending to count while your child is doing all the work. Always count backward as well as forward — unless you want

your child to be able to add and not subtract.

How You Know You're Done

You want to hear your child count 0—10 without stopping, hesitating, or trying to get you to tell her the answer. Help a little less each time, and she will get there. You want her to begin recognizing each of the number symbols from zero to ten. You want her to be a NASA physicist — but that's a different book.

Connecting the Quantity

Before You Begin, Master These Games

- Counting Out Loud
- Counting Backwards

Beans, beans, the magical fruit....

You need to connect the symbol 3 with the quantity of 3 — or all other math operations we do with 3's are meaningless. For this, you will need a small object, such as a bean, that can be glued under the written number on a piece of paper. It can also be counted later.

Keep it three dimensional; don't draw pictures of beans. Remember this is the person who, just a few months ago, explored the entire world by putting

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things in her mouth. Kids need to wrap their hands around things before they can wrap their minds around them.

Variations on the bean theme

Are there any small, partitioned boxes in your house that could be converted into a bean counter? Egg cartons or Mancala games are perfect containers.

Write one number on each cup, from 1 – 12. Place a pile of beans on the table, and have your child place 1 in the 1 cup, 2 in the 2 cup, and so on.

How You Know You're Done

Remember that the human mind cannot instantaneously recognize more than the fingers of one hand — so little Einstein is not going to open

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Winnie the Pooh and exclaim, “Look, there are 45 leaves on that tree!” However, you will see him choose to count how many legs on the Heffalump, how many balloons on the page, and so on. He will start recognizing 2 or 3 instantly — but will need to count if there are more.

When your child can consistently count and tell you that there are 8 legs on the spider, six on the insect, and so on — you have accomplished this goal.

Notice that we do not teach the lesson by drawing pictures, but a child who has learned the lesson can accomplish counting from pictures. Input of the lesson should be real-world and hands-on; the output (or results) will include both the real world and the two-dimensional written page.

Counting to 100

Before You Begin, Master These Games

- Counting Out Loud and Zero
- Written Numbers and Connecting the Quantity

The Math Map

The Math Map is absolutely your best math tool. Mathematicians often use a picture of the number system in their head. What better way to “get the picture” than if you give it to them? You point to the numbers and help your child count to 100.

Kindergarten

Basic Math Map

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99
100									

Why Not a Standard Hundreds Board

Trust me on this — the later patterns will not work if you don't start at 0. We are going to be using the Math Map through about fourth grade, and its real use won't be obvious until 3rd. Even now, it does some significant things to help your child understand numbers.

You can see that the forties row goes from 40 to 49. Then we begin the fifties row, and so on. This picture illustrates the logic pattern in our number system, whereas the 100's board beginning with 1 – 10 does not.

Also, I have to correct the missing zero even with my high school students. I was working with a high school student this week. We were working on the seven times table, and he kept making a mistake,

because he forgot to include zero. I wish he had been taught to include zero from the beginning.

How You Know You're Done

When your child wants to point to the numbers herself — that's the first step. You keep counting out loud with her until her voice sounds confident enough that you can take the backseat. Help her point to the numbers on the Math Map until she can do it without assistance.

Counting out loud (without the map) while riding down the road, stopping at the end of each line, waiting for you to say “40” “50” and so on, is the next. Three and four year olds love repetition and they love to count. So encourage it.

You want this to be fun – so keep it simple. That means, if your child gets bored and is finished with

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this exercise at 16, stop. Do it again tomorrow and you might make it to 18. You want him to associate the Math Map with a fun activity, because you need this tool. You do not need a bunch of resistance to the tool that built up because you forced it when she was 4.

Your child can go into Kindergarten knowing how to count to 100 if you have been practicing this over time. But she won't learn it right away as a 4-year-old. As always, time is your friend. Just keep playing with the Math Map, and you'll get there.

Fetch – For Humans

Before You Begin, Master These Games

- Counting Out Loud
- Zero – The Importance of Nothing
- Written Numbers

Symbol first, quantity second

Now that your child is feeling so good about this counting thing, let's really throw him for a loop, shall we? No, I don't mean we're going to deliver the bad news about Santa. But let's hand him a number and have him go and get that many beans, pennies, coconuts....

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Reversal is Important

As adults, it is easy to assume that, if I can count 5 candies and tell you there are 5, then the lesson is done. But the one thing I have learned about children is that they are not linear-logical. Following is an actual transcript of a conversation with mine this morning:

Me: “Would you like a peanut butter sandwich?”

Little Einstein: “I like mowing lawns.”

What’s interesting to me is that this was a perfectly rational response from her point of view. These little creatures might as well be an alien species; they don’t think like us. We have to accept this if we’re really going to be of use to them.

So hand your child the number 8, then request that

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she go and get that many (without saying 8). See what happens. Repeat. Do not yell, “Fetch” (that’s for dogs). If she can do it, she is connecting the symbol with the quantity. If not, keep playing.

For kids that struggle with this exercise, you can start with quantities below five, and gradually work up to quantities above five.

How You Know You’re Done

You know you are done when your child can consistently bring you the quantity you requested. You can hold up any number from 0—10 and your child, from a big pile of toy cars, can produce the number you requested.

Organizing the Cards

Before You Begin, Master These Games

- Counting Out Loud
- Zero—The Importance of Nothing
- Written Numbers

Number cards

Write the numbers from 0—10 on little pieces of paper. Shuffle them. Ask your child to put the numbers in order. Assist if necessary. Remember never to stress your child out by giving her a task she finds frustrating. If she does this together with you every day for 2 weeks, and then shows you she can do it on her own — that's success. Our goal is to get

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there, in baby-steps, regardless how long it takes to do so.

Why this is Important

We are moving away from the three dimensional world and into the symbolic world. That means that instead of having three of something, all we have is a couple of curved lines that look like this: 3. Why does two half-circles hooked together mean three?

From your child's perspective, this question is as logical as mowing lawns is to peanut butter. The relationship is obvious — and if you don't get it, you must be an adult.

If your child is going to succeed in math, then he will have to calculate many, many times without seeing three objects in front of him. That means that the quantity has to be in his mind — and that it needs to

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be in the right place in relation to all the other quantities.

How You Know You're Done

When you can hand him all ten cards, and he can arrange them from 0 to 10 without hesitation, you are mostly done. When he can do that every time you hand him the cards, you are all the way done.

Knowing how to count on Monday in no way implies that your child can count on Wednesday. I have seen children lose vast amounts of information in incredibly short periods.

Just keep playing until he is consistent. And if he is consistent right away, we'll call NASA together and tell them to get ready for the next super-genious.

Learning Coin Value

Before You Begin, Master These Games

- Counting Out Loud
- Counting Backwards
- Written Numbers
- Organizing the Cards

Eating To Learn

This game is guaranteed to get your child eating out of your hand. Buy a big bag of M & M's and place up high where your child can't reach it. Mine is in the top of my closet, and despite stacks of pillow cases, rocking chairs and stuffed animals, the top of the closet has remained impregnable.

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Every time your child finds a coin, sell the M & M's for a penny apiece. That means, a nickel buys 5 M & M's, a dime buys 10 M & M's, a penny 1, and a quarter 25. I limit sugar, so quarters are rarely used at my house.

Not only will your child continuously bring you all the spare change from the cushions of the couch, but he will also enter Kindergarten knowing the value of pennies, nickels, dimes and quarters.

Advanced M & M work

In the beginning, Little Einstein will bring you a dime and know it will work the magic to unlock the M & M's — but won't know how many. You, the grand all-knowing wizard, will look at the small round object, pronounce it a dime, and then give your child 10 M & M's.

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Start asking, “what is this called?” and “how many M & M’s does it buy?” If your child does not know the answer, tell him.

Soon, your child will start answering. Wait until he’s answering consistently before you require an answer for the M & M’s to come down from the impregnable fortress.

You NEVER want to be standing in the kitchen with a dime and an expectant little person saying that he CAN’T get the M & M’s. So be careful how quickly you proceed to the more advanced step of this game. This game is intended to be FUN – and being denied M & M’s is NEVER FUN.

How You Know You’re Done

You know you are done when your child can consistently identify pennies, nickels, dimes, and

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quarters AND can tell you how much each is worth. This is going to take a while, because small, round, silver objects look like small, round, silver objects. I have taken all 4 coins, placed them on a table with the corresponding number of M & M's behind them, and then drilled for 30 seconds. At the end, the child gets to eat all the M & M's. This guarantees undivided attention.

Edible Math

Before You Begin, Master These Games

- Counting Games
- Learning Coin Value should be introduced, but does not have to be completely mastered

Why Stop With Coin Value

As soon as my child was consistently identifying a dime as the magic that would purchase 10 M & M's — I rewarded her by making the game harder. Okay, maybe this was blatant manipulation on my part — but I knew I had her attention and I was unashamed to use this to my advantage.

No longer would I simply count 10 M & M's out of

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the bag. Now I count 5 red M & M's into one of her hands and 5 brown ones into the other. She mixes them together and counts to prove that I have given her 10 M & M's.

Mixing It Up

You can teach all the additions that equal 10 with this game. Every time your child brings the dime and asks for M & M's — count out 1 of one color and 9 of the other, or 2 and 8, etc... Each nickel or quarter can be used the same way. For quarters, I count them out into 5 groups of 5 and never mix it up. Twenty-five is simply too big a quantity for any other games.

Keep It Short

Remember that these are 30 second math games. You can really teach the basis of elementary mathematics in 30 second lessons if you do them frequently over a couple of years. These little people have naturally short attention spans — so keep the lessons appropriate to their natural rhythm. If your child is getting antsy, then the lesson has gone on too long. Take a deep breath and relax. He's smart enough and will get it when he's ready — more so if you don't push.

How You Know You're Done

Eventually, your child will know all the additions that equal 10, 5 and every other number — but that is going to take several years from when you begin this game. Expect that, and keep playing with the

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numbers until the lesson is learned. Soon you will learn the Math Rainbow that will incorporate all the additions into an easy-to-understand picture and the lessons will go more quickly after that point.

Counting by Tens

Before You Begin, Master These Games

- Counting (forward and back)
- Counting on the Math Map
- Counting to 100 (with assistance)

A Second Use for the Math Map

By now, your child has been counting all the numbers with and without the Math Map. If you have been doing this game with any regularity, your child likes to count. This is a major hurdle in liking math. As long as your child can count, you can begin counting by 10's before Kindergarten. I have sent more than one child into Kindergarten counting

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by 10's — and all we did were 30 second lessons on the Math Map.

The Left-Hand Column

Using a piece of paper, a map of Taiwan, or some other straight-edged object, cover up all but the left hand column of the Math Map. Beginning with zero, count out loud 10, 20, and so on to 100.

The Other Columns

It seems that, as soon as I start a child reading down the left-hand column, they want to play the game on the other columns. I say great. Let's count by 10's starting with 6: 6, 16, 26, 36, 46 and so on to 96.

They are learning that every number in the 6 column ends with six. They are learning that 46 is ten more than 36, which is ten more than 26. These are going

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to be important lessons when we move on into more complicated additions.

How You Know You're Done

The first time you do this game, you might as well be speaking Greek. Your little person may dislike it because it feels confusing, and no one likes to feel confused. Stop. But do it again a few days later. Remember never ask the child to do something she can't be successful with. That means you count out loud by 10's until she's ready to count with you. Then the two of you count out loud together until she seems confident with it. Then let your voice get quieter and quieter as you count out loud together.

Left and Right

Before You Begin, Master These Games

- Counting (forward and back)

The Games You Play

Stand behind your child as you are walking through the park, or the store. You touch her right shoulder and say, “Take a right.” Your child should always get a cue from you as to which way is right, then turn. You continue on directing right or left, always giving the cue until your child stops looking to you for it.

Play the game in reverse: your child is sitting in a shopping cart (one that allows them to face the same direction you do). Your child calls out right or left

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and you turn the cart the direction called. You can even prompt your child by telling her you will need to turn right up ahead, and then she gets to be “in charge” by telling you to turn right when you get to the end of the aisle.

Using Your Opportunities

When my daughter came up to me with both hands behind her back saying, “Guess which hand my toy is in,” I said, “Your right hand.” Then she had to think about which hand I had asked of before pulling her right hand out to show me it was empty. Take any opportunities like this to make a chance moment into a left/right game.

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Why Left and Right are Important in Math

We learn to add and subtract on a number line, then start using a mental number line. Once we have moved to a mental number line, a left/right confusion can start messing up our answers. I often have students add a 9 as though it is an 11; a clear symptom of a left/right confusion. The student has place 9 to the wrong side of 10 on the mental number line. This sort of mistake happens frequently for people with left/right trouble.

How You Know You're Done

This game is geared for a total physical response. This method is often used in foreign language classrooms for kids to master foreign vocabulary, such as “stand up,” “sit” and so on. Using a total

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physical response will bring your child to a level of true left/right mastery.

Your child has the ability to know which is left and which is right all the time. You will see increasing accuracy as you play these games. When you see 100% accuracy consistently for several months, you're done.

Dice Games

Before You Begin, Master These Games

- Counting (forward and back)
- One-to-one correspondence

Dice Games, or How To Raise A Compulsive Gambler

Okay, I don't really want you to raise a compulsive gambler, but I have never seen anything more fun than a pair of dice for simple additions. Keep them in your purse (or man-purse for you dads) and pull them out when you're sitting in the restaurant with a restless little person. Roll the dice, add the sums, repeat.

Counting from the Middle

Show your child that, when she has a 5 and a 2, she can start with 5, and count “6, 7” to find the answer. I touch the die with 5 on it and count “5.” Then I take a pen, touch each dot on the other die, one at a time, counting “6, 7.” At first, I did this after my daughter had counted, “one, two, three, four, five, six, seven.” She quickly realized that the short cut was less work. As I tell my students, “All I want for you is for you to get all the right answers without doing much work.” Lazy Math — kids love it.

The Bouncy Child

My daughter is one of those high energy little people who might get diagnosed ADHD if I was inclined to take her in for an assessment. My personal

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philosophy is about making the education fit the child, rather than the child fit the education. So, on days that my Little Einstein is particularly bouncy, I throw the dice on a mini-trampoline. She adds the sums, jumps to roll the dice, and repeats. She can do thirty equations in a few minutes of bouncing without realizing she's been working.

How You Know You're Done

You won't be done with this game for probably two years. Ultimately, your goal is for your child to recognize all the additions through $6 + 6$. But first, your child must associate addition with a fun game and with the feeling of being right. Keep playing this game periodically into first grade, if necessary. If it gets old, put the dice away for a month or three. When you get them back out, the game will be new

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and fun again. Or keep the dice in your purse and only bring them out in emergencies. That makes them rare — and exciting!

Counting Coins

Before You Begin, Master These Games

- The importance of zero
- Counting
- Edible math – coin values

My Money Cup

I keep 10 pennies, dimes and quarters, as well as 20 nickels in a coffee cup in my office. My students learn much more quickly with real money passed from hand to hand than from pictures in a workbook. As soon as your child is starting to recognize the coins and their values from the M & M's game, you can start counting the coins.

Where to Begin

Pennies are counted more easily than any other coin. Begin with 10 pennies in your hand, and pass them across to the little person's hand. One at a time, you place the pennies in the hand, counting 1, 2, 3 and so on. As the little person gets more comfortable counting with you, get quieter, and let him take over. When he has all the coins, he can count them back to you. Or he can hoard them to support his gambling habit, now that he has learned to throw dice. Your choice.

The Other Coins

Once pennies are starting to seem easy, start counting dimes. These are the next easiest coin. Use the same process as with the pennies, only this time

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count 10, 20, 30 and so on as you pass the dimes back and forth.

Begin with nickels after pennies and dimes are starting to get easy.

How You Know You're Done

The first time you do this game, you might as well be speaking Greek. Your little person may dislike it because it feels confusing, and no one likes to feel confused. Stop. But do it again a few days later. Remember never ask the child to do something she can't be successful with. That means you count out loud by 10's until she's ready to count with you. Then the two of you count out loud together until she seems confident with it. Then let your voice get quieter and quieter as you count out loud together.

Counting the Teens

Before you begin, master these games

- The importance of zero
- Counting

The Second Row on the Math Map

I notice the second row on the Math Map (10—19) is a hard one. One problem is that fourteen sounds so much like forty, fifteen like fifty. Also — what's up with eleven and twelve? They should be one-teen and two-teen. But they're not. And twelve sounds so much like twenty. I use direct instruction about these confusing counting points to solve the problems.

Which Teen?

Point to 13 and ask, “What number is this?” Your little person is likely to start from an earlier number and count up to 13 — not able to recognize it on sight. So let’s change the question. Let’s talk about this row as the teens. Teen sounds a lot like ten, doesn’t it? This is the ten or teens row.

Now point to 16 and say “Which teen is this?” Help your child at first if she needs it — to look at the 6 in 16 and say — “Sixteen.” Try this for 13—19. Talk about thirteen and fifteen. They should be three-teen and five-teen, shouldn’t they? But some silly person named them wrong, and now we’re stuck. But three sounds a lot like thir — right? And five sounds like fif.

Eleven and twelve

You can thank the ancient Egyptians, who had a base twelve number system, for the names of eleven and twelve. They're also the reason that circles and clocks are based on twelves. It would have been better for us if those knot-headed Egyptians would have planned ahead a few thousand years, but they clearly were not forward thinkers. So we talk about eleven and twelve being part of the teen row, and they really are teens (tens). Also, I point to twelve and we say "twelve," then point to twenty and we say, "twenty."

How You Know You're Done

Play "which teen" whenever you play with the Math Map. Each time your child calls twelve twenty or

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vice versa, spend some time naming each of those two tricky numbers. Keep working with these confusing things directly, and pretty soon your child will understand the number system better than any Egyptian.

Math Rods

Before You Begin, Master These Games

- Counting Games
- Counting to 100 (with assistance)
- Which teen is this?

Establishing Place Value

Remembering that our little darlings do not see the world as we do, stop and realize how you conceptualize 15. You understand that this is not $1 + 5$, but one group of ten, and one group of five, making a total of fifteen. Before you get the bright idea to explain this in words to your four-year-old, let me help you with establishing this idea in a user-

friendly manner (user-friendly to the nearest four-year-old, that is).

Number Rods

You have been exploring the teen row of the Math Map, playing “which teen is this?” Now you will explore these numbers again. I use a simple Base 10 set (unit cubes, 10-rods, 100-squares, and a 1000 cube). These are marketed for old children, but the pre-K set can play with them and will be way ahead in math with a few simple games.

Exploring the 10-rods

You want your future Rocket Scientist to explore the units and the tens to discover that 10 singles are the same as a 10-rod. My set can be forced by little fingers, and 10 units can be fitted onto the 10-rod,

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with just a little jamming. Use this or another method to prove that 10 ones is the same size as one 10.

How You Know You're Done

Repeat this game several times, until your child knows that 10 ones is the same as one 10. They are the same size; the ten-rod should look like ten unit cubes fused together; they are the same quantity. You should be able to hold up the 10-rod, and ask how many little cubes fit in it, and your child should immediately know that there are ten.

Experience is the only true teacher — so keep experiencing that a ten-rod is the same as 10 units until it seems obvious (even to a four-year-old).

Trading 10 ones in for a 10- Rod

Before You Begin, Master These Games

- Counting Games
- Which teen is this?
- Math Rods (introduced)

Establishing Place Value

There is only one rule for this game: I will give you a pile of cubes, and, if you have more than ten, you have to trade them to me for a ten-rod. Of course, if you have to make an additional rule such as, “The unit cubes may not be placed in your mouth at any

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time,” I’m with you. Safety first.

Playing the Game

Hand your child about 15 units.

Help count.

Trade in ten units for a rod.

See fifteen as 1 ten and five units.

Choose another number and repeat.

You may also write “15,” asking what you have 1 of
and what you have 5 of.

How You Know You’re Done

You may not believe me now, but this game will
solve problems with borrowing, carrying, and even

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common denominators later. You are establishing an incredibly important mathematical concept: if they are the same, then I can trade them.

Even if you got a Ph.D. in mathematics and did math I cannot understand – you will never trade things unless they are the same. Every time you cross out one thing and replace it with another – it's because they were the same.

So don't be in a hurry to be done with this. You'll thank me when your math whiz is a fourth grader.

The Importance of Grilled Cheese

Before You Begin, Master These Games

- Counting Games
- Counting to 100 (with assistance)

Sandwich Math

So I realize that I bring food into the math lesson frequently, and I really don't want your child to be a compulsive over-eater (or gambler, for that matter). But eating times are times we share with our children, and using these times for a 30-second math lesson is really ideal. You can cut the sandwich, teach fractions to your pre-Kindergartner, and still be

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on time for soccer. How cool is that?

Counting the Quarters

Most of us cut our kids' sandwiches into four pieces. Here's how to leverage that for your child's long-term academic well-being: count out the pieces as you put them on the plate. I have been placing sandwiches on my daughter's plate, counting "one quarter, two quarters, three quarters, four quarters" since she was old enough to count to 4.

The Lesson

Kids who don't understand fractions don't understand that they are counting pieces. So count pieces. Cut the cookie in half, and count, "one half, two halves." Cut a stick of gum into 3 pieces, and count "one third, two thirds, three thirds."

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Once this is getting easy, starting remarking that three thirds is ALL of the cookie. Four fourths is ALL of the cookie. With each fraction, you want your child to experience that she has 1 whole cookie when she has $2/2$, $3/3$, $4/4$, $5/5$ and so on. This is the foundational concept to multiplying to get a common denominator.

How You Know You're Done

Kindergartners can learn that, if you have four pieces, those are fourths, three pieces are thirds, and two pieces are halves. Before that, just let your child learn to expect to hear you count the quarters. She will probably join in as she likes repetition, and it can become a fun game. When your child is really good at this, you can start asking her to tell you what to call the pieces when the sandwich is cut into four.

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But don't expect recall from a child below about Kindergarten age.

Four Quarters Make a Dollar

Before You Begin, Master These Games

- Counting to 100 (with assistance)
- Coin Values
- Grilled Cheese (with assistance)

Experience — the only true teacher

There are three ways to learn about money:

1. Experience
2. Experience
3. Experience

Children who use money in the real world

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understand it. Children who only color in pictures of money on a page do not. You have been using real pennies, nickels, dimes and quarters and selling them to your child. By now, coin value should be making some sense based on repeated experience.

The Next Step

I am not fond of using quarters to buy candy in candy machines, but I can be convinced that 75 cents to ride the metal horsie will keep my darling from falling ill on the spot. Or so she likes to tell me. Point is, those annoying little machines that are, in my words, “garbage disposals for quarters,” can be a method of learning. Instead of searching through your handbag for enough quarters, pull out a dollar bill. Place it in the little Rocket Scientist’s hand, explaining that the clerk at the counter will be

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willing to trade this dollar for 4 quarters. Not five. Not three. Always four.

You want the little person to be able to get a number of experiences with trading a dollar for 4 quarters. Kids who do this know that there are four quarters in a dollar — and four quarters in a sandwich. Get it? Quarters means four — whether money or pieces of pie.

How You Know You're Done

You are done when your little person can consistently predict that the dollar can be traded for four quarters. Remember that you are re-establishing the incredibly important math lesson that we can trade things if they are the same. When this idea is rock solid every time, you are done.

Adding 1, 2, and 3 on the Math Map

Before You Begin, Master These Games

- Counting to 100 (with assistance)
- Which teen is this?
- Clear understanding of the Math Map

Yet Another Use for the Math Map

I use the Math Map to uncover a way of understanding addition. Addition means counting forward. $4+3$ translates as, “start at four; take 3 steps forward.” As you know from the dice games many kids struggle with starting the counting at 4, instead of 1 every time. The Math Map gives you another way to practice this. Also practice counting the steps

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as you move forward on the Math Map.

Addition on top line of the Math Map

0 1 2 3 **4** → 5 → 6 → 7 8 9

First I write the equation, $4 + 3 = \underline{\quad}$. I circle the number where we are starting. Then I help my student count how many steps forward from four to seven. I like to draw a little arrow for each step, so we have a three-arrow representation of the three steps we took. The answer is where we ended up.

I start with adding one to any number on the top line until my student can quickly predict the answer to anything plus one. Then we begin adding two, then three, and so on. I turn the pen over to the student as early as I can — kids want to be the one to do the drawing.

How You Know You're Done

You know you're done when the student can quickly answer anything plus 1, 2 or 3 on the top line of the Math Map. The student does not need to know all these answers in her head just yet; we are just looking for her to understand how to start at 6 and count ahead two steps to end at 8.

You want to be able to write $6 + 2 = \underline{\quad}$, and have the student pick up the pen, circle six, count two steps forward, and end at 8. Some students will find the writing tedious, and prefer to count with a finger or in their head. To use an archaic and cruel-sounding metaphor — there's more than one way to skin a cat. I want this game to feel successful and fun, so I will bend the rules to accommodate what works for the child in front of me.

Subtracting 1, 2, and 3 on the Math Map

Before You Begin, Master These Games

- Counting to 100 (with assistance)
- Which teen is this?
- Adding on the Math Map

Reverse Counting On the Math Map

As before, it might be blatantly obvious to you that subtraction works exactly like addition, but in reverse. Go ahead — try explaining that verbally to your child. How's that working for you? Since repetition is part of the learning process, I am going to repeat for you how to teach your child:

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Experience

Experience

Experience

Using the top Line of the Math Map in Reverse

0 1 2 3 4 ← 5 ← 6 7 8 9

Write $6 - 2 = \underline{\quad}$. Read the problem as, “Start at six, count backwards, two steps.” You want your child to understand that the first symbol (6) tells you where to start, the second symbol (-) tells you which direction to go, and the third symbol (2) tells you how many steps to take.

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Since you have been working on right and left, I suggest that you start using those ideas here. Minus means “go left” and plus means “go right.” This is going to set up a better understanding of positive and negative numbers a few years from now. With the right setup today, your child is going to breeze through algebra.

How You Know You're Done

I'm going to remind you again, in case you have forgotten that these are 30-second lessons. Remember that a session that lasts too long for your child is a failure, even if you got a chance to explain everything on your mind. Any session that is engaging and fun can go longer, but stop when your little one is done. You can repeat the game another day. You have lots of time.

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You are done when you can write down $6 - 2 = \underline{\quad}$, and your child can start at six, count back two, and give you the answer as four.

Counting Backwards from 20

Before You Begin, Master These Games

- Counting to 100 (with assistance)
- Which teen is this?
- Adding and subtracting on the Math Map

Another Step in the Subtraction Process

So far, you have worked on counting backwards from 5 and 10. Most people stop there, but I suggest that you teach your child to count backwards from 20. Simply add this in as a counting game in the car, at the dinner table, or when standing in line at Redbox. Kids who can count from 15 to 7 easily don't get confused when subtracting $15 - 7$.

Subtraction with Beans

Once I introduce the idea of subtraction, I want to do it in several formats. I use the pinto beans I have stored in a little bag to set up subtraction problems. I have done these with a little workbook, with a set of flashcards, and with problems I make up as we go along. Again, I prefer three-dimensional objects for counting, so I don't have my students count pictures of beans to learn subtraction. I have them count actual beans.

Simply begin with a subtraction question, like $4-2 = \underline{\quad}$. Help the student count out four beans, then take two away and count how many are left. Let the student be as in control of the beans as possible. Ideally your Kindergartner will count out 4 beans, take two away, announce the answer is two, and even write down 2 if you request. Any interim step where

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you assist with any of those steps is also a success.

How You Know You're Done

You are done when your little person can do this game by himself with you simply cheering him on. Kindergartners can often do this. I would not expect this from a younger child.

Remember to keep all these lessons relaxed, with no pressure to succeed or understand. As soon as you get tense and worried that your child is not understanding enough math fast enough, you set up a whole emotional scenario that blocks learning. Don't do it. Your baby will get it when she gets it. Whether early or late, it comes when she's ready.

Playing Sequence Games

Before You Begin, Master These Games

- Counting to 100 (with assistance)

Patterns Revisited

Placing things in order, noticing the order things are placed in, repeating the order: these are foundation concepts for math. In many math workbooks, you can find pages of shapes with the question of which comes next. This is because people who can recognize the pattern and repeat it successfully find quick success in math.

It is those of us who try to memorize each separate answer separately who are the real losers in math.

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We can't do it as fast as the pattern recognizers, have the feeling of failure more often, and have absolutely no fun in the process. If you hate math, it's because it's no fun for you, right? If you want your child to love and excel at math, then it has to be fun, and math is only fun when you get to figure things out for yourself. Your job is to set the stage in ways that your little person can successfully figure things out for herself.

Including Patterns in Real Life

Imagine you are sitting at the table with Ms. Future Math Genius. You set up some silverware as follows: spoon, fork, spoon, fork, spoon. You say out loud, “spoon, fork, spoon, fork, spoon.... what comes next?” If she doesn't get it the first time, try it

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again (without giving away the answer), “spoon, then fork, spoon, then fork, spoon, thenwhat comes next?” Try this game with any objects in the house, car, restaurant, or playplace. Try drawing XOXOX____, or ******____.

Upping the Ante

I often tell kids in my learning center that, at FocalPoint, we reward you for a job well done by giving you more work. They groan and laugh at this, but it’s a fair description of my technique. As soon as I see a child can get a pattern with two objects, I increase it to three. I want to use the momentum of one success to master a second lesson. When you have a success, you feel great, right? So don’t stop when you get there — use it to create a second success immediately. This is how master motivators

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do it.

How You Know You're Done

You want your little person to be good at recognizing patterns of one, two and three different objects.

Often AABAABAA___ is a hard one, so practice it.

The Math Rainbow

Before You Begin, Master These Games

- Counting to 100 (with assistance)
- Which teen is this?
- Adding and subtracting on the Math Map

Base 10 Again

I am going to let you in on a ridiculously simple secret, which is going to astound you later in how it makes all math easy: there are only 10 numbers in our system. Only 10 — from 0-9. Everything else is just a combination of the first ten numbers. And this pattern (remember patterns?) sets up a system where absolutely all the calculation you need to do can be done simply and quickly based on a number's

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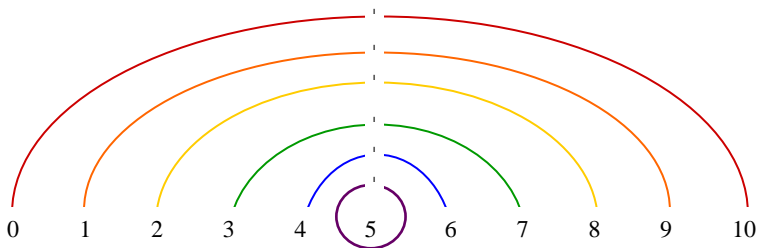
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relationship to ten. That's going into more advanced Math Mapping, so for now, we're just going to explore the Math Rainbow. The Math Rainbow is literally the foundation for the times tables and complicated long division at FocalPoint.

The Math Rainbow

You draw this the first time, but soon you will want your child to learn how to draw it. Your child does not need the colors of the rainbow in the right order. Your child simply needs to connect 6 to 4, 7, to 3, 8 to 2, 9 to 1, and so on. I call these partners. Five is its own partner. Seven has one partner, and one only — and that is 3. This is true in Math Mapping all the way through high school math, so set it up now, and it will save you tons of time later.

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How You Know You're Done

Initially, you want to teach your child to point to five, and say, “ $5+5=10$.” Then trace the line from 4 to 6, and say, “ $4+6=10$.” Do the same with, “ $3+7=10$, $2+8=10$, $1+9=10$, and $0+10=10$.” Then reverse it, and say, $6+4=10$, $7+3=10$, $8+2=10$, $9+1=10$, $10+0=10$.” Do not expect your child to remember any of these equations when not looking at the Math Rainbow. That’s first grade math, and we’re only going through Kindergarten here. For

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now, your goal is for your child to be able to recite all the equations without help while looking at the Math Rainbow. And to do it frequently. Repetition and learning go together. Repetition and learning go together. Repetition and learning.....

The Finger Rainbow

Before You Begin, Master These Games

- Counting to 100 (with assistance)
- Number rods
- The Math Rainbow

Base 10 Exists Because You have 10 Fingers

The reason we have a base 10 system is because the ancients counted on their fingers. One set became one set of fingers, which is ten. Then they counted another set. This eventually became our number system, and is the reason that everything, everything, everything in numbers will repeat around 10. Okay, I'm lying a little. The Ancient Egyptians counted 12

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repetitions of the moon cycle in a year, and based everything, everything, everything around twelve. Hence, we have eleven and twelve instead of one-teen and two-teen. Also, everything having to do with circles comes from Ancient Egyptian ideas and will be based on 12. Twelve-hour clock cycles, 360 degree circles, and so on. But I digress

You Are Carrying the Math Rainbow With You

I am going to make an apology up front here to anyone whose child is missing a finger. This won't work for you. The rest of you who have children with 10 fingers, keep reading. Hold up 5 fingers. How many are you not holding up? 5. Hold up 6 fingers. How many down? 4. Hold up 7 fingers — 3 are down. Eight up means 2 down, 9 and 1, 10 and zero. Your fingers make a math rainbow, and the answer to any of the addition problems on the math rainbow are also on your fingers.

Make Use of Fingers

After you count all the equations on the Math Rainbow, do it again on your fingers, showing the little person how to hold up 6, 7, 8 and 9 fingers. Do this everytime you do the Math Rainbow, and eventually it will sink in — the Math Rainbow is always with you, no matter where you go.

How You Know You're Done

Don't expect to be done with this until 1st or 2nd grade. Little kids can hold up the fingers and count the rainbow with you, but it may take several years until they instantly know that any number and its partner equal ten. This is an incredibly important lesson, and is worth practicing frequently for several years. Just keep counting the rainbow on your fingers each week until the child instantly sees all of the numbers that equal ten.

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Conclusion

Hopefully you have enjoyed this trip through Pre-K and Kindergarten math. You can feel proud that, not only have you helped your child to begin school on a success path, but you have set up your child for future success in the times tables, long division, and algebra.

This is the first of several books I plan to produce on this subject, taking you from Pre-K to high school math. In each step, you will learn what differentiates a truly successful student from one who simply memorizes the answers.

All the way through, you will learn the process of Math Mapping – my original, patented, intellectual

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property. I have never seen anyone use the methods I use; they came to me as I was working with my students. I just wanted them to get the right answers.

Today, my students learn each of their times tables in under an hour. They learn 3 simple rules to add and subtract positive and negative numbers correctly every time. They learn how to use four shortcuts to compute an infinite number of numbers – from simple addition through long division.

And all along the process, they work with a therapist who understand that math, yes math, is emotional. When we teach from the perspective that emotions are primary, students excel.

You will learn how to teach that way. You will facilitate your child to a deeper understanding of

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math that will pay off in the months and years to come. You are on the process of creating a math genius: the person we envied in school because it seemed so easy for her; the person who had all career tracks open to her because of her uncommonly good math scores.

About The Author

Meliesa Hawley has been winning awards for her writing and speaking since 1986. Her awards include: Business and Professional Women's Young Careerist for the State of Washington, University of Montana's Presidential Leadership Scholar Award, State Winner and 9th Place Nationally in the Veteran of Foreign Wars Voice of Democracy Competition, Honoree at the Banquet of the Golden Plate. She graduated High Honors from the Honors College at University of Montana.

Meliesa became an Educational Therapist in 1999, after completing her post-baccalaureate work and practica at a learning center in California. She

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worked at Reading Research Council in Burlingame, CA, and at Reading Research Council Northwest in Everett, WA, before opening FocalPoint in Wenatchee, WA. Meliesa is the owner and Director of FocalPoint Educational Services.

Meliesa began working with students using the math program she was taught in her training. But, upon noticing that her math students were not excelling as she expected, she began developing her own math program. What began as a few minor changes developed over the years into an entire integrated math program from Kindergarten through High School.

Meliesa lives with her daughter and her two cats in Wenatchee, Washington. She currently runs a learning center and writes part-time.

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