

Archived Information

Early Childhood: Where Learning Begins Mathematics

**Mathematical activities for parents
and their 2- to 5-year-old children**

June 1999

Table of Contents

[Title Page](#)

- [Preface](#)
- [Introduction](#)
- [What Is Mathematics?](#)
- [Activities for Your Day](#)
- [Appendix](#)
- [References](#)
- [Acknowledgments](#)



[Return to Publications page](#)



Archived Information

Early Childhood: Where Learning Begins Mathematics

**Mathematical activities for parents
and their 2- to 5-year-old children**



**By Carol Sue Fromboluti
Natalie Rinck**

**Edited by Diane Magarity
Illustrations by Barbara Leonard Gibson**

**U.S. Department of Education
Office of Educational Research and Improvement
National Institute on Early Childhood Development and Education**

U.S. Department of Education

Richard W. Riley
Secretary

Office of Educational Research and Improvement

C. Kent McGuire
Assistant Secretary

National Institute on Early Childhood Development and Education

Naomi Karp
Director

Media and Information Services

Cynthia Hearn Dorfman
Director

June 1999

This book is in the public domain. Authorization to reproduce it in whole or in part for educational purposes is granted.

Listing of materials and resources in this book should not be construed or interpreted as an endorsement by the Department of any private organization or business listed herein.

For ordering information on this report, write:

U.S. Department of Education
ED Pubs
P.O. Box 1398
Jessup, MD 207941398

or call toll free 18774EDPubs.



Archived Information

Early Childhood: Where Learning Begins- June 1999

Preface

Math is all around us. Every day as children play they are using mathematics without even realizing it. Don't believe it? Ask yourself these questions: At the grocery store, do they want to play with the scales? At home, do they like to pour water in and out of cups? Do they like to stack pots and pans? Sort things? Do they like to count their toys, their friends, or just about anything? You probably answered yes to many of these questions. These and many more everyday activities build your children's growing understanding of mathematics.

This booklet was written with several goals in mind. It is to help parents of very young children (ages two to five) use home activities to challenge their children's minds. First, you need to see that mathematics is **everywhere**. You use math every day when you shop for groceries, cook dinner, share a pizza, ride a bus, or watch a basketball game. Even if you don't think you are very good at mathematics, you are already using it successfully!



A second goal is to help you and your children **enjoy** mathematics. Maybe you didn't think mathematics was fun when you were in school, but when children play with mathematics in their everyday lives they can grow up loving it. Children learn by doing-- by moving, touching, tasting, feeling, and seeing. They learn by asking questions. You can use your children's natural curiosity about the world to help them learn.

A third goal is to help you ask questions and get your children **thinking**. It is not just the activities that children do that help them learn, but the questions you and your children both ask and the things you point out that get them thinking mathematically. We have tried to explain some of the reasons for activities so that you can better answer your children's questions and ask them your own questions.

There is growing evidence from research that preschool children can solve simple problems and love to do so. Children learn best when they find answers for themselves and in their own way. You don't need to spend a lot of money on flash cards or workbooks. Children learn when the problems arise out of their everyday lives. Don't be afraid to ask your children to figure out the answers to simple problems during the day. Give them time to think about the answer, but don't push them. Don't worry if they can't figure it out or don't solve it the way you think they should. Your children are thinking! You are encouraging your children's thinking and imagination. However, don't let them get frustrated. Help them by thinking out loud as you solve the problem with them.

As you read through the activities, you may discover that you are already doing some of them. Keep doing them. Try

some new ones. Create your own. When you complete an activity, be sure to ask your children what they learned. Think about what you just experienced. The more your children encounter mathematics, the more comfortable they will be with it. Plus, mathematics activities from real life help children develop language as they ask questions, develop fine motor skills as they touch and move objects, and improve social skills as they work with you or others on a problem. So play games, talk about how, what, why, and how many, and enjoy the learning process. Math is fun!



[\[Title page\]](#) [\[Introduction\]](#)

Archived Information

Early Childhood: Where Learning Begins- June 1999

Introduction

Mathematics helps children make sense of the world around them and find meaning in the physical world. Through mathematics, children learn to understand their world in terms of numbers and shapes. They learn to reason, to connect ideas, and to think logically. Mathematics is more than the rules and operations we learned in school. It is about connections and seeing relationships in everything we do.



Children learn best when they are interested and even excited about what they are doing. As a parent, you have the special opportunity to make the most of the moments during the day when your children are curious. Toddlers may just point to objects saying "dat?" to ask what it is. Describe it for them, "Oh, that's a pink flower" or "the chair has a square seat." As your children get older, they may ask "how many?" or "what color. . . ?" These questions encourage children to think. Teachers and schools must plan activities, but you don't have to plan in advance. Just take advantage of learning opportunities that happen naturally. You can turn these times into teachable moments. When you use daily events that have meaning to your children, the impact is very powerful.

Give your children many opportunities to see and hear different things, and to move about and play with things they can touch. Let them collect things, and show you and tell you things in their own way. You don't have to "teach" your children facts or math rules or even organize their mathematical learning. Rather, encourage them to ask questions-- questions that require more than a simple yes or no, like "what would happen if. . . ?" Encourage children to think. Also, ask them questions and allow them to explore different ways of solving problems. If they seem to be going way off the mark, lead them back by starting with the part of their approach that was logical. Always show respect for their thinking and accept their point of view. Remember, children think much differently than adults. Take your time. Children, including those with special needs, tire easily. It is better to go lightly and keep their interest than to push too hard.

All of the activities in this booklet could be done during your children's daily routines. They require no special equipment or detailed planning. Use them to do something pleasant with your child, add some interest to an otherwise routine activity, or just keep your children interested or occupied. But remember, it is not just the **doing** but the **thinking** that promotes learning. The questions you ask your children and the questions they ask you are very important. We have tried to suggest how you might ask your children interesting questions and build on their answers. Hopefully, these activities will make your day easier and more productive.

How to Use This Booklet

The activities in this booklet are designed to promote the learning and development of the "whole child." In other words, we are not just focusing on developing mathematics in young children. Instead, we are giving you sets of activities that provide young children with experiences that will help to get them ready for kindergarten. These activities build language skills, increase thinking and problem-solving abilities, develop social skills, promote large and small muscle development, and increase general knowledge.

We are focusing attention on children's early lives **before** they enter school. Children's development is nourished through everyday play and explorations of the world around them. Therefore, it is important that families support young children's learning and play, answer their questions, take care of their physical health needs, and stir their

natural curiosity in order to lay foundations for success in school and beyond.

A few words about the booklet's organization. We begin with [What Is Mathematics?](#), an introduction to the big concepts in mathematics with some general strategies on how you can help your children learn them. This is followed by [Activities for Your Day](#). We have taken times from your everyday routine and suggested some mathematics activities that might easily fit into those routines. These are described in sections such as [Getting Up in the Morning](#), [At the Grocery Store](#), and [Meal Time](#) to help you fit mathematics into your children's daily routine. In the back of this booklet you will find an [Appendix](#) with two parts: [Books](#) lists a number of children's books about different math topics; and [Other Resources](#) lists Web sites, CD-ROMs, and other resources that deal with math.

You may find that your 2- to 3-year-old child is ready only for some of these activities, while your 4- to 5-year-old can do many of them. Every child develops at his or her own pace. To help you identify activities appropriate for your child, we have used symbols. The (●) is for the simplest tasks, (◐) for those of moderate difficulty, and (■) for the most challenging activities. Usually, younger children will enjoy the ● activities the most, but every child is different. Try the activities and match them to your child's interests and skills. A little challenge is fun, but too much can be frustrating.

Go at Your Child's Pace

All children love to have things repeated even when they already know them, so don't hesitate to do things over and over again. In fact, repetition is how children practice what they are learning—and practice improves learning. Some children may need extra guidance when doing some activities. The younger the child, the more important it is to keep the activities short, and focus on the activities that use objects your child can touch and play with.

All children do not develop at the same rate. Many children are able to accomplish certain things at specific ages. For example, at 2 years of age, many children can turn pages in a book, say two or three words together, and kick a ball. Other children may not do some of these things until they are closer to 3 years old.

Some children who have disabilities or chronic health conditions may need extra time to develop and learn. Just because they have a special need does not mean that they cannot take part in the activities in this booklet. In fact, it is particularly important that they are given opportunities to participate and learn. However, it may be necessary to make some of the activities shorter, to use adapted materials or language, and to repeat the activities more frequently. Just make sure the activities are appropriate and not frustrating.

[\[Preface\]](#)    [\[What Is Mathematics?\]](#)

Archived Information

Early Childhood: Where Learning Begins - Mathematics - June 1999

What Is Mathematics?

The [National Council of Teachers of Mathematics \(NCTM\)](#), the world's largest organization devoted to improving mathematics education, is developing a set of mathematics concepts, or standards, that are important for teaching and learning mathematics. There are two categories of standards: [thinking math](#) standards and [content math](#) standards. The thinking standards focus on the nature of mathematical reasoning, while the content standards are specific math topics. Each of the activities in this booklet touches one or more content areas and may touch all four thinking math areas.



The four **thinking math** standards are [problem solving](#), [communication](#), [reasoning](#), and [connections](#). The **content math** standards are [estimation](#), [number sense](#), [geometry and spatial sense](#), [measurement, statistics and probability](#), [fractions and decimals](#), and [patterns and relationships](#). We have described them and then provided general strategies for how you as a parent can create your own activities that build skills in each of these areas.

Thinking Mathematics

Problem solving is key in being able to do all other aspects of mathematics. Through problem solving, children learn that there are many different ways to solve a problem and that more than one answer is possible. It involves the ability to explore, think through an issue, and reason logically to solve routine as well as nonroutine problems. In addition to helping with mathematical thinking, this activity builds language and social skills such as working together.

What parents can do:

- Children are naturally curious about everyday problems. Invite your children to figure out solutions to everyday situations. You can do this by talking about the problem, asking your children for ways to solve it, and then asking how they came up with those solutions.
- Encourage your children to suggest problems and ask questions, too. Your children will learn how to figure things out and will learn that many problems can be solved several different ways.

Communication means talking with your children and listening to them. It means finding ways to express ideas with words, diagrams, pictures, and symbols. When children talk, either with you or with their friends, it helps them think about what they are doing and makes their own thoughts clearer. As a bonus, talking with children improves their vocabulary and helps develop literacy and early reading skills as well.

What parents can do:

- Talk with your children and listen to what they have to say.
- Reading children's books that rhyme, repeat, or have numbers in them (available at your local library) is a great way to communicate using mathematics.
- All communication doesn't have to be in words. You can represent math in ways other than talking. Your

children can make diagrams or draw pictures to solve problems or represent numbers. They can use concrete objects like pieces of paper or even fingers to represent numbers.

Reasoning is used to think through a question and come up with a useful answer. It is a major part of problem solving.

What parents can do:

- To promote reasoning, ask your children questions and give them time to think about the answer. By simply asking questions and listening to answers, you are helping your children learn to reason.
- Ask your children to figure out **why** something is the way it is and then check out their ideas. Let them think for themselves, rather than try to figure out what answer you want to hear.

Connections: Mathematics is not isolated skills and procedures. Mathematics is everywhere and most of what we see is a combination of different concepts. A lot of mathematics relates to other subjects like science, art, and music. Most importantly, math relates to things we do in the real world every day. Connections make mathematics easier for children to understand because they allow children to apply common rules to many different things. What parents can do:

- Ask children to think about and solve problems that arise in your everyday activities. For example, ask children to help you put the groceries away. They will practice sorting—the cereal boxes and the soup cans—and experiment with relative size and shape and how the big boxes take up more room than the smaller ones.
- Look for mathematics in your everyday life and don't worry about what the particular aspect of mathematics might be. Something as simple as pouring water into different sized cups and thinking about which cup will hold more is a low-key activity that actually involves estimation, measurement, and spatial sense.

Content Mathematics

Patterns and relationships: Patterns are things that repeat; relationships are things that are connected by some kind of reason. They are important because they help us understand the underlying structure of things; they help us feel confident and capable of knowing what will come next, even when we can't see it yet. Patterns and relationships are found in music, art, and clothing, as well as in other aspects of math such as counting and geometry. Understanding patterns and relationships means understanding rhythm and repetition as well as ordering from shortest to longest, smallest to largest, sorting, and categorizing.



What parents can do:

- Help your children find patterns in designs and pictures, as well as in movement and in recurring events such as the days of the week or the seasons of the year.
- For a hands-on activity try stringing wooden blocks or pasta necklaces into a simple red-blue-red-blue pattern. As children get older they can reproduce and create more complex patterns.

Number sense and numeration: Number sense is much more than merely counting, it involves the ability to think and work with numbers easily and to understand their uses and relationships. Number sense is about understanding the different uses for numbers (describe quantities and relationships, informational tools). Number sense is the ability to count accurately and competently, to be able to continue counting—or count on—from a specific number as well as to count backwards, to see relationships between numbers, and to be able to take a specific number apart and put it back together again. It is about counting, adding, and subtracting. Counting and becoming familiar with numbers will help

your children understand all other aspects of math.

What parents can do:

- Count anything and everything! Count real things to help children use their own experience with objects to better understand numbers. Therefore, one of the best math activities you can do with your children is to have them count real objects.
- To help children learn to count accurately and efficiently, up and down:
 - Point out that counting lets them know how many things there are in a group.
 - Point to the object as you recite each number name.
 - Use fingers to count. Put up a finger one at a time as you count it: fingers are tools you always have with you.
 - Help your children count without skipping numbers or counting something twice.
- To help children learn that numbers are used to describe quantities and relationships, encourage them to:
 - Sort objects looking for similarities in either color, shape, or size.
 - Sort objects looking for differences, like which box is bigger.
- Talk to your children about what numbers are used for, such as keeping score in a game, or finding an apartment or street address.

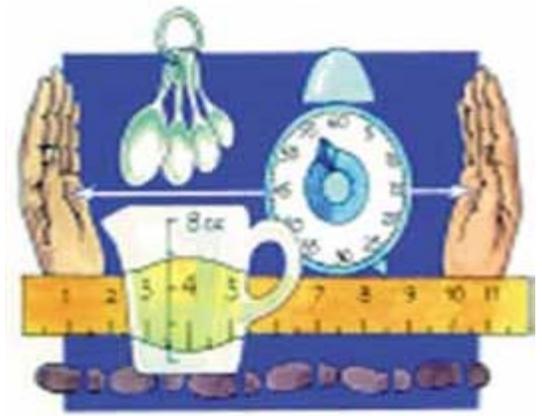
Geometry and spatial sense: Geometry is the area of mathematics that involves shape, size, space, position, direction, and movement, and describes and classifies the physical world in which we live. Young children can learn about angles, shapes, and solids by looking at the physical world. Spatial sense gives children an awareness of themselves in relation to the people and objects around them.

What parents can do:

- You can help your children learn geometry by helping them learn to identify different angles, shapes, and three-dimensional figures. Ask them to identify and describe different shapes, to draw them in the air with their finger, to trace over them with their fingers, and to draw them on paper.
- Children learn geometry best through hands-on experiences. Things they can touch and manipulate are particularly helpful, like blocks, boxes or containers, shape sorters, and puzzles. Even cutting the sandwiches they eat into different shapes and letting them fit them together or rearrange them helps children learn about geometry.
- Geometry and spatial sense help children with directions and finding their way around. Let them climb in and out of boxes, on or around furniture, going under, over, around, through, into, on top of, and out of different things to experience themselves in space.
- As children get older, they play games to find "hidden" triangles, squares, or rectangles that are turned in different ways or have odd shapes. Hidden shapes are ones that do not have flat bases, but are turned in different directions.

Measurement: Measurement is finding the length, height, and weight of an object using units like inches, feet, and pounds. Time is measured using hours, seconds, and minutes. Measurement is an important way for young children to look for relationships in the real world. By practicing measurement your child will learn how big or little things are and how to figure that out.

What parents can do:



- Standard measurements like inches, feet, and yards are only one way to measure. Let children pick their own unit for measurement-- "Raymond is five cereal boxes tall."
- Many daily activities involve measurement: cooking, gardening, grocery shopping, sewing, and woodworking are only a few examples. Keep your child involved in these chores by talking with them about what you are doing, and by asking them to help you when possible.
- Young children won't understand the concept of time. However,
 - They can learn that some activities take longer than others. Compare one activity with another to figure out what takes more time. Start by asking simple questions like "Who can stand on one foot longer?"
 - Set end of time limits. "You can only play for 5 more minutes, then we have to go catch the bus." At first your children won't know what the minutes mean, but gradually the children will understand the idea of time passing.
 - You can relate units of time to counting by using a watch to time events and counting the ticks on the second hand of the watch by saying, "1 second, 2 seconds, 3 seconds" without timing the event. This uses counting to help children develop a sense of the passing of time.
 - Start time talk with ideas like "after lunch" or "after dinner" that provide solid milestones for children. It is not until children are older that they understand more abstract notions like yesterday, today, and tomorrow.

Fractions: Fractions represent parts of a whole. A very young child will see something cut into three pieces and will believe that there is more **after** cutting it than **before** it was cut. This is typical and should not cause alarm in parents. It is one example of how children and adults think differently!

To understand fractions, children need to think about:

- what the whole unit is,
- how many pieces are in the unit, and
- if the pieces are the same size.



What parents can do:

- Many sharing activities help children understand fractions by dividing food, chores, or treats into equal portions. Cutting up pizzas or sharing a pan of brownies are good ways to get children thinking about fractions.

Estimation: To estimate is to make an educated guess as to the amount or size of something. To estimate accurately, numbers and size have to have meaning. Very young children will not be able to estimate accurately, because they are still learning these concepts. They first need to understand concepts like more, less, bigger, and smaller. When children use estimation, they learn to make appropriate predictions, to obtain reasonable results, and they learn math vocabulary such as "about," "more than," and "less than."

It is important for children to learn:



- how to use estimation,
- when the technique is appropriate, and
- when the solution is reasonable.

What parents can do:

- Regularly use words such as "about," "near," "approximately," "in between," "around," "more than," and "fewer than."
- To practice estimation, use any daily activity like eating or going to the store. Ask your child to make an estimate of how much, how long, or how many. When you find the actual answer, compare it with the estimate you originally made. This will help your child learn to make reasonable guesses.
- Estimation activities may sound complicated, but they don't have to be. Just take a guess about something—like which one of his friends is the tallest—and then check it out for accuracy.
- To help older children learn estimation, write down the estimate and then the actual count. If you repeat the problem or give a similar problem, children will eventually estimate closer to the real count. It isn't important to get the "right" answer, but to see how close children can come. Help them practice the technique to improve their estimation skills.

Statistics and probability: Using graphs and charts, people organize and interpret information and see relationships. Graphing is another way to show and see information mathematically. Charts, including calendars, can be used to organize everyone's weekly activities. Even older children in elementary school may find it hard to keep track of calendars, but, when adults use them with children, calendars can be helpful tools to learning and understanding how we organize information.

Statistics, like batting averages in baseball, tell stories about our world. We know which player is having the best season and which batter is most likely to hit a home run. Probability tells the likelihood of something occurring.



What parents can do:

- Practically everything you do is "chartable." For example, you can take the stickers from bananas, apples, or pears and place them in columns on a piece of paper. At the end of the week you can count them up to see how many of each type of fruit you ate. Graphs help some children reach a greater understanding of numbers because they can see **quantities** displayed on paper. This may help them understand math more than looking at **numbers** on paper.
- Use color forms or stickers to record any regular daily activity. Put a color form next to the phone each time it rings, or have people put one next to the front door to record the number of times someone enters.

[\[Introduction\]](#)  [\[Activities for Your Day \(part 1 of 4\)\]](#)

Archived Information

Early Childhood: Where Learning Begins - Mathematics - June 1999

Activities for Your Day

Getting Up in the Morning

Jordan was getting dressed slowly so Mommy decided to try something new. "Jordan," said Mommy, "if you can get ready and be in the kitchen in 15 minutes, you can pick out whatever cereal you like." Jordan was ready in 10 minutes.

● = simple

◆ = moderate

■ = challenging

- When you get your children up in the morning, ask them to stretch as high as they can. Then let them hop or crawl across the room. Even sleepyheads can have fun using their muscles, and these movements help them understand themselves in space.
- ◆ Morning is a good time for children to learn that some things take longer than others. Use a timer or hourglass that is set to a given number of minutes and see if your children can get dressed in that amount of time. They can try to do other activities in that same amount of time.
- If you don't have a timer of some kind, count out loud evenly..."1 second, 2 seconds..." as children get dressed to see how many seconds it takes them to get dressed. Children will hear the numbers, which will help them learn to count, and they will begin to develop a sense of duration.



- When your children get dressed, ask them to match the colors of their clothes. "Let's wear yellow today. Can you find your shirt with the yellow duck?" As they get older, ask them to look for patterns in their clothing. There can be patterns with alternating colors, stripes or plaids, squares or circles, or pictures—like big flowers followed by little flowers. Ask children to find and describe patterns, "My shirt has a pattern. It is red, blue, red, blue." Patterns are tools that we use to solve problems because they help us predict what comes next.
- Discuss the events of the day with your children: first we eat breakfast, then you go to child care or school, then we will go to the park. With your older child, say when events will happen in the morning, afternoon, evening, or night. "In the morning we get up. In the evening we go to bed." This will help your children understand the sequence of events is another pattern. Knowing what comes next helps us find structure in our world and helps children feel secure and confident.
- ◆ Ask your children to estimate how many spoonfuls it will take to finish their cereal. Count each spoonful as they eat. This playful way of eating breakfast can be fun for toddlers to practice counting! If you repeat this activity over time, older children will get practice in predicting.
- ◆ In the morning, read a thermometer or listen to the radio to hear the weather forecast. Then, ask your children what clothes they should wear that day. This will give meaning to the temperatures you just read or heard. You might even compare the temperature **inside** with the temperature **outside**.

In the Car, Subway, or Bus

While Daddy was driving Morgan to child care, he pointed to the yield sign and said, "Look, Morgan, a triangle!" As he drove past a highway sign, Daddy asked, "What shape is that sign, Morgan?" Morgan happily shouted, "It's a rectangle, Daddy!"

● = simple

◆ = moderate

■ = challenging

- Little children can learn the names of different shapes. Traffic signs are a good place to start. Yield signs are triangles, highway signs are rectangles, and stop signs are octagons. Ask children about the signs they see. "Is this sign just like one you saw on another block?" Talk about how many sides it has, or how many corners it has. Older children may talk a lot about what they saw. "That sign is a rectangle. It has 4 sides and 4 corners." But for younger children, you may be doing most of the talking, "That sign is yellow. It is shaped like a triangle."

- Children can also learn to create shapes. Ask your children to draw the shape of the street sign in the air.

- ◆ Children learn that people communicate with symbols. Again, traffic signs are a good place to start. You might point out how the shape of the street sign helps people know what the sign means. Point out that the yellow triangle means let the other car go first, the red sign with so many sides (eight sides—octagon) means stop. The link between symbols and the concepts they represent is not always clear to children. Keep restating the meaning, but don't push. Children will make the connection when they are ready.

- Have your children "estimate" how many minutes it will take to walk or drive big sister or brother to school. Using a clock or watch, time how long it really takes and compare your children's estimate with the actual time. "I think it takes 6 hours to walk Marcus to school. No, it only took 5 minutes. Six hours is a really long time." This will help them develop a sense of the passage of time. Children learn by thinking for themselves: let them make their own estimates and then check out their accuracy.

- Compare to see which takes longer: riding to Tio Raul's on the bus or in a car. Mathematics will help your children answer questions from their own world.

- ◆ Think of a number between 1 and 10. Give your children clues like "bigger" or "smaller" and ask them to guess the number. Besides being a fun way to pass the journey, it will help your children develop a "mental number line" as they think about different numbers and how they relate to one another.

- ◆ Show your children how to make a graph out of stickers so they can record when the stoplights are red or green. To start, take a piece of paper or cardboard and draw a line down the middle to make two columns—one with a red x on the top and the other with a green x on the top. Ask them to put a mark in the red column every time you stop at a red light and a mark in the green column when you go through a green light. Then ask them if there were **more** red than green, **fewer** red than green, or the **same** number of each. Children will learn a little about data recording and interpreting and see that numbers can tell them something about their own life.

- Ask children to look for numbers in the environment, like the numbers on street signs, storefronts, or license plates. Talk about the different things people use numbers for—like finding things, naming things, or giving out other information like prices.

- ◆ Play license plate games. Read aloud the numbers on license plates; find a license plate with the number two; or look for license plates with your child's age on them. Children can practice recognizing numbers or finding patterns.



- Sing songs that rhyme, repeat, or have numbers in them. Examples are "**Twinkle, Twinkle, Little Star**" and "**One, Two, Buckle My Shoe.**" These songs reinforce patterns in words and sound, and are playful ways for children to practice language and mathematics skills. Try a backwards counting song, like "**Five Little Monkeys**" to reinforce children's understanding of the fixed ordering of numbers.
- Practice counting. Ask children to count to a specific number, count until you arrive at your destination, or just count as high as they can go.
- ◆ Count the telephone poles as you pass them. This not only practices counting but also gives children a sense of rhythm and its relationship to time and space.

● = simple

◆ = moderate

■ = challenging

[\[What is Mathematics?\]](#)



[\[Activities for Your Day \(part 2 of 4\)\]](#)

Archived Information

Early Childhood: Where Learning Begins - Mathematics - June 1999

Appendix

[Books](#) | [Other Resources](#) | [Organizations](#)

Books

Reading is a great way to communicate mathematical concepts to your child. It also is a wonderful opportunity to spend time together. You will find most of these books at your local library. Some are available in Spanish.

Aker, Suzanne. *What Comes in 2s, 3s, & 4s?* Simon & Shuster.

Allen, Pamela. *Mr. Archimedes' Bath.* Lothrop, Lee, and Shepard Books.

Anno, Mitsumasa. *Anno's Counting Book.* Thomas Y. Crowell.

Anno, Mitsumasa. *Anno's Counting House.* Thomas Y. Crowell.

Anno, Mitsumasa. *Anno's Hat Trick.* Thomas Y. Crowell.

Anno, Mitsumasa. *Anno's Math Games.* Thomas Y. Crowell.

Asbjornsen, Peter Christen. *The Three Billy Goats Gruff.* Harcourt.

Bang, Molly. *Ten, Nine, Eight.* Greenwillow Books.

Barchers, Suzanne and Peter Rauhen. *Storybook Stew: Cooking with Books Kids Love.*

Bufano, Remo. *Jack and the Bean Stalk.* Macmillan.

Carle, Eric. *My Very First Book of Numbers.* Philomel.

Carle, Eric. *1, 2, 3 To the Zoo.* Philomel.

Carle, Eric. *The Grouchy Ladybug.* Philomel.

Carle, Eric. *Rooster Off to See the World.* Philomel.

Carle, Eric. *Today's Monday.* Philomel.

Carle, Eric. *The Very Busy Spider.* Philomel.

Carle, Eric. *The Very Hungry Caterpillar.* Philomel.

Children's Television Workshop. *The Sesame Street Book of Shapes (Book of Numbers and Book of Puzzles).* New York Preschool Press. Time-Life Books.

- Christelow, Eileen. *Five Little Monkeys Sitting in a Tree*. Clarion Books.
- Conford, Ellen. *What's Cooking, Jenny Archer*. Turtleback.
- Cooke, Tom. *Sesame Street Cookie Monster's Little Kitchen: A Chunky Book*.
- Crews, Donald. *Ten Black Dots*. Greenwillow Books.
- Falwell, Cathryn. *Feast for 10*. Clarion Books.
- Feelings, Muriel. *Moja Means One: Swahili Counting Book*. Dial.
- Florian, Douglas. *A Year in the Country*. Greenwillow Books.
- Galdone, Paul. *Goldilocks and the Three Bears*. Seabury Press.
- Giganti, Paul Jr. *How Many Snails?* Greenwillow Books.
- Heinst, Marie. *My First Book of Numbers*. Dorling Kindsley Inc.
- Hoban, Tana. *Exactly the Opposite*. Macmillan Publishing Co., Inc.
- Hoban, Tana. *More than One*. Macmillan Publishing Co., Inc.
- Hoban, Tana. *1, 2 ,3*. Macmillan Publishing Co., Inc.
- Hoban, Tana. *Round and Round and Round*. Macmillan Publishing Co., Inc.
- Hoban, Tana. *Where is It?* Macmillan Publishing Co., Inc.
- Hughes, Shirley. *Rhymes for Annie Rose*. Lothrop, Lee, and Shepard Books.
- Hughes, Shirley. *The Nursery Collection*. Lothrop, Lee, and Shepard Books.
- Hulme, Joy N. *Sea Squares*. Hyperion Books for Children.
- Hutchins, Pat. *Clocks and More Clocks*. Macmillan Publishing Co., Inc.
- Hutchins, Pat. *The Doorbell Rang*. Macmillan Publishing Co., Inc.
- Inkpen, Mick. *Kipper's Book of Numbers*. Red Wagon Books.
- Pelham, David. *Sam's Pizza: Your Pizza to Go*. Dutton Books. Plummer, David and John Archambault. *Counting Kittens*. Silver Press.
- Prelutsky, John. *Read Aloud Rhymes for the Very Young*. A. Knopf.
- Tafari, Nancy. *Who's Counting*. William Morrow & Co.
- Ward, Cindy. *Cookie's Week*. G. P. Putman's Sons.

Other Resources

Computer programs, when used appropriately, can be wonderful ways for all children to learn, especially children with disabilities. The computer provides activities that require little physical movement and make use of several senses,

including sight, sound, and sometimes touch. Most are so colorful and fun that you may have trouble getting your child to play with anything else! Make sure the program keeps your children thinking.

Mathematics for the Young Child, edited by Joseph Payne. NCTM 1990.

Whitin, David and Sandra Wilde. **Read Any Good Math Lately?** Heinemann, 1992.

Organizations

Family Math

Lawrence Hall of Science

University of California

Berkeley, CA 94720

Telephone: (510) 642

Fax: (510) 643

<http://theory.lcs.mit.edu/~emjordan/famMath.html>

First-level Mathematics (KinderMath)

38 North Waterloo Road

Devon, PA 19333

Telephone: (610) 6876252

National Council of Teachers of Mathematics

1906 Association Drive

Reston, VA 22091

Telephone: (703) 620

Fax: (703) 4762970

National Association for the Education of Young Children

1509 16th Street NW

Washington, DC 20036

Telephone: (202) 2328777; (800) 424

Fax: (202) 3281846

[\[Activities for Your Day \(part 4 of 4\)\]](#)



[\[References\]](#)

Archived Information

Early Childhood: Where Learning Begins - Mathematics - June 1999

References

- Baroody, A. *A Guide to Teaching Mathematics in the Primary Grades*. Allyn and Bacon. Boston. 1989.
- Bredekamp, S. and T. Rosegrant. *Reaching Potentials: Transforming Early Childhood Curriculum and Assessment*. Vol 2. National Association for the Education of Young Children. Washington, DC. 1995.
- Brewer, JoAnn. *Introduction to Early Childhood Education*. 2nd Edition. Allyn and Bacon. Boston. 1995.
- Clements, D.H. and M. Battista. *Constructivist Learning and Teaching*. Arithmetic Teacher. September 1990. pp 3435.
- Ginsburg, H.P. *Children's Arithmetic: How They Learn It and How You Teach It*. (2nd edition). Austin, TX: Pro Ed. 1989.
- Kamii, C. *Children Reinvent Arithmetic*. Teachers College Press. New York. 1985.
- Mokros, J. *Beyond Facts and Flash Cards: Exploring Math With Your Kids*. Heinemann. Portsmouth, NH. 1996.
- Saracho, Olivia. *Right From the Start*. Allyn and Bacon. Boston. 1994.
- Smith, Susan Sperry. *Early Childhood Mathematics*. Allyn and Bacon. Boston 1997.
- Stenmark, J.K., V. Thompson, and G. Coates. *Family Math for Young Children*. University of California. 1997.
- Williams, C. and C. Kamii. "How Do Children Learn by Handling Objects?" *Young Children*. November 1986. pp 2326.
-

[\[Appendix\]](#)  [\[Acknowledgments\]](#)

Archived Information

Early Childhood: Where Learning Begins - Mathematics - June 1999

Acknowledgments

First and foremost, the authors wish to acknowledge Naomi Karp and the staff of the National Institute on Early Childhood Development and Education at the U.S. Department of Education for giving them the opportunity to create something special for young children. They would like to acknowledge the U.S. Department of Education focus group members: Staci Boykin, Joe Caliguro, Nancy Paulu, Kim Silverman, and Tom Snyder; and focus group participants from the National Head Start Association, Gwen Freeman, Joyce Rawlings and parents Elsadig Elsayed, Katrina Morris, and Rachel Palmer. Thanks to our consultants Doug Clements and Ray Hannapel; to our reviewers Daniel Burch, Pat Campbell, Dick Clifford, Herbert Ginsburg, Kathleen Hoffman, Maggie Holmes, Diane Horm-Wingerd, Marilou Hyson, Alice Kline, Mary LeDonne, Prentice Starkey, Les Steffe, Tim Stevens, Chuck Thompson, Paul Trafton, Mildred Winter; and the U.S. Department of Education's Melissa Chabran, Tracy Rimdzius, Diane Magarity, and Phil Carr.

[\[References\]](#)

