

# mathematical thinking

## Support your child in the area of mathematical thinking!

*Mathematical thinking* involves:

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- Using words to communicate an understanding of numbers and relationships (more, less, equal, etc.)

When your child starts school, she will be more likely to do well if she is able to do these things.

You can help build your child's mathematical thinking skills by doing the activities listed on the back of this card.

## mathematical thinking

Activity Name	Age	Purpose	Things You Will Need
Shape Sorters	3-4	To help your child learn about numbers, counting and problem solving.	<ul style="list-style-type: none"> <li>■ Foam shapes (rectangle, square, circle, diamond, triangle, star, heart, or oval)</li> </ul>
Bears At the Zoo	3-4	To help your child learn to sort, understand patterns and positional words.	<ul style="list-style-type: none"> <li>■ "Counting Bears" (about 20 small plastic bears in 4 colors)</li> <li>■ Four (4) containers, labeled with the same colors as the bears</li> <li>■ The book: <i>We're Going on a Bear Hunt</i> by Helen Oxenbury</li> </ul>
Shape Detective	3-4	To help your child identify and look for shapes.	<ul style="list-style-type: none"> <li>■ The book: <i>Brown Rabbit's Shape Book</i> by Allen Baker</li> <li>■ Paper bag</li> <li>■ Foam shapes (rectangle, square, circle, diamond, triangle, star, heart, or oval)</li> </ul>
Let's Measure it!	3-4	To help your child begin to understand measurement.	<ul style="list-style-type: none"> <li>■ Plastic measuring cups</li> <li>■ Plastic measuring spoons</li> <li>■ Two (2) plastic tubs or containers</li> </ul>
Water Play	0-2	To support your child in exploring his/her world.	<ul style="list-style-type: none"> <li>■ Plastic measuring cups</li> <li>■ Plastic tub</li> </ul>

The School Readiness Activity Box Series, developed by Ready At Five, will help you build your child's skills in the seven Domains of Learning:

- Social & emotional development
- Physical development
- Language & literacy
- Mathematical thinking
- Scientific thinking
- Social studies
- The arts

To get activities in each of the above areas, visit [www.readyatfive.org](http://www.readyatfive.org).



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Help your child learn about numbers, counting, and problem solving!

For preschoolers (3- and 4-year-olds)

# shape sorters

you will need

- Foam shapes (rectangle, square, circle, diamond, triangle, star, heart, and oval) in different colors

## Instructions

1. Spread the shapes in front of your child. Let her look at and play with the shapes.
2. Ask your child to put the shapes into different groups or piles (sort by color, shape, etc.). When she has finished, ask:
  - Which pile has the most?
  - Which pile has the least?
3. After your child has made a guess, tell her you are going to count the shapes to see how many are in each pile.
4. Ask your child, which pile she'd like to count first. After she chooses, ask her to count with you. Show her how to count, by pointing at and moving each of the shapes one at a time. Be sure to say the number (one, two, three, etc.) as you move the shapes.
5. Be sure to praise your child if she guessed correctly. If not, explain to your child which pile has the most.
6. Repeat the activity by asking your child to "sort" the shapes in a different way.

## shape sorters

### Other Activities to Try

- Make a small pile of shapes and ask your child to guess how many shapes are in the pile. Count with her to check her guess. Challenge your child by making the piles bigger each time.
- Help your child put the shapes in a line from smallest to largest.
- Count things in everyday life. For example, count the steps as you go down stairs, count the number of crackers on her plate, count the number of windows in the room or the number of chairs at the table.
- Have your child make a picture using the shapes. Ask her about her picture:
  - How many blue shapes did you use? How many squares did you use?
  - When she is finished, give her some crayons and have her draw a picture of her what she made with her shapes.
- Make patterns with the shapes or colors (for example: red circle, blue circle, red circle, blue circle). Ask your child what she thinks will come next in the pattern.
- Read counting books with your child. Be sure to point to the pictures as you count. Some good ones include: *Counting Kisses* by Karen Katz; *One Fish, Two Fish* by Dr. Seuss; *One Two, Three* by Sandra Boynton; *10 Little Ladybugs* by Melanie Gerth.

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Help your child learn to sort, understand patterns and *positional words* (above, below, over, under, between, beside, on, off, in, out)!

For preschoolers (3- and 4-year-olds)

# bears at the ZOO

you will need

- "Counting Bears" (about 20 small plastic bears in 4 colors)
- Four (4) containers, labeled with the same colors as the bears
- The book: *We're Going on a Bear Hunt* by Helen Oxenbury

## Instructions

1. Place all the bears and containers on the table in front of your child. Tell your child that together you are going to play a game called "Bears At the Zoo."
2. First, tell her that the bears need to be put in the right "cage at the zoo." Show your child how to "sort" (put into groups) the bears by placing a blue bear in the blue container or "cage."
3. Ask her to put all the blue bears in the blue cage, the yellow bears in the yellow cage, and so on. Continue in this way until all the bears are sorted by color.
4. Next, tell her that the Zoo Keeper wants the bears to line-up in a special way. Begin to make a pattern with the bears. Place them like this: Yellow Bear, Blue Bear, Yellow Bear, Blue Bear.
5. Ask your child, "What color bear comes next?" If she says the "Yellow Bear," tell her she is "Right!" If she does not say yellow, go back and repeat the pattern, saying each color as you point to the bear.

*Continued on back...*

## bears **at the zoo**

Have her continue the pattern by adding more bears to the line.

6. When she is done, create several different patterns in this way, making them more difficult each time. Have your child finish the patterns that you start.
7. Read the book, *We're Going on a Bear Hunt* to your child. As you read, stress positional words such as *over*, *under* and *through*.
8. Tell your child that you are going to play another game with the bears. Give your child directions to move the bear. Tell her to hold the bear *above* her head, put the bear *in* the cage, have the bear jump *over* the cage, put the bear *between* the cages. If needed, help your child move the bears.

### Other Activities to Try

- Look in your home for things with patterns (curtains, towels, or clothing) and ask your child to tell you about the pattern.
- Let your child help you do the laundry. Have her sort by color or match socks.
- Play a variation of the game "Simon Says." Give your child directions to follow using position words. (For example: jump over the stick, walk around the tree, stand next to the car.)

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Help your child identify and look for shapes.

For preschoolers (3- and 4-year-olds)

# shape detective

you will need

- The Book: *Brown Rabbit's Shape Book* by Allen Baker
- Paper bag
- Foam shapes (rectangle, square, circle, diamond, triangle, star, heart, and oval)

## Instructions

1. Read *Brown Rabbit's Shape Book* to your child. Talk about the different shapes Brown Rabbit saw in the story and explain that everything has a shape.
2. Tell your child that you are going to play a shape game. Lay all the plastic shapes on the floor. Ask your child if he recognizes any shapes? If he says yes, ask him to name them.
3. For each shape that your child does not know, pick it up and name it (for example, say, "This is an oval"). Talk with your child about the shape (for example, say "An oval doesn't have corners, it round." Or ask, "What does an oval look like to you?").
4. Next, place the shapes into the paper bag. Be sure to name each shape as you place it in the paper bag.
5. Have your child reach in the bag and pull out a shape. Ask him to identify the shape, saying, "What shape is that?" If your child names the right shape, tell him: "Good Job!" If your child does not name the right shape, be sure to tell him the right name.

*Continued on back...*

## shape detective

6. Once he has pulled all the shapes from the bag, tell him you are going on a shape hunt and he will be a Shape Detective. Have him choose a shape and look around the room to identify things in the room with the same shape. (For example, if he is looking for a square, your child might name the television, the pillows on the couch, or a picture frame.)

### Other Activities to Try

- Go on a shape hunt outside your home and ask him to name the shapes of trees, houses, buildings, road signs, windows, bicycle wheels, or rocks.
- Ask your child to name shapes of food at dinner (for example, the *square* slice of cheese, the *round* cracker, the *oval* egg).
- Do an art project with your child. Cut scrap paper into different shapes. Ask your child to glue the paper shapes together to make a "shape creature." Be sure to have your child name each shape.

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Help your child begin to understand measurement (size, length, and weight)!

For preschoolers (3- and 4-year-olds)

let's **measure it!**

you will need

- Plastic measuring cups
- Plastic measuring spoons
- Two (2) plastic tubs

### Instructions

1. Give your child the measuring cups and spoons. Let her play with them, comparing their sizes and seeing how they fit together.
2. Tell her that they are called measuring cups and spoons. Ask: "Why do you think we use measuring cups and spoons?" Let her name a number of different uses.
3. Fill one plastic tub with water and move to the kitchen, bathroom, or outside (somewhere that you don't mind getting wet).
4. Ask your child to pick out a cup and fill the cup with water. Encourage her to pour the water in and out of the cup.
5. Next, allow her to fill the other measuring cups and spoons with water. Tell her that each measuring cup holds different amounts of water. Give her time to play with the cups and water.

*Continued on back...*

## let's **measure it!**

- Now, ask her to fill and pour the water from one tub to the other using the measuring spoons and the cups. Ask: "Which cup works fastest to fill the bin?" If she says, the "largest or biggest cup," tell her she is "Very Smart!"

### Other Activities to Try

- Have your child help you cook. Let her use the measuring cups and spoons to measure and add ingredients.
- Use the measuring cups and spoons to explore size, length, and weight of other materials (such as sand, rice, cereal or flour) in the plastic tubs.
- Share and talk about other ways to measure things:
  - Show your child different scales for weighing things, such as the scale for weighing produce at the grocery store, the scale at the doctor's office, or the bathroom scale.
  - Keep track of your child's growth by measuring his height every month.
  - Show your child how to use objects to measure the length of different things. (For example, line cheerios along the edge of a book, and say, "the book is 15 cheerios long!")

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Let your child explore his world and he'll begin to learn about shapes and sizes!

For infants & toddlers (under age 2)

# water play

you will need

- Plastic measuring cups
- Plastic tub

## Instructions

1. Fill the plastic tub with water.
2. Begin by sitting with your child on your lap. Put your hand in the tub and splash the water. Ask him if he would like to try. You may want to hold his hand and splash with him until he is comfortable with the water.
3. Once he is comfortable with the water, take a measuring cup, dip it in the water, and pour the water out. Say, "Now it's your turn." Hand him the measuring cup and let him play.
4. Allow him to play in the water, splashing and pouring.

## water play

### Other Activities to Try

- During bath time, give your child cups and bottles to play with.
- Try using different materials in the tubs, such as sand, rice or cereal.
- Let your child finger paint with pudding on his high chair tray.
- Sprinkle a bit of Jell-O powder on a tray and give your child an ice cube to draw in the Jell-O with. Talk with him about what happens to the ice cube and Jell-O.

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