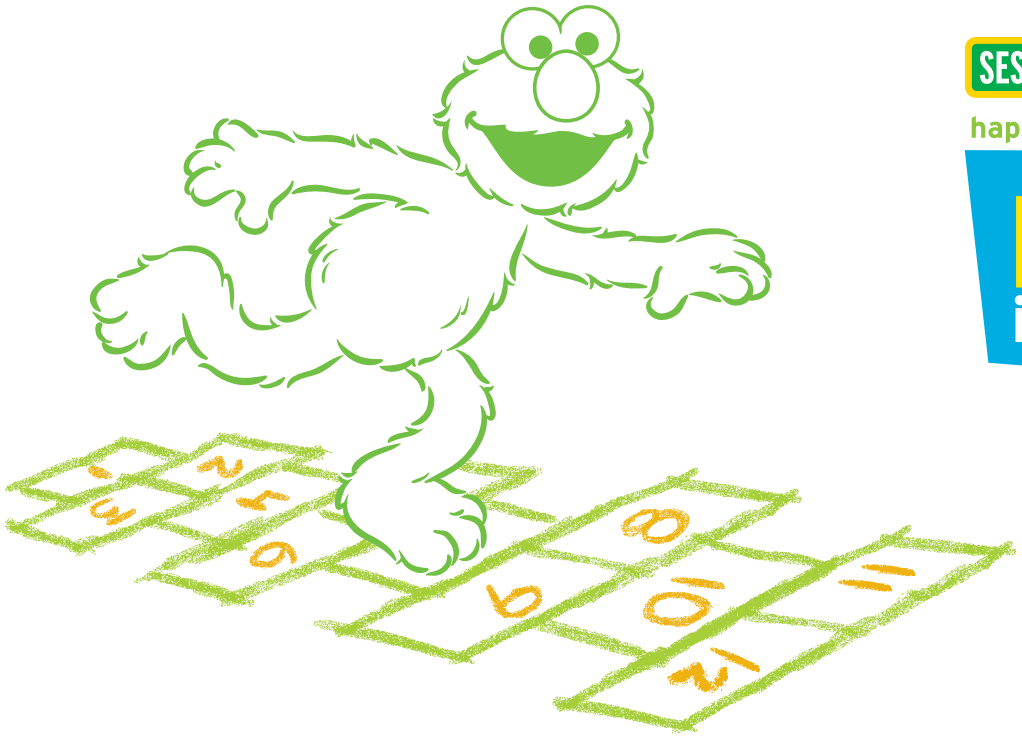


SESAME STREET

happy, healthy, ready for school!

math is everywhere

Educator's Guide: Activities for Child-Care Programs

MORE MATH!

You can find these great math resources online at **sesamestreet.org/math** and **pncgrowupgreat.com**:

A Children's Story and Activities: Join Elmo on an exciting math adventure.

A Magazine for Parents and Caregivers: This guide is specially designed to help parents explore math with their children at home, outdoors, and on the go.

A *Sesame Street* Video: Elmo, Abby, and friends bring math explorations to life.

ANY AGE

These activities work with children of various ages. Encourage older children to include numbers and math words in their play. They can help show younger ones how math words are used.

WELCOME, EDUCATOR! You are about to embark on an exciting multimedia adventure exploring the fun of math in the everyday activities you share with children. **Math Is Everywhere** helps you discover exciting new ways to build on children's fascination with numbers, counting, patterns, shapes, and much more.

Whether you are working in a classroom, center-based program, or family child-care setting, with one age group or several, you will find tips and activities to make math fun while building children's math skills. This guide provides tools to include math in your routines and play areas, and ideas for reinforcing your home-school connections.

In this resource for educators you'll find:

Math for Routines: Tips for making math a part of your regular activities.

Math in Learning and Play Areas: Tips for using math in each of the spaces in your classroom or family child-care setting.

Build a Home-School Connection: Tips to share with parents to help extend math learning from school to home.

"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

Math for Routines

Whether it's during greetings, mealtime, or transitions, incorporating fun math moments can enrich children's activities and help build their thinking skills.

GROUP TIME

Get moving and shaking with math! Use children's love of physical activity to help teach, review, and reinforce basic math skills.

Numbers Are Everywhere!

» **Skill: Numbers**

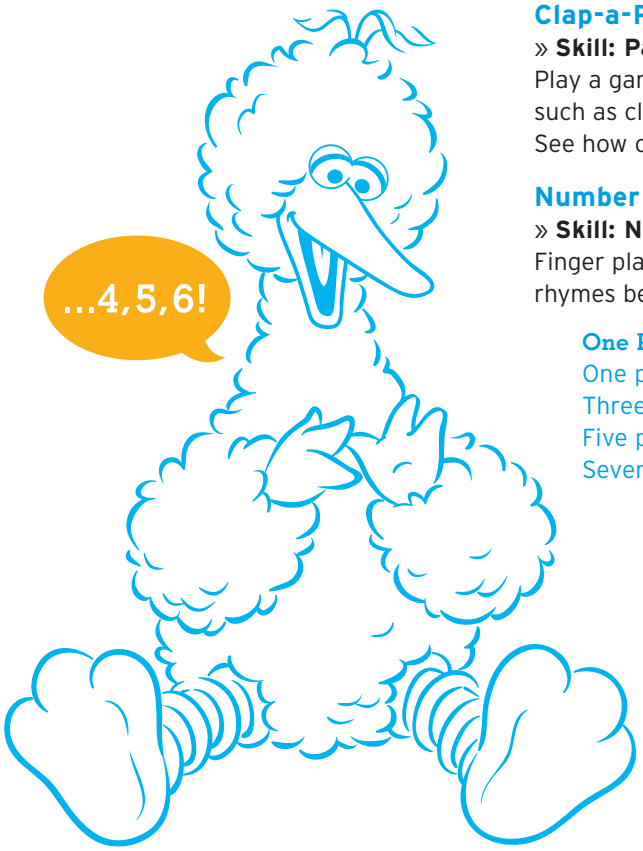
Recite the following poem to help children get excited about their **number** adventures. (Point to the objects as you say the poem.)

Numbers, numbers everywhere! Numbers here, and numbers there!
(Point to calendar or growth chart on wall.)
Numbers on the floor, and numbers on the door!
(Point to door.)
Numbers on a block, and numbers on a clock!
(Point to clock.)
Let's all take a look around! So many numbers to be found!

Hokey-Pokey

» **Skill: Spatial Relations**

Create lots of verses using **in**, **out**, **up**, **down**, **all around**, and other movements. Putting math words into action will help children learn about spatial relations.



Clap-a-Rhythm

» **Skill: Patterns**

Play a game in which each child takes a turn clapping a sound **pattern**, such as clap, clap, CLAP!...clap, clap, CLAP! The group can repeat the pattern. See how complex the pattern can become. Try slow or fast patterns, too!

Number Finger Plays

» **Skill: Numbers**

Finger plays are a fun way to explore **numbers**! As you say each number in the rhymes below, lift the corresponding number of fingers.

One Potato, Two Potatoes
One potato, two potatoes,
Three potatoes, four,
Five potatoes, six potatoes,
Seven potatoes, more!

One, Two, Buckle Your Shoe
One, two, buckle your shoe,
Three, four, shut the door,
Five, six, pick up sticks,
Seven, eight, close the gate,
Nine, ten, begin again...

"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

SNACKS AND MEALTIMES

These everyday routines offer wonderful ways for children to learn math. A favorite tasty snack can help encourage children to learn about and practice a variety of important math concepts and skills.

Measure Up, Measure Down

» **Skill: Relational Order**

Involve children in counting ingredients needed to make a snack and measuring with a measuring cup or spoon. Use rich math phrases such as: **let's count**, **let's estimate**, **more than**, **less than**, **same amount**, **half**, **full**, **empty**, **large**, **small**.

One for Me, One for You!

» **Skill: One-to-One Correspondence**

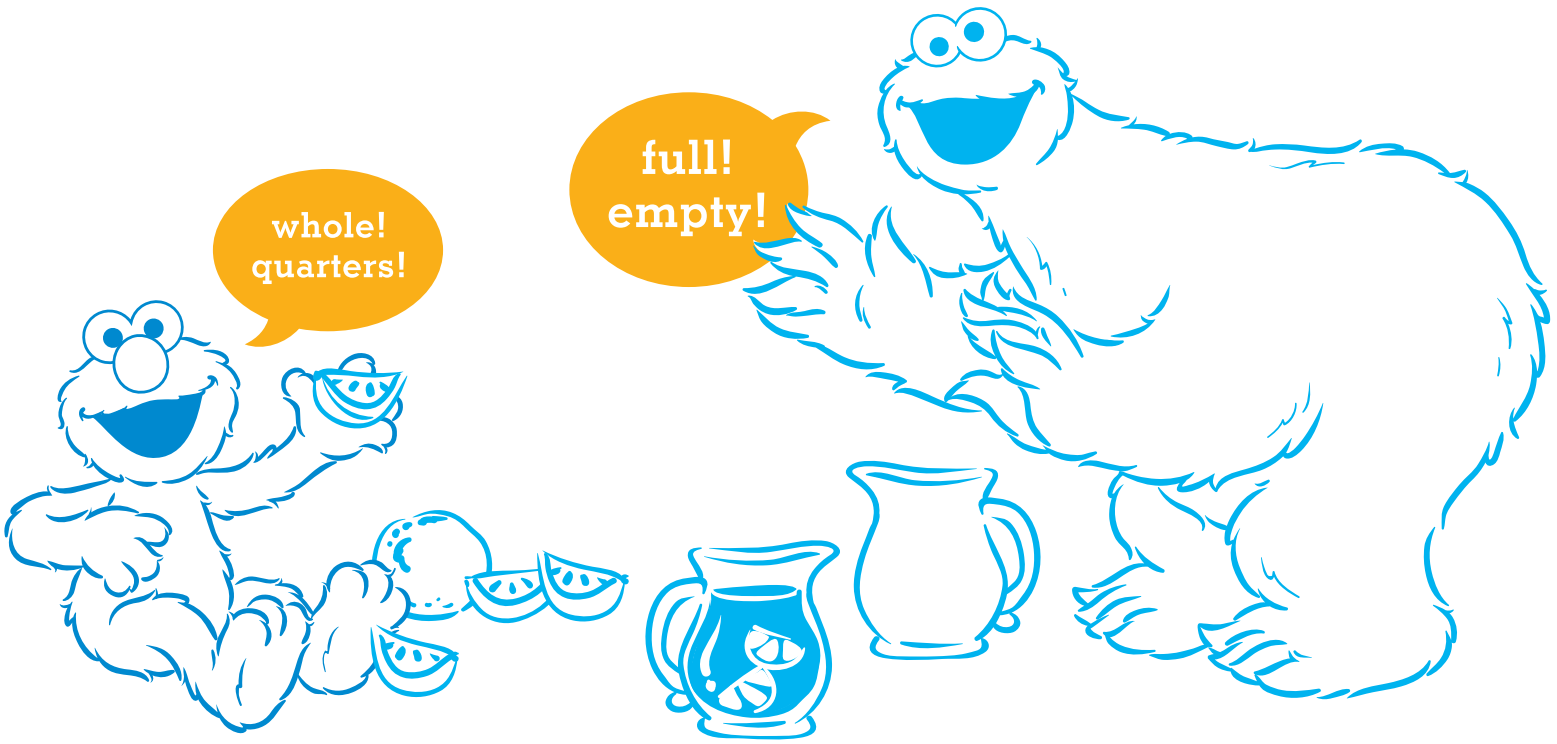
Ask children to help distribute cups, napkins, and snacks. They'll learn **counting**, **one-to-one correspondence**, **problem solving**, and **sharing**. As you or a child passes around items for snack/mealtime, say this poem together, filling in the blanks:

> One **(item)** for me, one for **(child's name)**,
> One for **(child's name)**, one for **(child's name)**...!
> As we pass around the **(item)**,
> Let's make sure we **each** have one.
> Then we'll eat and have some fun!

Divide and Serve

» **Skill: Take Apart (Partitioning)**

Count how many items, such as apples, your group has for snack. Count the number of children at the table. If there are 6 apples and 12 children, what can you do? Discover what happens when each apple is **divided** in half. Wow! Now there's enough for everyone!



"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

CLEANUP AND TRANSITIONS

Whether children are getting settled in the morning, washing up, preparing for a snack or nap, or gathering for a story, fun math activities help keep them on their toes as they move from one activity to another.

How Many Steps?

» **Skill: Estimation**

Ask children how many steps they think it will take to go from the table to the cubby or from the door to the shelf. Count how many steps it really takes to go from one place to another. Were children's **estimates** close?

Sit-by-Ten Challenge

» **Skill: Numbers**

Count from 1 to 10 and ask children to be seated by the time you reach 10. Count higher if children need more time, and encourage them to count along!

Cleanup Shape Search

» **Skill: Shapes**

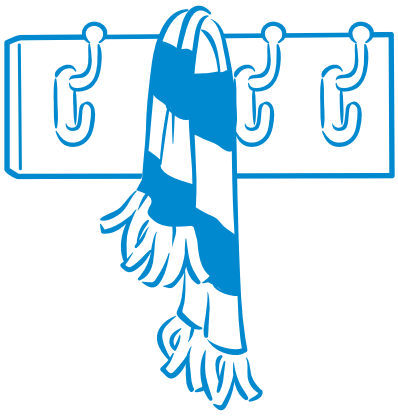
Create a shape scavenger hunt at cleanup time. Give each child a category of things to find, for example, **rectangular** books or **round** plates. You could even try three-dimensional shapes such as **cylindrical** blocks.

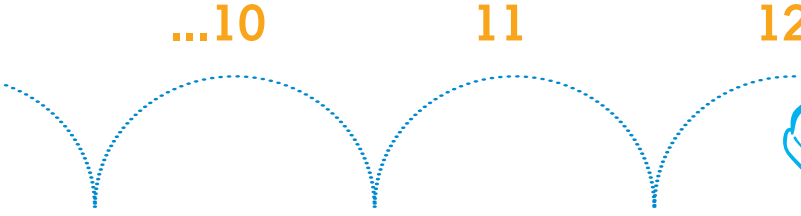
Numbered Boxes

» **Skill: Numbers**

» **Materials: shoe or storage boxes, marker for labeling**

Label shoe or storage boxes with the numeral and spelled-out name representing the number of items that belong in that box (for example, a box containing 15 blocks could be labeled "15 blocks" and "fifteen blocks"). When children put away toys, they can **count** the items and match the number of items with the numeral on the box.





"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

Math in Learning and Play Areas

Support children's learning by providing manipulative tools such as different-shaped objects, crayons, and measuring cups in your learning and play areas.

WRITING AREA

Preschool children learn to write by scribbling and drawing in their own way. Encourage children to write numbers and draw shapes by providing plenty of paper, crayons, and other writing utensils. You can motivate children by helping them learn why we write numbers: to show "how many" things there are.

Finger-Tracing Fun

» **Skill: Spatial Relations**
» **Materials: paper and crayons**

Encourage younger children to trace one hand on a sheet of paper, while older children can trace both hands, side by side. Ask children to **count** and label each finger with numbers, written from left to right. (It may be helpful for you to provide an example of what the drawing looks like before children begin this activity.)

Matching Shapes!

» **Skill: 2-D Shapes**
» **Materials: puzzles, paper, crayons, scissors**

Provide puzzles made up of different geometric shapes such as a **triangle**, **rectangle**, or **circle**, as well as other interesting shapes – perhaps a **rhombus**, **pentagon**, or **trapezoid**. Have children make shape cutouts to match these shapes. With large paper and crayons, make a chart listing the name of each shape. Encourage older children to use these names to label the shapes they've made.

Favorite Food Story

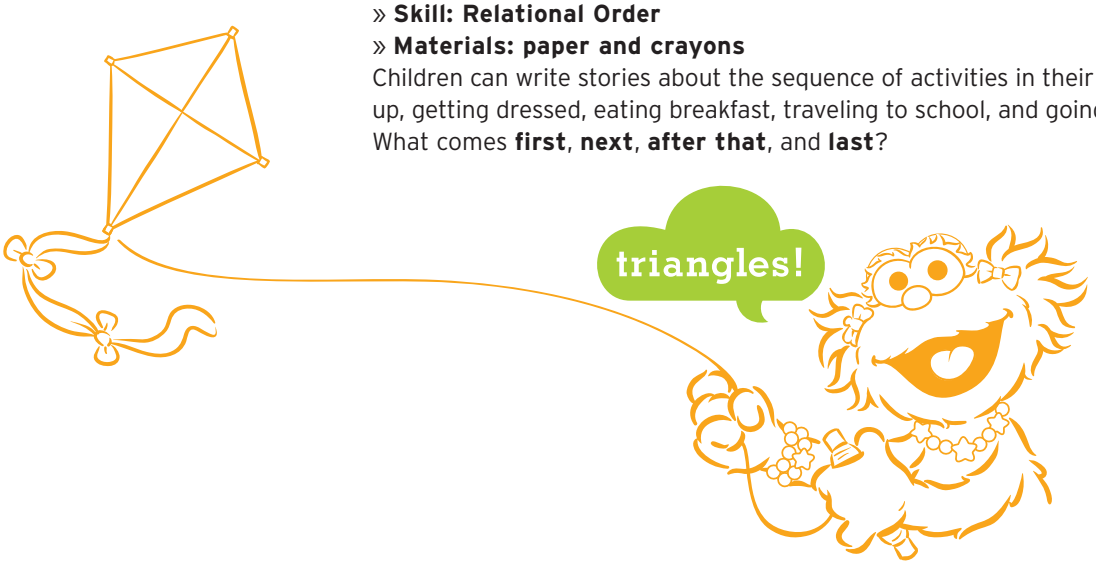
» **Skill: Number Symbols**
» **Materials: paper and crayons**

Children can make up a group story about a family of **15** ladybugs. Each member of the family needs to be fed its one favorite food. Write down what children say and encourage them to draw pictures to go with the story. Then read their finished story to the group.

This Is My Day

» **Skill: Relational Order**
» **Materials: paper and crayons**

Children can write stories about the sequence of activities in their day. Focus on waking up, getting dressed, eating breakfast, traveling to school, and going home after school. What comes **first**, **next**, **after that**, and **last**?



"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

ART AREA Art activities not only help develop children's creativity, they're also a fantastic way to help build math skills.

Arrange and Rearrange!

» **Skill: Critical Thinking**

» **Materials: cutouts of circles (eight per child), paper, glue, crayons**

Give each child eight cutout **circles**. Explore the many ways in which they can arrange the eight circles on a sheet of paper. As children rearrange their circles, have them recount and ask, "Are there still eight circles all together?" Have children glue their final arrangement to the page and write the number "8" next to the design.

Fold It and Hold It

» **Skill: 2-D Shapes**

» **Materials: square pieces of paper (approximately 8x8 inches) – one per child**

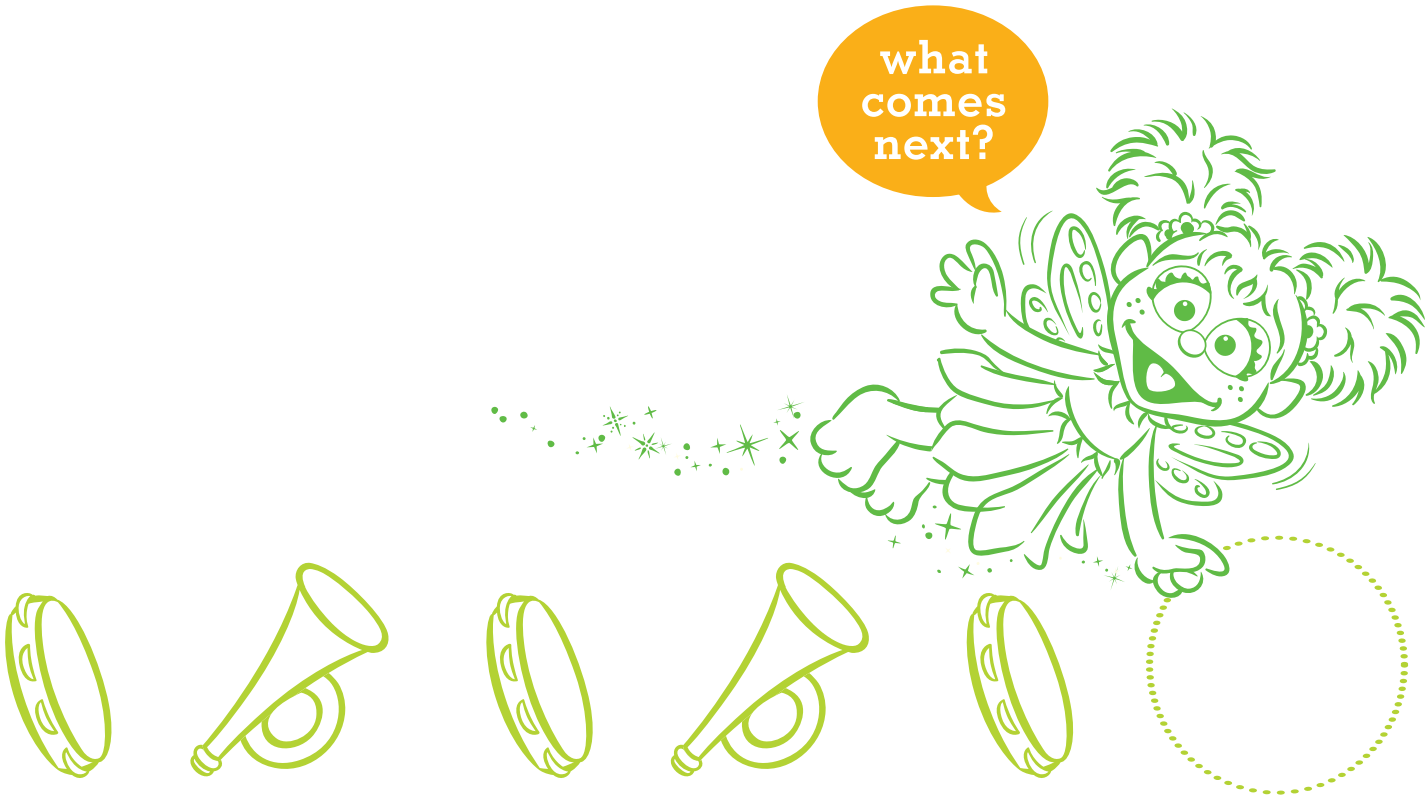
Give each child a square piece of paper (approximately 8x8 inches). Point out the paper's **square** shape. Show children how they can make paper go from a square to a **rectangle** by folding it in half. They could also make a **triangle** by folding the square from one **corner** to another. What other shapes can children make?

Shape Patterning

» **Skill: Patterns**

» **Materials: paper shapes, glue, paper**

Provide paper shapes that children can glue onto a paper surface. Encourage them to create their own simple patterns using alternating shapes in a line. Help them recognize, describe, and extend their patterns. For example, the pattern might begin **triangle**, **circle**, **triangle**, **circle**, **triangle**.... Ask, **"What comes next?"** You can use these designs to decorate the walls, hallways, doors, or windows.



"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

PLAYGROUND/OUTDOOR AREA Physical activity helps keep bodies healthy and strong.

It can also encourage children to explore math concepts in new and active ways.

Chalk It Up

» **Skill: One-to-One Correspondence**

» **Materials: chalk**

Using chalk, draw some large circles on a sidewalk or playground surface. Write any number from 1 to 10 in each circle. Give each child a turn to stand in each numbered circle and do the same number of movements, for example, four jumping jacks, or four hops on one foot. Then draw different shapes (**circle**, **square**, **rectangle**, **octagon**), and ask kids to find and stand inside each shape when you call its name.

On the Move

» **Skill: Spatial Relations**

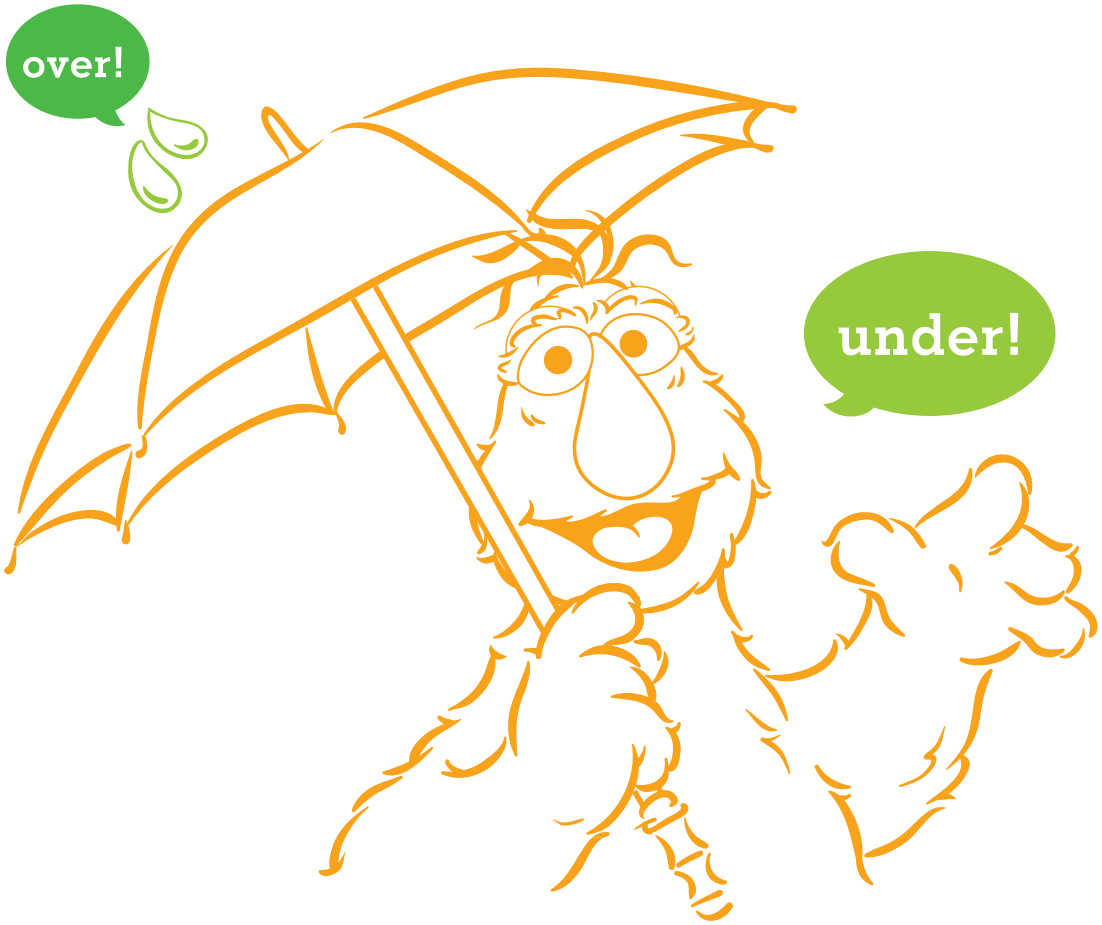
Encourage children to move in many ways by playing games such as Statues; Red Light, Green Light; "Grover Says"; Mother, May I?; or London Bridge. As you play, talk about the ways children move – **over**, **under**, **around**, **forward**, **backward**, and **above**.

Exploring by Pouring

» **Skill: Parts and Whole**

» **Materials: measuring cups, plastic pitchers or containers, sand**

Use measuring cups, small plastic pitchers, and other containers to encourage children to **compare** quantities. If you use small cups, how many cups of sand can be poured from a bucket? If you use larger cups, how many cups can be poured?



"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

DRAMATIC PLAY AREA

Providing mathematical vocabulary can enrich children's imaginative play and thinking.

Math Moves

» **Skill: Spatial Relations**

» **Materials: index cards, marker for writing, hat or bucket**

On index cards, write one simple math word per card, such as **big**, **little**, **triangle**, **circle**, **tall**, **short**, **up**, **down**, **below**, **above**, **under**, **over**, **forward**, **backward**, **before**, **after**. Ask each child to select a card from a hat or bucket. Read the math word aloud together and ask the child to do a movement that shows what the word means. For instance, if the word is "backward," he can jump backward. Have children take turns picking a math word and acting it out!

Everybody Loves a Parade!

» **Skill: Spatial Relations**

» **Materials: radio or CD or MP3 player**

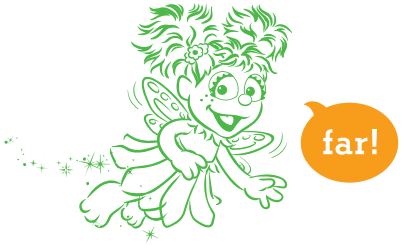
Put on some upbeat music while children line up. Call out a math word that describes movement in space (**forward**, **backward**, **high**, or **low**, for instance) and see how children interpret those words as they march along. Or choose a leader to call out a math word and have children follow and move along.

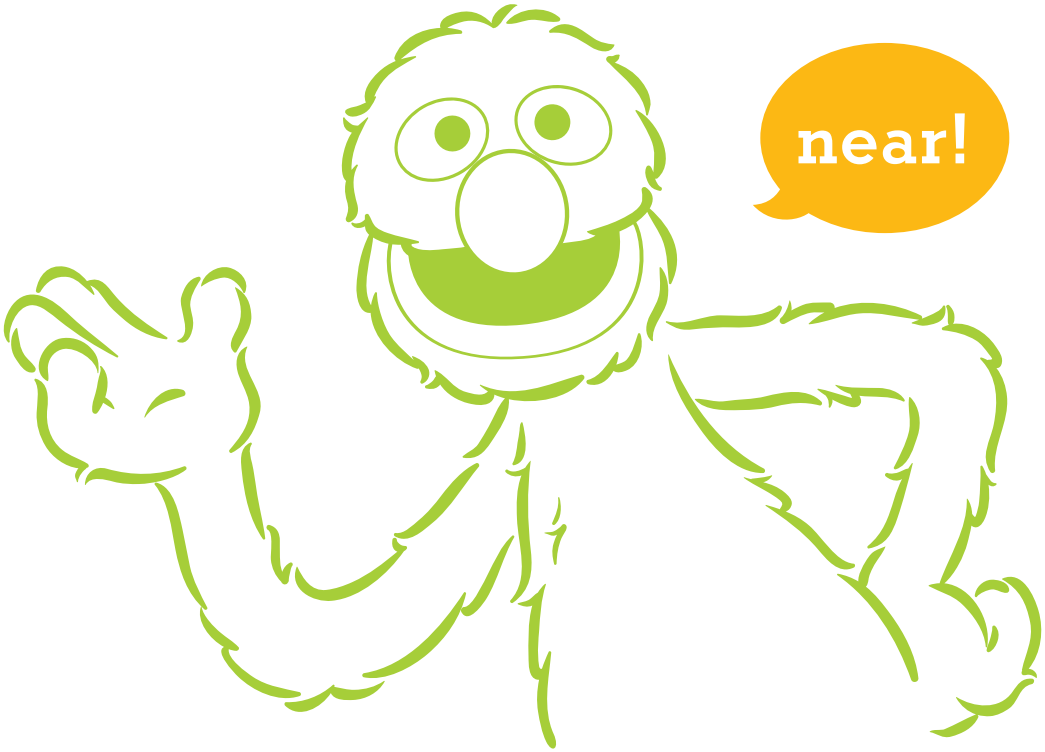
Project "Make-Believe Runway"

» **Skill: Comparing**

» **Materials: hats, scarves, and other dress-up clothes**

Keep a set of dress-up clothes in the dramatic play area. Encourage children to discuss and compare and classify sizes, shapes, and designs as they combine and organize items. Look for patterns in clothing and shoes. Use words such as **same**, **different**, **match**, **don't match**, etc.





"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

SCIENCE AND COMPUTER AREAS

Math concepts can link naturally with children's explorations of science and technology; both math and science involve asking questions, counting, measuring, experimenting, and solving problems. Age-appropriate computer games can also help build math skills.

Measuring Me!

» **Skill: Estimation**

» **Materials: string, blocks, or crayons**

Help children learn the names of different body parts while measuring them, too. Help each child **measure** his own height or the length of different body parts by using string, blocks, crayons, or other objects. For instance, how many "blocks" **long** is your arm, or how many "crayons" long is your foot?

Heavy or Light?

» **Skill: Relational Concepts**

» **Materials: basket, rocks, feathers, leaves, or other materials of varied weights**

Fill a basket with different types of natural objects of different weights such as rocks, feathers, or leaves. Allow children to hold two objects at once and **compare** which one is **heavier** and which one is **lighter**. Of all the objects, which is the **heaviest** and which is the **lightest**?

COMPUTER GAMES These online games can help children practice basic computer skills and have fun with math. Visit **sesamestreet.org** and search for the names of these math games:

- Magical Numbers
- Checkout Cookie
- Big Bird's Shapes
- Egg-Counting Elmo
- Big Bird's Numbers

"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

LIBRARY/BOOK AREA

Through books, children can learn about numbers, counting, patterns, relational concepts, shapes, and matching. Try to provide books with repetition and rhymes. While reading together, point to and label numbers, shapes, and patterns. Encourage children to repeat words and phrases, count along, and make their own math observations!

+ GAME ON!

Puzzles, **card games**, and **game-board dice** are great math tools. Keep some in this area and encourage children to:

Point out the **curves**, **lines**, and **angles** on the pieces of the puzzle. Ask, "Can a curve fit next to a straight line or angle? What might fit instead?"

Match and **group** the items on cards. Challenge children to find all the cards of the same suit in a deck of cards.

Learn to **add** with game-board dice. After a child rolls a pair of dice, count the dots on one die, then count the dots on the other.

"Math in a Book" Poem

» **Skill: Numbers**

Before children visit the book area, read this poem out loud to help get them excited about finding math in books!

There's plenty of math in a book!
Just open the pages and take a look!
We can...
Look for numbers like 1, 2, 3...
Count to find out just how many...
Or **name** the different shapes we see.
There's plenty of math in a book!
Let's open the pages and take a look!

Number Hunt

» **Skill: Numbers**

Call out a **number** and encourage children to find that number in books. They might find the number on the cover, throughout the pages, or on the back.

Picture-Book Shape Search

» **Skill: Shapes**

Encourage children to look carefully at the pictures in their books. What **shapes** do they find that are part of other pictures? For instance, the wheels on a car look like **circles**. The windows look like **rectangles**.

Finger-Puppet Counting

» **Skill: Numbers**

» **Materials: old gloves, scissors, glue, decorations**

Cut off and decorate the fingers of old gloves to make finger puppets representing characters in a story. Children can use the finger puppets to **count** the characters and make up songs and chants that include the characters and numbers.

Number Stories

» **Skill: Adding and Subtracting**

» **Materials: stickers or other manipulatives**

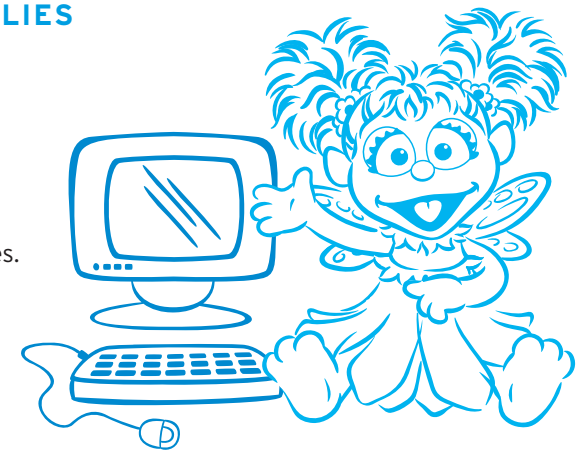
Create simple number stories that involve addition and subtraction. For example, "Elmo had two stickers. Rosita gave him one more. **How many** stickers does Elmo have now?" As you tell the story, act it out using stickers, and let children count the manipulatives to come to the correct answer.

"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

Build a Home-School Connection

Spread the word about the importance of math. Empower parents by letting them know that they are already doing math with their children.

SHARE THESE SIMPLE EVERYDAY TIPS TO HELP FAMILIES TAKE THE LEARNING EVEN FURTHER.



Here are some ways you might use the math tips on this page:

Attach them to newsletters or fliers that you send home with children.

Paste them into e-mails.

Create a Facebook page for your classroom and post them as status updates.

Create a classroom Twitter account and "tweet" tips regularly.

Cut them apart and put them in a basket. Invite families to take a tip from the basket as they head home with their children.

MATH TIPS TO SHARE

- **Discover numbers.** Use your fingers to find out different ways to make eight. Start with five and three fingers. What else works?
- **Help your child become a problem solver,** a thinker, and an innovator with early math.
- **Math is fun and important.** And best of all, math is a part of your daily routine.
- **Everyone can do math!** Remind your child that she is good at math.
- **Measure with household objects.** For example, how many spoons do you think it will take to measure your hand? How about a parent's hand?
- **Name a shape.** Count how many things you can find that are that shape. Ask, "What do you think we will find that is shaped like a triangle?"
- **Explore parts of a whole.** Ask your child to name the different parts of his favorite toy or even the different parts of his face.
- **Count on the go.** Stop wherever you are and ask, "How many lampposts are there? How many steps? How many park benches? How many blue cars?"
- **Play a board game or a card game with your child.** Games are a great way to sharpen math skills.
- **Tell each other where to move:** "behind the door, under the chair, next to the plant…"
- **Count down to bedtime.** Practice counting backward, from 10 to 0 as you tuck your child into bed.
- **Talk about differences in length.** For example, "These two shorter blocks together are the same length as the one longer block."
- **Draw lines on the sidewalk.** Have your child draw straight, angled, curved, zigzag, or looped lines with chalk on the sidewalk or driveway.
- **After a trip to the store, compare the shapes and sizes of items you bought.** Ask, "Which fruit is biggest? What shape is it similar to?"

"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.

Skills Index

2-D Shapes
Matching Shapes!.....5
Fold It and Hold It.....6

Adding and Subtracting
Number Stories.....10

Comparing
Project "Make-Believe Runway".....8

Critical Thinking
Arrange and Rearrange!.....6

Estimation
How Many Steps?.....4
Measuring Me!.....9

Number Symbols
Favorite Food Story.....5

Numbers
Numbers Are Everywhere!.....2
Number Finger Plays.....2
Sit-by-Ten Challenge.....4
Numbered Boxes.....4
"Math in a Book" Poem.....10
Number Hunt.....10
Finger-Puppet Counting.....10

One-to-One Correspondence
One for Me, One for You!.....3
Chalk It Up.....7

Parts and Whole
Exploring by Pouring.....7

Patterns
Clap-a-Rhythm.....2
Shape Patterning.....6

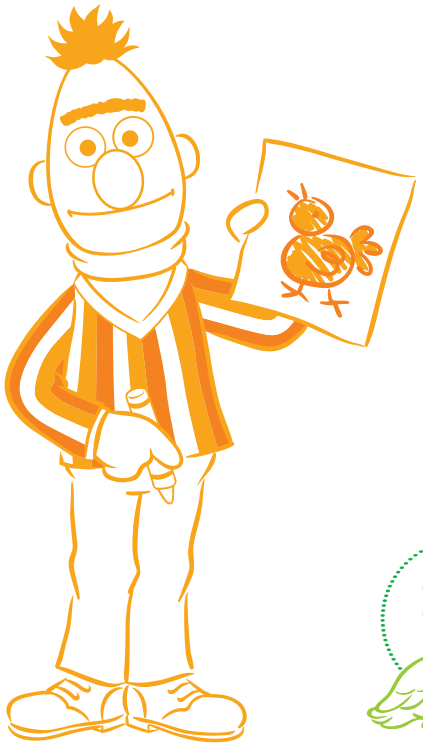
Relational Concepts
Heavy or Light?.....9

Relational Order
Measure Up, Measure Down.....3
This Is My Day.....5

Shapes
Cleanup Shape Search.....4
Picture-Book Shape Search.....10

Spatial Relations
Hokey-Pokey.....2
Finger-Tracing Fun.....5
On the Move.....7
Math Moves.....8
Everybody Loves a Parade!.....8

Take Apart (Partitioning)
Divide and Serve.....3



"Sesame Street®," "Sesame Workshop®," "Happy, Healthy, Ready for School®," and associated characters, trademarks, and design elements are owned by Sesame Workshop. © 2010 Sesame Workshop. All Rights Reserved.