

The M in STEM

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Overview

- What are you already doing? (5 min)
- NCTM Content Strands (40 min)
 - Numbers and operations (13 min)
 - Geometry (13 min)
 - Measurement (13 min)
- Takeaways and Closing (15 min)

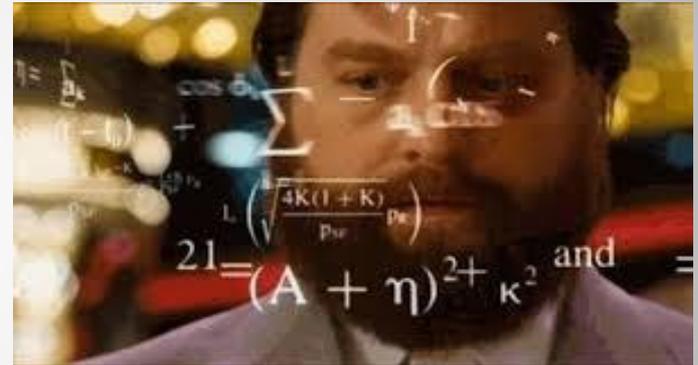
Let's start with how amazing you already are!

- Are you:
 - Using the words in, on, under?
 - Manipulating blocks?
 - Talking about shapes?
 - Singing songs when it's time to clean up?
 - Discussing how many, more, less, bigger smaller?

What does (NCTM) say?

- National Council of Teachers of Mathematics identifies five content strands:

- Number and operations
- Geometry
- Algebra
- Measurement
- Data Analysis and Probability



Let's talk numbers...

Numbers and Operations

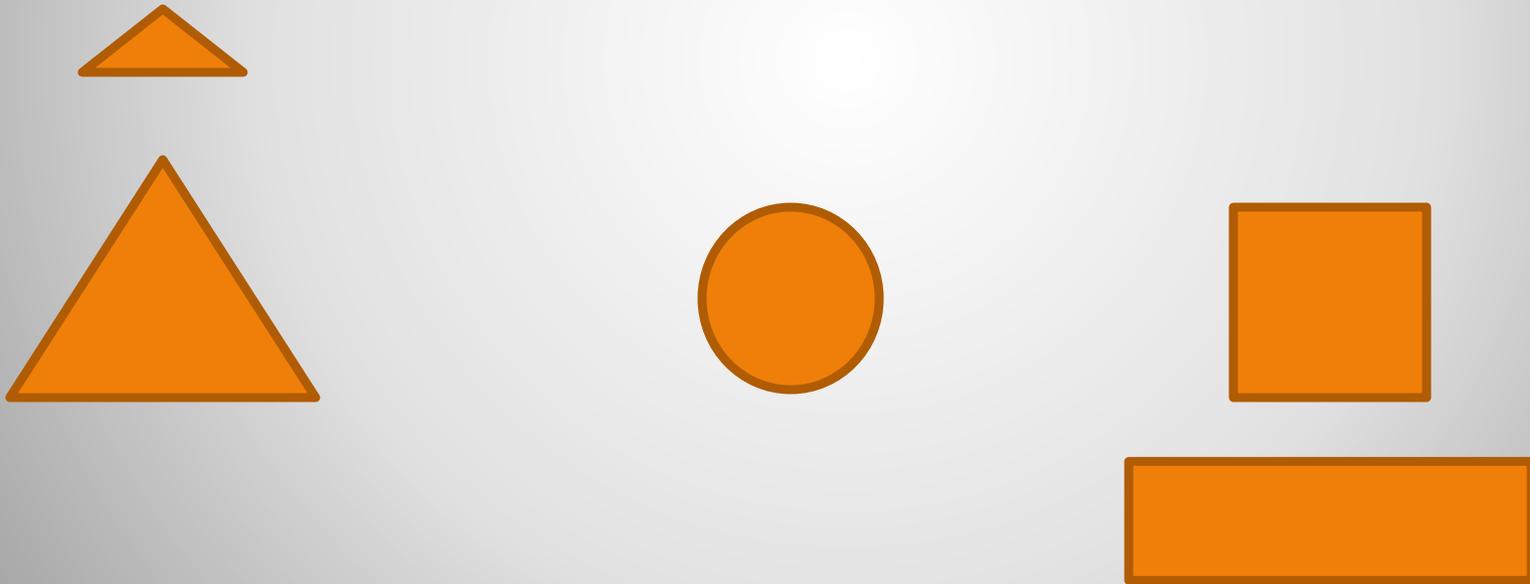
- To be able to count, children must learn three things:
 - Number sequence
 - One to one correspondence
 - Cardinality



1 2 3 4 5 6
7 8 9 10

Geometry

- Understands shapes
- Understands spatial relationships



Measurement

- Measures objects
 - Learning different attributes such as length, height, width, as well as capacity, weight and area.
 - Comparing and ordering

- What's one activity you've previously done or one you learned about today that you want to use in the classroom when you get back?

How will you continue to be amazing?

LET'S TALK ABOUT MATH



EVERYDAY FUN WITH MEASUREMENT

Did you know that your child begins developing early math skills starting at birth—simply through the daily routines and activities you share together? Understanding measurement concepts—such as size, length, weight, height, and capacity—is one of these skills.

From birth to five, children **develop measurement skills** as they explore:

- The **size, length, height, and weight** of people or objects—like when they describe a baby sibling as “short” and themselves as “tall”
- The concept of **capacity**—as they “fill” and “empty” a container with sand or water
- The idea of **distance**—whether a favorite toy is “far away” or “close by”
- The idea of **time**—concepts like before, after, later, soon and “in a minute.”

Young children learn about measurement through their explorations and their interactions with you.

PARENT-CHILD ACTIVITIES THAT SUPPORT PATTERN LEARNING

0-12 MONTHS

When you play with your baby, place toys at different distances from her—some nearby and others a bit farther, but still within reach. Babies learn about distance when they need to adjust their own movements to obtain something they're interested in. Describe their actions: “You are reaching so **far** to get the ball!” Or, “That one is very **near**—can you get it?”

12-24 MONTHS

Use basic measurement language in everyday routines with your child. Point out the “**big**” truck and the “**little**” car as you wait at the bus stop. In the bath, let your child play fill-and-dump. Point out when the cup is “**full**” and when it is “**empty**.”

24-36 MONTHS

Put measurement skills to work during the daily routines and activities you and your toddler share. At bedtime, measure the bed with your toddler's help: “It is 1 Kayla **wide** and 2 Kayla's **long**!” Let your child use her senses to explore measurement concepts by lifting the “**heavy**” apple and the “**light**” pepper at the supermarket. As you cook dinner, show your toddler the “**long**” carrot and, after you chop it, the “**short**” one!

Use measurement language to compare objects that your child sees and uses everyday: Which is bigger, faster, longer, shorter?

3-5 YEARS

Make measurement fun by measuring with objects your preschooler finds in the world around him. When you are at the park, use a stick or a big leaf to measure how **long** or **tall** the slide is. At bath time, use a washcloth to measure the tub.

Play comparison games by gathering a few objects and talking about which is **longest** or **shortest**. Use comparison words like **wide**, **wider**, and **widest**.

Over time, introduce standard forms of measurement, like rulers or measuring cups. As you cook, point out and read the lines on measuring cups and spoons: “One cup of cornmeal for the cornbread.” Let your child help with filling, pouring, and reading the measurement.

YOU CAN FIND MORE TIPS LIKE THESE—AS WELL AS VIDEOS, INFORMATION, AND MORE—AT
TOOSMALL.ORG/LETS-TALK-ABOUT-MATH OR ZEROTOTHREE.ORG.

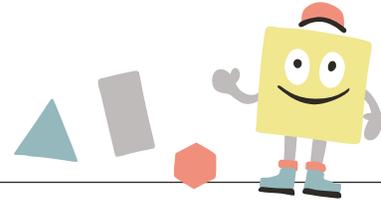


TALKING IS TEACHING

TALK
READ
SING

LET'S TALK ABOUT MATH

EVERYDAY FUN WITH SHAPES



Research finds that having a strong foundation in early math can lead to higher achievement in both math and reading later in school. Starting from birth, young children benefit from exploring shapes using their senses. Later, they combine shapes and objects of different sizes, like making a block tower or art collage. **Understanding shapes** is one of the early math concepts that children develop from birth to age five by exploring:

- Shape characteristics—noticing what makes each shape different, like knowing that a triangle has 3 straight sides and 3 angles.
- Matching—recognizing common elements of shapes and matching pairs (circles, triangles, and squares).
- Positioning shapes—understanding how shapes fit together and can be combined, like putting together a puzzle.

It's fun and easy to help your child learn these important concepts. Whether you're at home, outside or at the grocery store, simply describe the shape and position of objects as you go about your day together.

HAVE FUN WITH MATH: PLAYFUL PARENT-CHILD SHAPE ACTIVITIES

0-12 MONTHS

Hold an orange in your hand and say, "An orange is round and smooth." Hold a dish towel and say, "A dish towel is a square and feels soft." Encourage your baby to explore these objects using her hands and, when safe, her mouth (like sucking on a rattle).

12- 24 MONTHS

Explore shapes by rolling a ball back and forth, stacking flat objects on top of one another, or putting small objects inside a box or bucket. Narrate the activity using "shape words" such as "The ball is round and rolls," "The newspapers are flat and make a neat stack," and "This piece fits into the cup because it's smaller."

24-36 MONTHS

Have a "shape snack" with your toddler. Offer a square (or rectangle) cracker. Cut a grape in half to show your child its round shape. Cut a piece of cheese into a triangle. Talk about and trace each shape with your finger before you eat it. Ask your child, "Would you like your sandwich cut in four triangles or four squares?"

3-5 YEARS

Go on a shape hunt. Shapes are all around us so have fun looking for shapes and talk about them. "The window is a rectangle. Look, it has 4 sides and 4 corners. Let's see how many rectangles we can find." Or, "The mirror is shaped like an oval." It's fun to make shapes too. Using a stick, draw a shape in sand or dirt while at the park. See if your preschooler would like to try. You can also "paint" shapes on the sidewalk or driveway using a paintbrush and water. Practice making BIG circles and then little ones, BIG squares and little ones, etc.

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TALKING IS TEACHING

