

Reveal the Hidden Math

Math is everywhere! Here are some ways to find it.



Development and Research in
Early Mathematics Education

Notice the Math

In your daily conversations when you see or talk about:

- Adding and subtracting
- Measuring
- Numbers and counting
- Patterns
- Shapes, space, and location

Talk About the Math

Talking about math helps build children's math vocabulary, which helps develop their mathematical thinking.

Model and Praise Problem-Solving

- Talk out loud to show how you solve a math problem. "There's one for you, one for me, and one for Ashley, so that's three!"
- Focus on your children's problem-solving instead of whether they are right or wrong.
- Offer specific praise for your children's effort. "You're really figuring that out!"

Ask Questions

To encourage deeper thinking, ask:

- "How can we figure it out?"
- "What's another way we can try?"
- "What do you notice?"
- "What's the same?"
- "What's different?"
- "How do you know?"
- "Tell me what you're thinking!"



Math Snacks | Playtime

Quick and easy ideas for finding and talking about math in everyday family routines.



Find the Math:

When your child is drawing, notice and compare different sizes.

Talk About the Math:

What is the biggest thing in your picture? What is the smallest? That horse looks so tall next to the short dog!



Find the Math:

When doing puzzles, describe the shape of the puzzle pieces to help figure out how to make them fit.

Talk About the Math:

See this flat side? That means this goes on the edge of the puzzle. How can you make the flat side of this piece match the flat side of that piece?



Find the Math:

Look around your home for examples of different shapes.

Talk About the Math:

What shape is this pasta? What shape is this book? Can you find something else that's the same shape as the book?



Find the Math:

When you're at the park, use words like up, under, and between to talk about what you see.

Talk About the Math:

What animal do you see under the bench? Are there animals up in the tree? Are there any benches between the trees?



Find the Math:

Use size, amount, and number words to talk about things around your home. For example, biggest, most, some, tall, short.

Talk About the Math:

Which stuffed animal is biggest? Is your cup full or empty? Do you have more toy bears or cows?



Find the Math:

When looking out your window, talk about the sizes and locations of things you can see.

Talk About the Math:

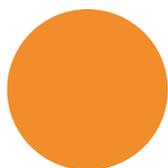
What's the tallest building you see? Which window is the biggest? What is shorter than that lamppost?

How to Play

Ask children to look for things around the house or neighborhood that come in different shapes, sizes, numbers, and amounts. For example, you could say, “Can you find something that has a triangle shape?” When the child finds an object that fits your clue, help them describe it using at least three math words. Here are some ideas to get you started. Try to come up with some of your own, too!

Math Talk While Playing

- Ask questions like, “How do you know?”
- Compare and contrast things by talking about what’s the same and what’s different.
- Use hand gestures to point to the sides, points, or curves of things.



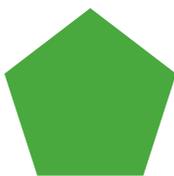
circle



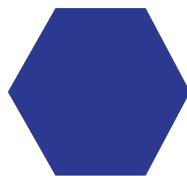
square



triangle



pentagon



hexagon



octagon



rectangle



oval



rhombus



parallelogram



trapezoid

Search for Numbers, Sizes, and Amounts:

- Find one thing that’s taller and one that’s shorter.
- Find something that’s smaller than your hand.
- Find something that’s shorter and wider than you are.
- Find something that’s empty.
- Find five things that start with the letter C.
- Find one container that’s close to empty and one container that’s close to full.

Ideas for Math Words to Try and Find

- most, least
- more, less, fewer
- some, all, none
- part, whole
- empty, full
- big, little
- large, small
- long, short, tall
- narrow, wide

Search for Shapes:

- Find three different triangles.
- Find three quadrilaterals (things with four sides).
- Find three things with more than four sides.

Ideas for Math Shapes to Try and Find

- round
- curved
- straight
- flat
- side
- edge
- point
- symmetrical
- long, short
- narrow, wide
- equal, unequal
- corner
- angle

Variations

Create a list with several clues and check items off the list as your child goes about finding the things.

Keep track of things you find by drawing pictures or taking photos.



How to Play

Choose one player to be the leader. The leader gives commands and the other players follow. But the other players are supposed to follow only when the leader starts the command with “Simon Says.” For example, if the leader says, “Simon Says put your hands on your head,” you should put your hands on your head. But if the leader says, “Put your hands on your head,” don’t put your hands on your head.

Math Talk While Playing

Here are some suggestions for exploring early math concepts while playing. Try to come up with some of your own, too!

Shapes, Space, and Location

- Put your arms behind your legs.
- Turn around to face the back of the room.
- Put one hand on top of your head and one behind your back.

Numbers and Counting

- Hop on one foot five times.
- Jump one time, clap two times, and repeat this three times.
- Go half-way to the door and come back.

Ideas for Math Words to Try and Use

- above, below
- over, under, through
- front, back, behind
- between
- next to
- in, out
- inside, outside
- on, off
- first, last, middle
- high, low
- far, near
- top, bottom
- rotate, turn, flip
- connect, separate
- twist
- big, little
- large, small
- long, short, tall
- narrow, wide

Use hand gestures to highlight the meaning of the words, such as holding up two fingers to show “2.”



Ask questions that encourage children to use math words: “How do you know how many jumps you did?”

Variations

Use dice or a deck of cards to decide how many times to do the command.

Take turns being the leader.

For very young children, play “Follow the Leader” where they always do what the leader says, and then introduce the “Simon Says” rules.



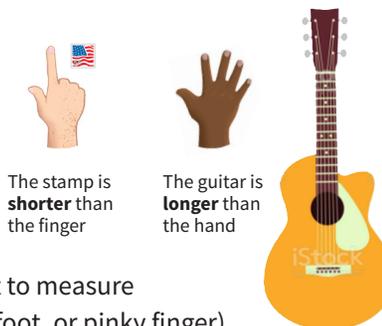
This activity is designed for children to do with the support of an adult or older sibling.

Length is the measure of something from end to end. Understanding whether something is longer than, shorter than, or the same length as something else can help prepare children to learn about measurement units, such as inches and feet.

In this activity, children explore measurement by comparing the length of their own body parts to everyday things at home—no ruler required!

Directions

- Discuss what *longer*, *shorter*, and the *same length* mean.
- Choose a body part to measure (for example, arm, foot, or pinky finger).
- Choose whether you will look for things that are longer than, shorter than, or the same length as the body part picked in the last step. For example, you might say, “Now we will look for things that are shorter than your finger!”
- Search around your home for things. For example, a stamp might be shorter than a child’s finger. An adult or older sibling may need to help hold up things so children can compare lengths. You can also trace the body part on paper to make it easier to compare lengths.
- As an optional step, draw pictures, take photos, or make a list of the things you find. If you do multiple rounds of measurement, organize your list or collection by longer, shorter, or the same length.



Ideas for Adapting This Activity

- Instead of searching for things around your home, give children a basket of things that are of different lengths. Sort them by longer than, shorter than, and the same length as the chosen body part.
- Pair up with your child or pair them up with a sibling and have them find things that are taller than, shorter than, or the same height as their partner.
- After your child has found several things during the game, ask them to put the things in order from shortest to longest.
- Work together to compare body parts, such as noses or hair, that are easier to measure with the help of another person.

Math Talk While Measuring

To deepen children’s early math learning, talk and ask questions while doing this activity together. Here are some examples to get you started. Try to come up with some of your own ideas, too!

Compare Length

- “Is that pen longer than your finger? How do you know?”
- “You found three things that are shorter than your arm. Which one is the shortest? How do you know?”

Measure

- “Where should you start measuring?”
- “What will it look like if something is just as long as your arm?”

Make a Prediction

- “What is something you think will be shorter than your leg? Why do you think that?”
- “Do you think this will be longer or shorter than your arm? (after comparing the object to their arm) Which one is longer? Did you guess correctly?”



This activity is designed for children to do with the support of an adult or older sibling.

Building things is a great way for children to explore early math concepts. One way to boost children's learning while they play is to challenge them to build specific things.

Children can build with almost anything. Pick any building toys you have at home, such as wooden blocks, Legos, or Magnatiles. Get creative by building with common household items, such as books, containers, or empty boxes.

Directions

Start by building structures your child already recognizes, such as your home or something in your neighborhood. Make, take, or look for pictures to show different structures (for example, towers, arches, stairs, or columns).

- For beginners, have them build specific features, such as a tower or a staircase. As they grow more comfortable, move on to building an entire structure.
- For experienced builders, tell them how many features to make in one structure. For example, you could say, "Let's build a castle with two towers and one staircase."

Choose a Building Theme and Play Along!

- **Castle** "The king and queen made this list of structures they want in their new castle."
- **Construction Site** "Builders are construction workers who decide what structures and how many to include in their building. What should we include?"

Ideas for Adapting This Activity

- If more than one child is playing, make each child responsible for a different set of blocks (for example, one child has all the cylinders or triangles). Encourage children to work together to build.
- Create groups of family members and challenge them to follow the same set of building instructions. Then compare the structures. Talk about how buildings with the same features can look different.
- Give multi-step building requirements (for example, "Build two windows beside the door; the columns should be in front of the door; the door should be three blocks away from the arch").

Math Talk While Building

To deepen children's early math learning, talk and ask questions while doing this activity together. Here are some examples to get you started. Try to come up with some of your own ideas, too!

Shapes, Space, and Location

- "What did you build above the window? Below the window?"
- "Where do you think you should put the window? Where is there space to put it?"
- "Is it above the tower or below the tower?"
- "What block is the same shape as the column in the picture?"
- "What shapes make the top of the tower in this picture? How could you make a shape like that with these blocks?"

Numbers and Counting

- "How many windows do you have in your building?"
- "How many blocks do you need to make the right number of steps?"

PROMOTE PLANNING AND TEAMWORK

Before children start building, ask, "What do you think the building will look like? Who will do what? What will go where?"