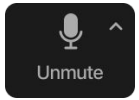
Best Practices for Early Mathematics Instruction

Young Children with Disabilities Community of Practice

April 2026

Zoom Meeting Preparation



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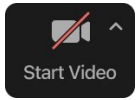

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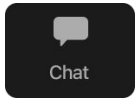

- Please submit questions during the presentation in the “Chat” function located on the bottom of your screen.

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Purpose

The monthly Young Children with Disabilities Community of Practice is designed to allow early childhood special education administrators and leaders to:

- collaborate with others on current trends and practices in servicing and supporting young children with special needs
- problem solve challenges
- share and celebrate successes

Agenda

I. The Importance of Early Mathematics Instruction for Young Children with Disabilities

II. Featured Topic:

Best Practices for Early Math Instruction

A. Family Engagement

III. Upcoming Events

The Importance of Mathematics Instruction for Young Children with Disabilities

What is Early Math Instruction?

Early mathematics instruction refers to the intentional support of young children's mathematical thinking from birth to age 5.

It focuses on helping children make sense of numbers, patterns, space, and measurement through everyday experiences.

What is Early Math Instruction?

Early Mathematics instruction focuses on:

- exploring and discovering;
- talking about ideas;
- using real objects and situations;
- and building understanding through play.

Young children learn math best when it is:

- **Hands-on:** touching, moving, building
- **Meaningful:** connected to their daily lives
- **Language-rich:** describing, explaining, questioning

Why is Early Math Instruction important for Young Children with Disabilities (YCWD)?

Early mathematics instruction is especially important for YCWD as it supports a broad range of developmental areas beyond just mathematics, setting the stage for long-term success.

- Builds foundational skills early
- Supports cognitive development
- Enhances language and communication
- Promotes independence and daily living skills
- Provides access to general curriculum
- Improves long term academic outcomes

Key Components of Early Mathematics Instruction

Key Components of Early Mathematics Instruction

- Early Mathematics Instruction is organized into four core elements, which are integrated into Louisiana's Early Learning and Development Standards (ELDS) under Mathematics.
  - Knowledge of Numbers
  - Patterns and Operations
  - Measurement
  - Shapes and Spatial Relationships

Core Early Mathematics Instruction

Louisiana's Early Learning & Development Standards (ELDS)

COGNITIVE DEVELOPMENT & GENERAL KNOWLEDGE

Mathematics:
Standard CM 1: Children demonstrate knowledge of numbers and the relationships between numbers and quantities.
Standard CM 2: Children demonstrate knowledge of patterns and operations.
Standard CM 3: Children measure objects by their various attributes and use differences in attributes to make comparisons.
Standard CM 4: Children identify shapes and their properties, and describe the positions of objects in space.

Knowledge of Numbers

Number sense is the understanding of numbers, counting, and quantity (knowing what numbers mean, not just saying them.)

- Foundational skills include:
  - Counting with one to one correspondence
  - Recognizing numerals
  - Understanding quantity “how many”
  - Comparing amounts (more, less, same)
- **Why it matters?** Number sense is the foundation for all future math, including addition, subtraction, and problem-solving.
- An example would be a child counts 5 blocks and understands that “5” represents the total - not just the last number said.

Knowledge of Numbers Best Practices

Best Practices for Knowledge of Numbers instruction:

- Use hands on manipulatives such as blocks and counters
- Embed math in daily routines
- Encourage math talk (How many do we have now?)
- Focus on understanding, not memorization

Examples of Best Practices of Number Instruction in action:

- Counting snacks during snack time
- “How many friends are here today?”
- Matching objects to numbers (e.g. 3 bears ⇒number 3)
- Comparing groups: Which has more?

Patterns and Operations

Recognizing patterns and understanding how things change or relate to each other (early algebraic thinking).

- Foundational skills include:
  - Identifying and creating patterns
  - Sorting and classifying objects
  - Beginning addition and subtraction with objects
- **Why it matters?** Patterns help children predict, organize information, and develop logical thinking.
- For Example: A child notices a repeating pattern (red-blue-red-blue) or solves a simple problem like, “You had 3 apples, now you have 4 - what happened?”

Patterns and Operations Best Practices

Best Practices for Patterns and Operations:

- Use visual and movement-based patterns
- Encourage children to predict what comes next
- Model problem solving with real objects
- Ask open-ended questions (“How did you figure that out?”)

Examples of Patterns and Operations instruction in action:

- Clap-Stomp-Clap-Stomp patterns
- Color patterns with beads (red-blue-red-blue)
- Sorting buttons by color and size (Use visual sorting mats for extra support)
- Acting out story problems with toys

Measurement

Measurement is understanding and comparing attributes like size, length, weight, and capacity.

- Foundational skills include:
  - Comparing objects (big/small, heavy/light)
  - Ordering objects
  - Using simple measurement tools
  - Understanding concepts like full/empty, long/short
- **Why it Matters?** Measurement builds reasoning and helps children make sense of the physical world.
- Examples: A child uses blocks to measure how tall a tower is or compares which container holds more water.

Measurement Best Practices

Best practices for measurement instruction:

- Use real-life contexts (cooking, building)
- Start with non-standard units (blocks, hands)
- Encourage comparison language
- Integrate into play (water, sand, etc.)

Examples of measurement instruction in action:

- Measuring with blocks: “How many blocks tall?”
- Comparing who is taller in line
- Filling cups with water (full/empty)
- Ordering sticks from shortest to longest

Shapes and Spatial Relationships

- Includes recognizing shapes and understanding how objects move and relate in space.
- Foundational skills include:
  - Identifying shapes (circle, square, triangle)
  - Describing attributes (sides, corners)
  - Understanding position (over, under, next to)
  - Visualizing and building structures
- **Why it matters?** Spatial skills are linked to later success in math, science, and even reading
- Example: A child builds a structure with blocks or describes where an object is (“The ball is under the table”).

Shapes and Spatial Relationships Best Practices

Best Practices for Shapes and Spatial Relationship instruction:

- Use hands on building and drawing
- Connect shapes to real-world objects
- Encourage spatial language
- Allow exploration through movement and play

Examples of shapes and spatial relationship instruction:

- Shape hunts in the classroom
- Building structures with blocks
- Puzzle play
- Obstacle courses (crawl under, jump over)

Early Mathematics Instruction

Early mathematic instruction is about helping children:

- notice patterns;
- make comparisons;
- solve simple problems;
- and explain their thinking.

Children develop early mathematics skills through play, daily routines, conversations, and exploration.

Effective early mathematics instruction builds confident learners who see math as something they use and understand, not just something memorized.

Best Practices for Early Mathematics Instruction

Effective Teaching Strategies

Effective early childhood mathematics instruction should be intentional and developmentally appropriate so that all children, including those with disabilities, can meaningfully participate and build foundational skills. Here are widely recommended best practices, grounded in research and education principles:

- Integrating Math through Play and Routines
- Use Explicit, Intentional Teaching
- Differentiate Instruction (Universal Design for Learning)
- Scaffolding (build on what children know)
- Multisensory approach: Use of manipulatives and visuals
- Promote Mathematical Language
- Collaborate with Specialists and Families

Integrating Math through Play and Routines

- Young children learn mathematics best through hands-on experiences (touching, moving, manipulating), repetition in real context, and social interactions and language.
- When math is embedded in play and routines, children:
  - see math as useful skills and relate to real life experiences;
  - practice skills naturally through the day;
  - and engage at their own developmental level.
- The goal isn't to "add math" to the day, it's to recognize that math is already present and make it visible, intentional, and accessible.
- When done well, children don't feel like they're doing math, they feel like they're playing, exploring, and making sense of their world.

Integrating Math through Play and Routines

What does it look like?

- Embedding counting, comparing, and patterns into play, meals, transitions, and daily routines while following children's interests and extending them with mathematical language.
  - For Infants:
    - Caregiver counts during movement: "1,2,3 bounces…"
    - Explore big vs small toys
  - For Toddlers:
    - Count steps while walking or count the students in line
    - Clean up by grouping toys (Pick up all of the red first)
  - For Preschoolers:
    - Setting the table in dramatic play center (one plate per friend)
    - Build towers and compare heights

Explicit, Intentional Teaching

While play is key, guided instruction helps deepen understanding:

- Helps children notice and understand math concepts they might miss
- Supports learners who need clear modeling and repetition

Explicit, Intentional Teaching

What does it look like?

- Modeling think alouds
- Asking open-ended purposeful questions
- Demonstrating step-by-step processes, breaking tasks into smaller steps with needed repeated practice.
    - For Infants: “You picked up 1 ball… here comes another. Now you have 2!”
    - Toddlers: The teacher models counting objects slowly.
    - Preschoolers: While playing with colored blocks, the teacher might say, “Let’s make a pattern - red, blue, red… what comes next?”

Differentiate Instruction

Universal Design for Learning (UDL) is a proactive approach to designing learning experiences from the beginning to ensure all children can participate and succeed, thereby removing barriers before a child struggles and needs an adapted lesson.

- Removes barriers to participation, ensuring access for all learners from the start
- Supports different abilities, learning styles, and communication needs
- Children learn together, not separately
- Reduces frustration and failure while encourage independence

Shifts teaching from:

"How do I adapt for this child?" → **"How do I design learning so it works for everyone?"**

Differentiate Instruction

What does it look like?

- Multiple ways to present information (visual, verbal, songs, hands-on)
- Multiple ways for engagement (offer choices to motivate and engage)
- Multiple ways for children to respond (talking, pointing, act, draw, use devices)

Traditional Approach vs. UDL Approach:

- Traditional Approach (one rigid activity): “Everyone count objects and say the answer out loud
- UDL Approach (same goal, different access points): Children count objects using manipulatives, some say numbers aloud, some point or use visuals, some use Assistive technology

Scaffolding

Another best practice that is important in early math instruction is scaffolding.

- Educators provide just enough support to help children move from what they can do with guidance to what they can do alone
- Supports gradual independence:

- It matches children's developmental level, builds confidence through small successes, strengthens thinking and language skills, and transfers responsibility from adult to child over time.

Scaffolding

What does it look like?

- Start simple, then increase complexity
- Using prompts, cues, and guided questions
  - Infants: Hold up 2 snacks: “You have one, do you want more?” (wait for anticipation) “It’s all gone.” (when finished)
  - Toddlers: Playing with blocks, the teacher *models* counting slowly, “1…2…3….” (Offer guidance) ”Can you count with me?”(Pause for independent child attempts)
  - Preschoolers: Provide mixed objects. Model sorting “All red goes here.” Hand the child an object, “Where does this go?” (offer hints only as needed) Have the child practice independent sorting.

Manipulatives and Visuals

- Using concrete materials such as manipulatives and visuals offer a multisensory learning approach that is essential in early childhood. Young children learn best through hands-on explorations rather than abstract symbols alone.
- From birth to age 5, children are still developing foundational thinking skills like sorting, comparing, and recognizing patterns. These approaches help build strong neural connections by linking physical actions with cognitive understanding.

Manipulatives and Visuals

- Concrete experiences make abstract ideas real. For example, physically holding objects to count is far more meaningful than seeing objects numbers printed on a page.
- Manipulatives support problem-solving. Objects like blocks or beads allow children to experiment, test ideas, and self-correct.
- Visual support enhance understanding. Pictures, shapes, and pattern help children recognize relationships and organize information.
- Multisensory learning strengthens memory. Engaging touch, sight, movement, and even sound helps children retain concepts longer.

Incorporating Manipulatives and Visuals in Math Instruction

- For infants, use multisensory tactile materials such as stacking rings or textured blocks.
- For Toddlers, when sorting utilize tactile manipulatives paired with a sorting mat with a visual representation of the groups.
- For Preschoolers, when counting utilize tactile manipulatives such as cubes or frogs paired with a number path for extra support.
    - A number path can be used to help support a child to identify numbers, tell what number comes next or answer how many. Manipulatives and visuals give students the support they need, which supports that gradual release to independence (UDL reference).

Promote Mathematical Language

Math understanding is closely tied to language development. This helps children explain their thinking and build concepts.

What does it look like?

- Modeling math vocabulary such as more, less, equal, bigger, next.
- Encouraging children to describe their thinking and expanding on their language.

Examples of ways to promote math language:

- Infants: “Big ball, small ball”
- Toddlers: “You have more ___ than me!”
- Preschoolers: “This is longer because…..”. Encourage full explanations to express their thinking.

Collaborate with Specialists and Families

Supporting young children with disabilities works best as a team effort. Collaboration ensures children with disabilities receive consistent, individualized support that strengthens their mathematical understanding across settings.

What does it look like?

- Partner with special educators, therapists, and families
- Align strategies across home and school
- Incorporate culturally relevant practices that reflect each child's backgrounds and needs

Family Engagement

Family Connections

What does this look like for teachers?

- Pointing out the math happening during classroom routines.
- Naming the skill for families in simple language.
- Modeling how to turn everyday moments into learning opportunities.
- Sharing quick, realistic examples families can replicate at home.

Five Strategies Learning Centers Can Use to Equip Families

1. **Make Learning Visible for Families**

- Send home simple notes or photos showing math in action.
  - Example: “Today we counted snack pieces and compared who had more.”
- Share strategies and send home any supports, such as visuals, used at school.
  - Example: A number path for counting or a sorting mat.

Please contact Shanda.brown@la.gov

Five Strategies to Equip Families

2. Model What to Say and Do

- Give families sentence starters:
  - How many do we have now?
  - Which one is bigger?
  - What comes next?

Five Strategies to Equip Families, cont.

3. Connect Classroom Learning to Home Routines

- Link activities directly:
  - Counting at snacktime → Counting at dinner
  - Sorting classroom materials → Sorting laundry or toys at home
- Collaborate with families about strategies and accommodations that work during the school routine, so they can be practiced consistently in all settings.

4. Keep It Simple and Accessible

- Emphasize: No worksheets or special tools needed!
- Focus on everyday materials and routines.

Five Strategies Learning Centers Can Use to Equip Families, cont.

5. Reinforce Through Consistent Communication

- Share weekly suggestions
- Highlight one math skill families can focus on at a time.
- Celebrate students' mastery of skills and achievement of goals by sharing these small successes with parents. This builds rapport and demonstrates that everyone's support is leading to positive outcomes, motivating families to continue engaging in their child's learning.

When we intentionally equip families with simple language, real examples, clear connections to daily routines, and build rapport, we extend math learning far beyond the classroom and build stronger foundational skills for all children.

Please contact shanda.brown@la.gov

Closing

Key Takeaways

- Early mathematics is foundational for lifelong learning
- Focus on conceptual understanding, not memorization and worksheets
- Learning happens best through play, talk, and exploration
- Teachers play a critical role in making math meaningful

Next steps...

How can you integrate math into your daily routine?

What challenges do you face in teaching early math?

How can you incorporate these early math best practices into your daily routines and instruction to address these challenges?

Please contact emily.coussou@la.gov

Questions

Please contact emily.coussou@la.gov

Upcoming Events

Monthly Young Children with Disabilities Community of Practice

The early childhood strategy team conducts a monthly Community of Practice on various topics related to young children with disabilities. These webinars include professional development and updates regarding young children with disabilities in early childhood settings.

Attendees can access the webinar using the information below:

- **Webinar Date/Time:** Tuesday, May 19, 2026 at 3 p.m.
- **Webinar Link:** https://ldoe.zoom.us/j/99301224453
- **Phone Number:** 1-312-626-6799
- **Meeting ID:** 993 0122 4453
- **Passcode:** 497464

Please contact emily.coussou@la.gov

BIG IDEAS START HERE

TEACHER LEADER SUMMIT

- Preparing for CLASS® Observations for Classrooms with Young Children with Disabilities
- Teaching Strategies Early Childhood OSEP Reporting
- Beyond Behaviors: Strategies for Early Childhood Educators to Support Young Children with Disabilities

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