



**ANGELA RUSS –AYON**  
**MATH, MOTION, AND**  
**CONNECTING THE THOUGHTS**

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**EARLY MATH DEV. INCLUDES LEARNING THAT NUMBERS...**

- 1) ...have a corresponding WORD
- 2) ...refer to a particular QUANTITY
- 3) ...can be represented in DIFFERENT WAYS
- 4) ...are used to COUNT
- 5) ...help us COMPARE and ORDER QUANTITIES.
- 6) ...are a MEANS for SOLVING PROBLEMS

**BEYOND THE STANDARDS, WE WANT CHILDREN TO...**

- Be curious
- Keep working and persevere
- Reason abstractly and quantitatively
- Practice and build upon their skills
- Use appropriate tools strategically
- Share their findings
- Discuss & defend their results
- Feel comfortable and confident in their abilities

Young children are naturally curious, observant, and will develop their own understanding of math over time - based on their life experiences. They build upon concepts they already know and have been exposed to, practicing early math skills every day.

Early math/STEM includes concepts other than numbers, counting, and shapes: fast/slow, empty/full, heavy/light, heavy/light, whole/pieces/parts, near/far, pathways, directionality, measurement, the passage of time/routines, patterns, positions in space, and so much more. It's up to us to help make learning concepts fun!

**ENCOURAGE CHILDREN TO START A COLLECTION...**

They use their observation skills to compare and contrast colors, shapes, sizes, weight, textures, age, condition, and other relevant characteristics.

*Music prompts greater connectivity between the brain's **left and right hemispheres** and between the areas responsible for **emotion and memory** than does almost any other stimulus.*

- Dartmouth, Petr Janata, *Science* 2002

**WHEN CHILDREN SING NURSERY RHYMES...**

They learn the math skill of natural comparisons. Select a song or chant and emphasize the different tempos, tones, volumes, etc.

**MOTOR SKILLS:** Direct children to move, count, and change direction - to speed up and slow down to the beat of a drum - or interpret the feeling or tempo of a song. Inject positional and descriptive math language when prompting to complete motor skills

**MATHEMATIZE EACH DAY!**

Math should be as common in informal settings as in any formal math activity. Help children make discoveries. Ask open-ended questions that present an alternative to the actions children take to help them articulate their decision-making process - Those that cannot be answered with one word, such as yes, no, five, or yellow.

Select those that pertain to the age group with which you are working.

Create serve and return experiences. Ask questions and WAIT for children to process the information and formulate a response. You might be tempted to chime in and start teaching, but don't. Slow down your day, and give children time to teach you!

**Examples of open-ended questions for number sense:**

**Outside**

- *You broke the stick. What do you notice about it now?*
- *How do you know how much sand you need for the castle?*
- *How many times do you think we can catch it before it falls?*

**Moving**

- *How will you know how far you jumped?*
- *Mimic animal moves while counting: flap, stomp, bear walk, step sideways (crab), etc.*

**Mealtime**

- *How can we make sure everyone gets a spoon?*
- *What shapes can you make with your napkin?*
- *How can we tell which fruit is liked the most?*

**Artwork**

- *What would happen if you pushed the red paint into the white?*
- *How long do you think it will take the paint to dry?*

**Dramatic Play**

- *How can you make the track long enough to reach the wall?*
- *How did you know which sweater would fit your doll?*

**Storytime**

- *How did the Hungry Caterpillar get so big?*
- *What's the difference between the old fish and the new fish?*

**Songs & Chants**

- *What if no baby ducks came back to mama?*

**Block Corner**

- *How can you build a pen for the piglets?*
- *What do you have to do to make room for a door?*

**Circle Time**

- *How can we all sit where we won't trip our friends?*

**In Transition**

- *How can you move with 1, 2, 3 Freeze on the way to the door?*
- *How can you clean up before the countdown clock rings?*
- *Count down from a squat or sitting "Blast-off!"*

**EMBED MATHEMATICAL CONCEPTS** throughout each day using terms and expressions that give children more exposure to math language: Altogether, put together, in all, equal parts, share equally, split it up, take away, the difference between, and "How many are left?" Then follow up with an open-ended question. Moving to commands using math language helps children understand spatial concepts and relationships.

**PATTERNING & SEQUENCING** Skip counting, addition, and times tables all require an understanding of and proficiency in patterning. Developmental stages: recognize, describe, copy, extend, and create. Relate patterns to real-life experiences. Patterns and sequences that are put to a melody are easier to recognize and extend.

**REFERENCE LIST:**

- ♪ "Two Clapping Hands" CD: *Math Music & Motion*
- ♪ "Shake Your Boom Boom" CD: *Smart Moves 3*
- ♪ "Shake, Mix, Pound, Roll" CD: *Smart and Tasty 1*

**Picture Book:** *When You Find Colors and Shapes*  
 ISBN: 978-0-9799612-6-7 Paperback/32-pages

**Resource Book:** *The BIG Book of Open-Ended Questions to Intentionally Support Young Children in Learning* ISBN: 978-09987090-5-5



**Thank you for listening,  
 and welcome to the CLUB!**