


Pre-K Teacher Meeting Games for Young Mathematicians



Jessica Young, Kristen Reed, Heidi Rosenberg, Kelly O'Carroll, Yen Thieu,




Today's Agenda

- Overview
- Math and Growth Mindset
- Math Games
 - About the Math
- Reflections
- Resources

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People's feelings about math

Positive	Negative
I'm a "math person"	I'm not a "math person"
I love doing math puzzles (sudoku)	Just the word "math" makes me feel nervous
Math is beautiful and fun	Math is boring and pointless
Math makes sense	Math is a mystery


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What do you believe about intelligence?

Do you believe that intelligence is a fixed trait—that you are born with a certain amount of it and it *cannot* be changed?
(fixed mindset)

Or do you believe that intelligence is a quality that can be developed through effort and education?
(growth mindset)

The types of praise we give to children may be related to our mindset...



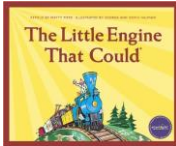
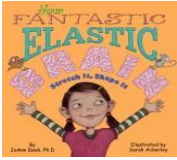
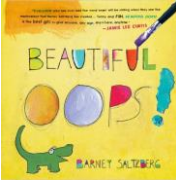
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Process Praise—Praise that emphasizes *effort, strategies, or actions*

Praising the process, not the product	Trying many strategies	Persistence
Praise for challenge seeking	Enjoying difficulty	Enjoying mistakes

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How can teachers support Growth Mindset in preschoolers?

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Why Math Games?

- Are fun and engaging
- Spark big mathematical ideas
- Promote problem-solving
- Promote persistence
- Support social-emotional skills
- Build math vocabulary

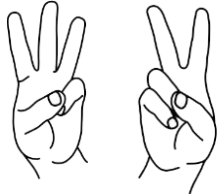
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Math Games List

- **Dot Cards**
- **Lily Pads**
- **Two Numbers**
- Pattern Block Puzzles
- Patterns
- How Many are Hiding?
- Shape Card Games

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Numbers, Numbers, 1, 2, 3. How many do you see?



*Drawings of hands by Melody Hachey, EDC

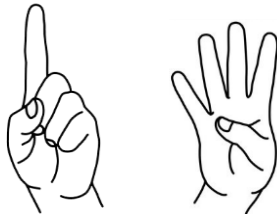
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Can you show 5 fingers a different way?



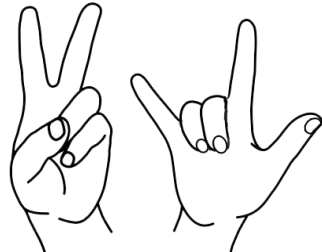
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Can you show 5 fingers a different way?



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Can you show 5 fingers a different way?



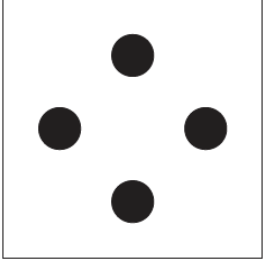
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Let's play a game: Quick Images

- Flash a card for 1 second
- Show with your fingers the number of dots you see as quickly as you can

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Quick Images

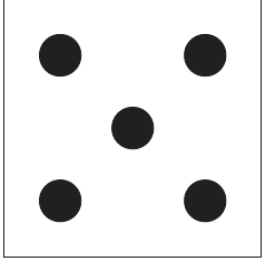


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How many did you see?
Show with your fingers.

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Quick Images

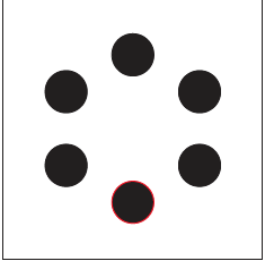


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How many did you see?
Show with your fingers.

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Quick Images



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How many did you see?
Show with your fingers.

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Which arrangement of dots was the hardest for you?

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Subitizing and Chunking
Seeing how many quickly

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Can you find?

...a card with 2 dots?
...a card with 3 dots?
...a card that doesn't belong?

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Can you find?

...a card with the same number of dots as mine?
...a card with one more dot than mine?
...a card with one less dot than mine?

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Play Dot Card Games

1. How many do you see? (Fingers)
2. Cover the dots
3. Can you find?
4. Quick images
5. Which one doesn't belong?
6. Match the number
7. Make the image
8. Memory (Concentration) game

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Dot Card Games: About the Math

Focus on number sense and quantity:

- Counts in the correct order
- One-to-one correspondence when counting
- Cardinality (identify number of items in a group)
- Subitizing (identify small number of objects without counting)
- Connect meaning to written numerals

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Play *Jumping on the Lily Pads*

Object: Jump to the 5 (or 10) and go for a swim

1. Place your frog on "home"
2. Take turns rolling the dot cube (say the number you rolled)
3. Move that number of spaces on the board until you get to the pond
4. If you choose... jump back to home
NOW IT IS YOUR TURN TO PLAY!!!!

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Play the game on the floor!



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About the Math: *Jumping on the Lily Pads*

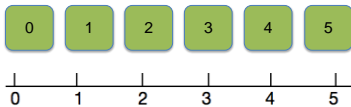
Focus on Number

- Number Magnitude
- Recognize written numerals
- One-to-one correspondence when counting (and jumping!)
- Subitizing: Immediately knowing how many
- Composing and decomposing numbers

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Number Magnitude: Mental Number Line

@ 3 years	@ 4 years Preschool	@ 5 years Preschool	@ 6 years End of K
Compares collections less than 5: i.e. 4 is more than 2, etc.	Beginning to have a mental number line to 5	Mental number line to 5	Mental number line to 10



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Two Numbers Game

Object: Turn all your cards face down.

1. Arrange your cards in order.
2. Rolling the dot cube(s) and turn over cards.
 - Say the number of dots on each die
 - Turn over the numbers you see
 - OR
 - Add the numbers together
3. If no card can be turned, wait for the next roll.

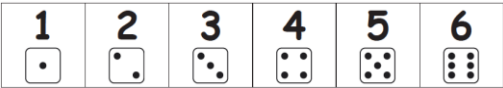
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Two Numbers Games Progression

Game	Materials
Put the cards in order	1 to 6 cards
Play 1-6 with 1 die (1-3 dots)	1 to 6 cards, 1 die with 1-3
Play 1-6 with 2 dice (1-3 dots)	1 to 6 cards, 2 dice with 1-3 dots
Play 1-12 with 2 dice	1 to 12 cards, 2 regular dice
*Play 0-12 with 2 dice (subtraction)	0 to 12 cards, 2 regular dice

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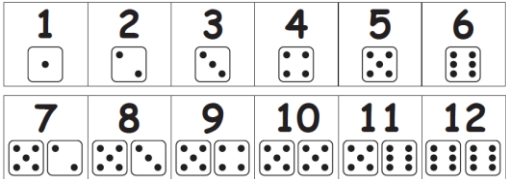
Number Path Board



- Use board for children who have a hard time with cards
- 1 die OR 2 - 1 to 3 dice
- Piece of paper to cover numbers OR laminate and use dry erase marker

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Number Path Board



- 2 dice

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About the Math

Focus on Number

- Recognize written numerals
- One-to-one correspondence when counting
- Subitizing: Immediately knowing how many
- Compare numbers
- Composing and decomposing numbers

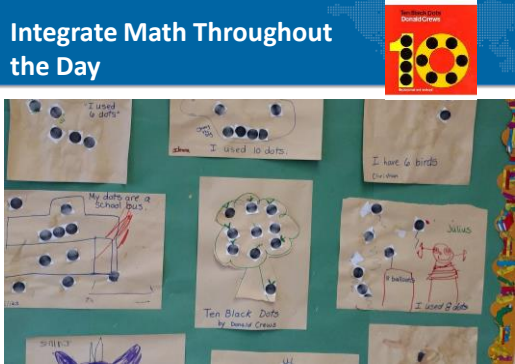
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Suggestions: How to Math Games

- Materials
- Picture book
- Suggested plan for games
- Questions to ask
- Praise the process

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Integrate Math Throughout the Day



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Take Home Points

- Repeated exposure to math games improves children's math knowledge.
- Games are an authentic assessment: Teachers learn more about children's math knowledge.
- Children use more math into their free play when math is a regular part of the classroom.
- Games are a fun way to include more math in preschool classrooms.

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Math Resources

- *Young Mathematicians* website (includes links to all math game materials)
– <http://youngmathematicians.edc.org/>
- Article: Stipek, D., Schoenfeld, A., & Gomby, D. (2012). *Math matters, even for little kids*. Education Week.
- *Math at Play* website
– <http://www.mathatplay.org/>

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Contact Information

Christina Silvi, csilvi@edc.org
401-734-1285

Lori Coletti, lcoletti@edc.org
401-734-1298

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