

Math During Recess: Strengthening Number Sense through Teacher-Guided Play

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Why play?

- Play is essential!

- Piaget - interacting with surroundings
- Vygotsky – social surroundings
- Bandura – learning from one another



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Play v. Teacher Guided Play

- Play should be spontaneous & child-guided
- Teacher-Guided Play
 - Provide materials with teacher guidance
 - Encouraging certain games, vocabulary during play, and inclusion of others
 - Not to be done constantly
 - Leads to child-initiated play with friends



Early Number Sense & Games

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- This particular project
 - Subitizing
 - Symbol recognition
 - One-to-one correspondence
 - Measurement (vocabulary)



CCSSM: Kindergarten Standards

- Meets all but 1 “Counting and Cardinality” Kindergarten standard (unless you want them to find 100 of something)
 - 1-to-1 Correspondence
 - Subitizing
 - Can also include more/less/greater
- Meets the “Classify objects” standard in “Measurement and Data”



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NAEYC Standards

– Curriculum

- Meets developmental needs
- Encourages curiosity & options to experiment

– Teaching

- Inclusion of indoor and outdoor activities
- Inclusion of work and play as individuals and groups
- Modification of strategies based upon interests/needs of the child

– Assessment

- Variety
- Appropriateness to development (checklist)
- Intended to show growth

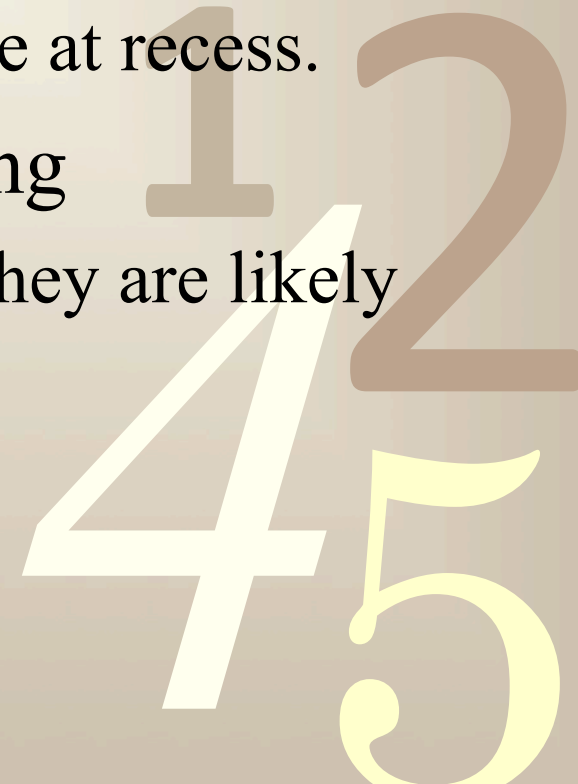


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Assessment

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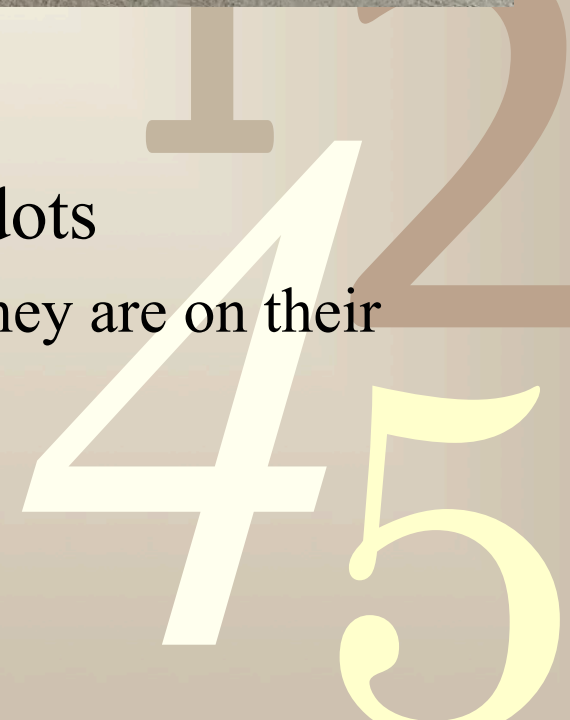
- All are suited best for checklists
 - If they are playing, we have to be quick.
 - Assessment must be easy if we are at recess.
- Great for standards-based grading
 - If they are leading on their own, they are likely to be “getting it.”



Nature Hunt

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- What you need
 - Chalk and time
- What is the game?
 - Scavenger hunt
 - Boxes drawn with numerals and dots
 - Dots make it self-correcting when they are on their own

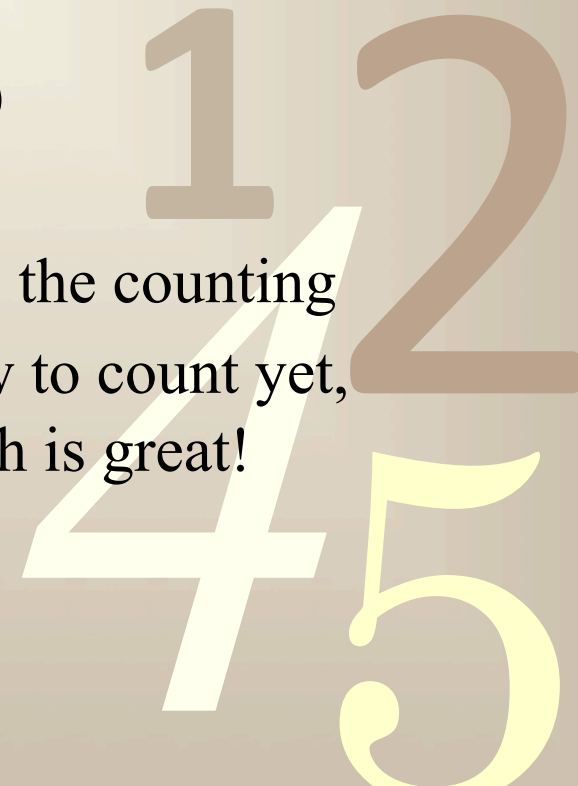


Nature Hunt

- To maximize success

SMALL GROUPS

- Don't herd cats
- Model & Think Aloud
 - Types of objects
 - Or limit (i.e. not pieces of grass)
 - Placing objects on the dots
 - Emphasize (through thinking aloud) the counting
 - It's okay if they don't know how to count yet, grabbing too many or not enough is great!
 - Trace the numeral with a finger



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What to Assess

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- One-to-one correspondence
 - As they lay the objects down and count
- Symbol recognition
 - Removing the dots but they can still recognize the numeral
- Writing practice

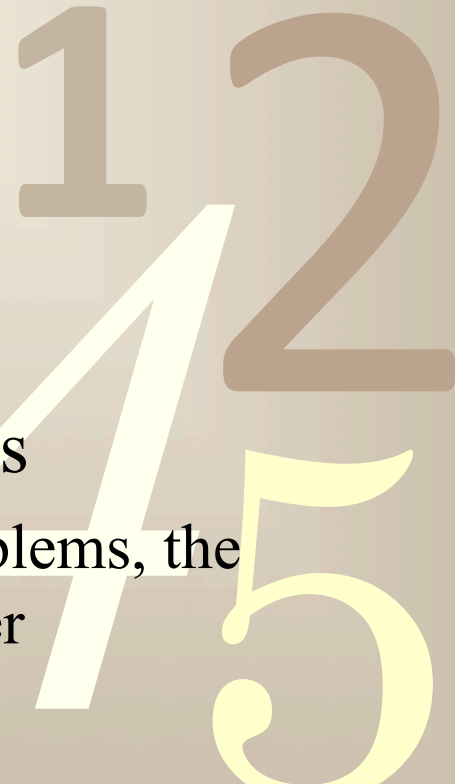
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Extending Nature Hunt

The Potential We Saw

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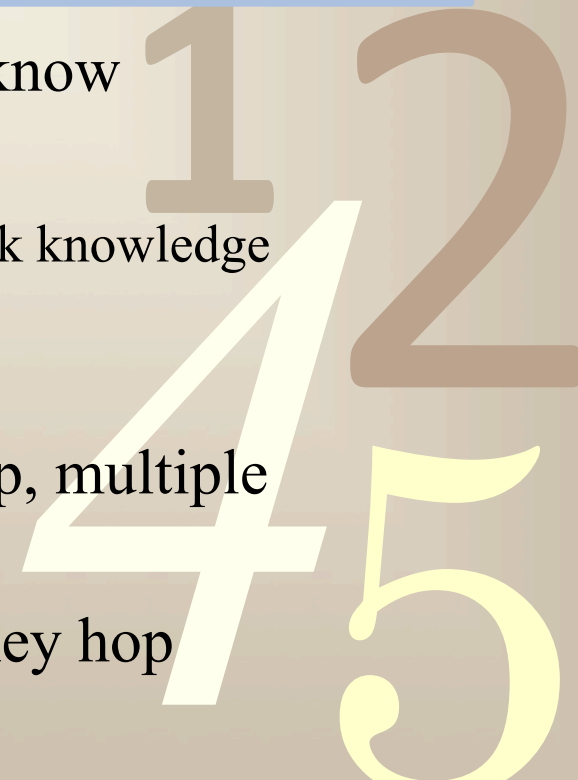
- More for Pre-K & Kindergarten
 - Grouping of objects
 - Measurement by size
- The grades beyond...
 - Adding of Objects
 - Odds and evens
 - Add to, Take from, Compare problems
 - When the teacher models “mystery” problems, the children will make them up for each other





Hopscotch Revamped

- What you need
 - Chalk
 - A Number Cube (the number depends on the age/grade)
- What is the game?
 - Set up is revamped from what some of us know
 - Different chalk set up for jumping
 - Number of circles depends upon benchmark knowledge and goal
 - Include numerals or not based on rendition
 - Can be done with whole group, small group, multiple groups at a time for competition
 - After student rolls the dice they count as they hop
 - This rendition...



Hopscotch Revamped

- To maximize success

- Large classes may require multiple games at one time while teacher guiding

- If doing this at recess, not a designated math time, try doing small groups, but welcome curious joiners.

- Model

- rolling (not throwing) of the die

- Think aloud simultaneous counting and hopping

- Relates actions to counting in lieu of matching objects with number of dots

- Could be competition-based (relay) or not

What to Assess

- Subitizing

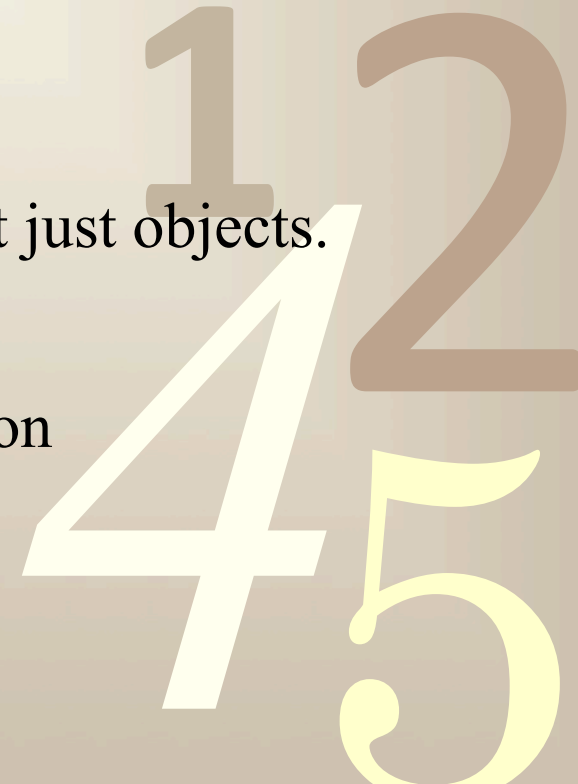
- If student doesn't automatically recognize the number represented on the die, they are not subitizing.

- 1-to-1 correspondence

- Students associate action with a number, not just objects.

- Cardinality

- Recognizing the counting number they end on



Extending Hopscotch Revamped

The Potential We Saw

- The grades beyond...
 - Switch to number line
 - Roll the dice for adding on



Mother/Teacher/Friend, May I?

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- What is the game?

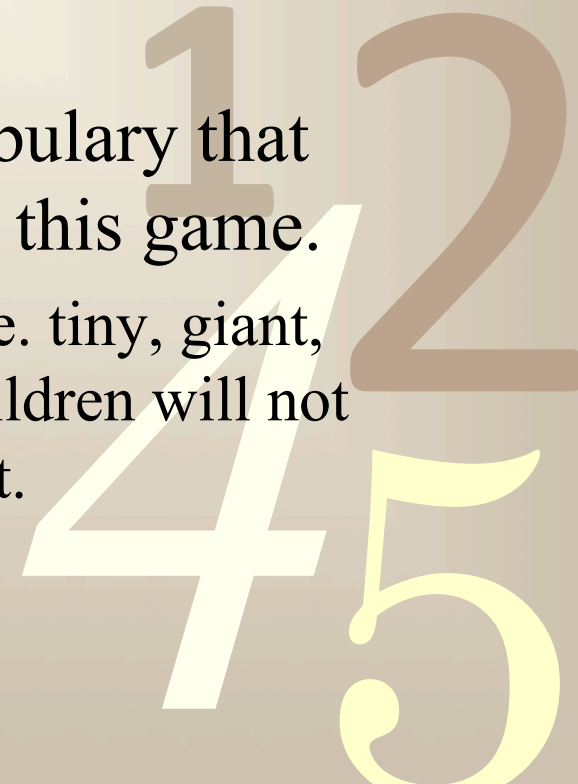
- It's a classic!

- One person acts as the “mother,” the rest are children.
- Each child takes a turn asking for permission to perform a number of movements by saying ‘Mother, May I...?’
- The mother either grants, denies the request, or modifies the request
- The first person to reach the mother becomes the next mother.

Mother May I

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- To maximize success
 - Limit the amount of students playing at one time when first learning
 - Expose students to different vocabulary that will help them succeed in playing this game.
 - Without the different vocabulary (i.e. tiny, giant, huge, fewer jumps, less, greater) children will not get to experiment with measurement.



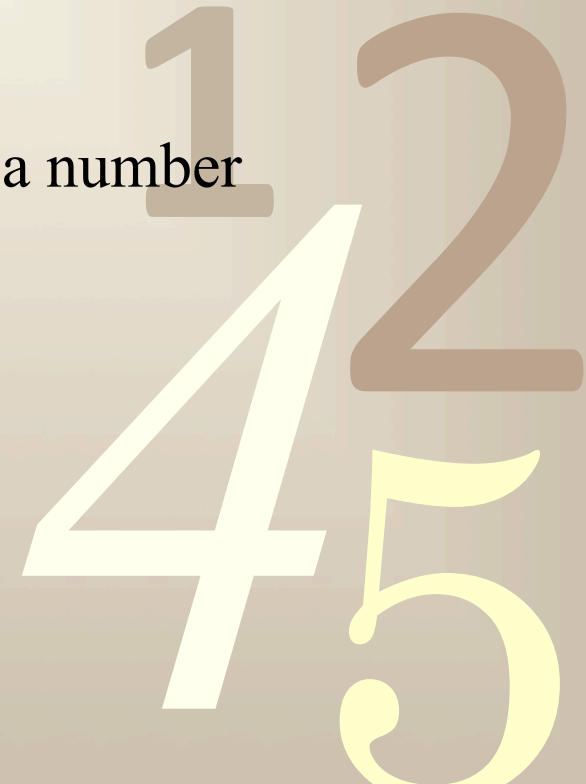
Assessment

- Measurement

- Students are working with non-standard forms of measurement
- Preparation for linkage to the need for standard forms of measurement and how to measure

- 1-to-1 correspondence

- Students are associating an action with a number



Mother May I

The Potential We Saw

- The grades beyond...
 - More adding and subtracting
 - Comparison of measurement sizes
 - Possible use of measuring tools
 - At older ages – work with positive and negative integers



What is gained?

- Community & sense of belonging
- Opportunity for repetition
- Opportunity for problem solving and productive struggle
- Making it fun, will encourage spontaneous play
- All activities presented are active
- Meeting standards during play time
 - This means you can take a longer recess, right?

Other Game Suggestions

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- Sorting sticks (Measurement)
- Finding patterns in nature
- Beach ball toss
- Number line run
- Many alternative hopscotch renditions



Questions?

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