UPK Math
Scope and Sequence
Based on the HighScope Curriculum

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Rochester City School District
Early Childhood Department

UPK Scope and Sequence
For HighScope
Math Curriculum

Objectives:

- Develop a Math timeline that supports teachers as they deliver the HighScope Math Curriculum.

- Create a Developmental Continuum for critical Math skills that aligns with the NYS Next Generation Mathematics Learning Standards (2017), COR Advantage and the HighScope Key Developmental Indicators.

- Identify HighScope resources that support Math within the Daily Routine.

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Objectives

MATHEMATICS
is not about
numbers, equations,
computations, or
algorithms:
it is about
UNDERSTANDING.

William Paul Thurston

Section 1

Rochester City School District
Early Childhood Department

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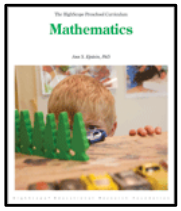
Overview for UPK Math Scope and Sequence

Section 2

Overview for UPK Scope and Sequence for

HighScope Math Curriculum



At the start of the year, teachers focus on setting up their learning environment in a way that supports children's math development. Chapter 2 of The HighScope Preschool Curriculum, Mathematics, supports teachers in selecting materials for each of the learning areas.

Teachers follow the **Math Timeline** (Tab 4) as a guide throughout the year.

For planning Small Group Time, teachers will utilize the charts **Math Small Group Activities by Content Area** (Tabs 5 & 6). These lessons are taken from the book *Lesson Plans for the First 30 Days, Numbers Plus Preschool Mathematics Curriculum Kit* and other HighScope sources.

- The chart content is in alignment with the NYS Next Generation Mathematics Learning Standards (2017), HighScope COR Advantage, and HighScope KDIs by Content Area.
- For each lesson, the symbols indicate the content area(s) teachers should be observing and recording COR anecdotes.

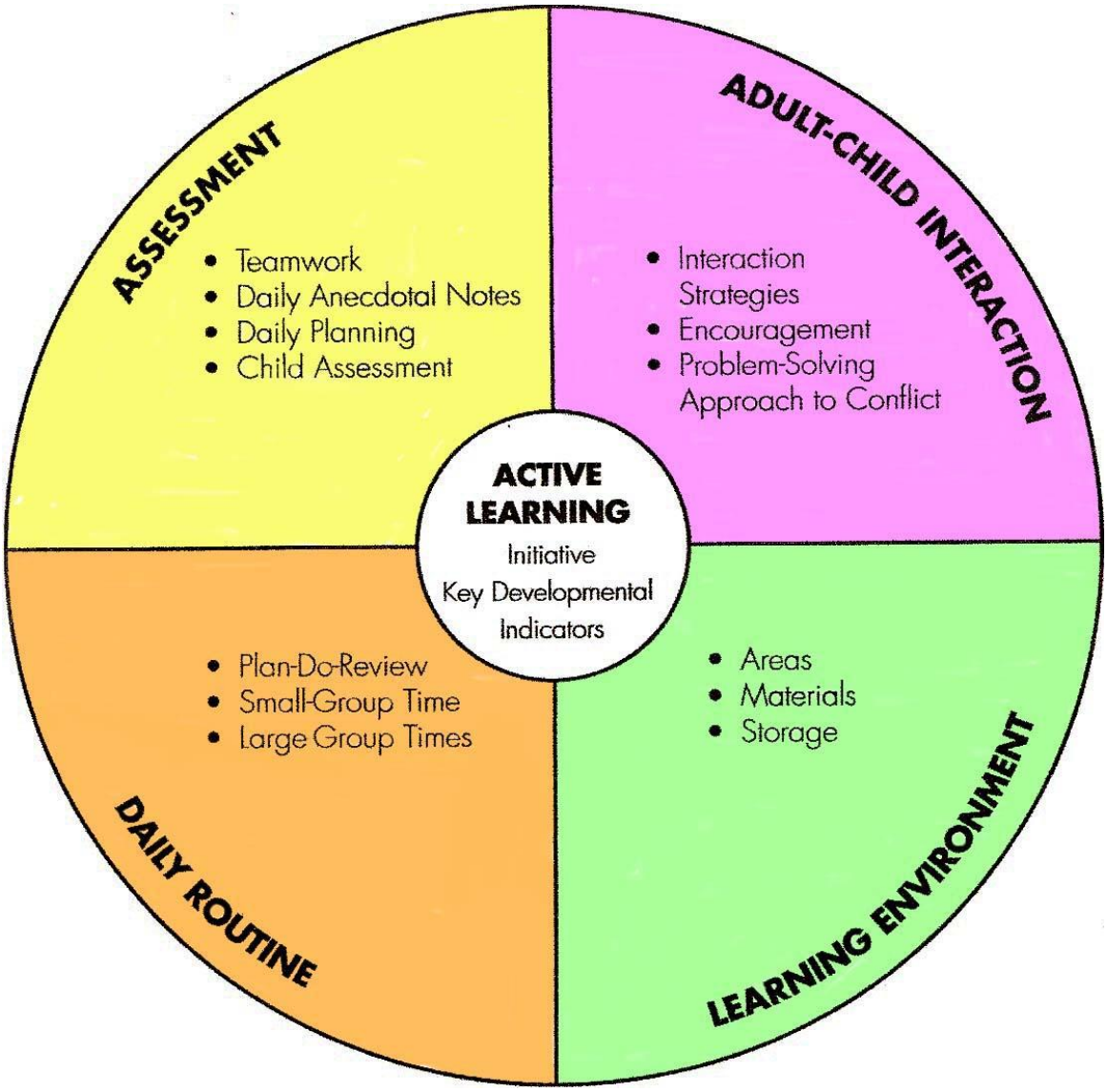
The Mathematical Developmental Continuums (Tab 7) are tied to COR Advantage and were developed to support teachers in their understanding of the mathematical milestones from beginning development to the kindergarten entry point. Each of the five continuums, **Numbers and Counting, Geometry and Spatial Awareness, Measurement, Algebra/Patterns and Sequence** and **Data Analysis,** are tied to the Small Group Activities by Content Area (Tabs 5&6) by their symbol.

- In addition, the continuums can be used as a checklist to track children's progress. At the pausing point, this data would then be input into COR Advantage.
- The **Mathematical Developmental Continuum** was designed using information from the following resources: HighScope COR Advantage, NYS Next Generation Math Standards (2017), RCSD Math Stage Cards, (developed in 1996) and the Common Core Curriculum Map in Mathematics (draft).
- The COR Advantage levels are identified on the chart, i.e. S-0, S-1. The detailed COR Advantage Scoring Guide for the content area follows each section.

The **Math Resource Guide for the Daily Routine** (Tab 8) can be used to infuse math into all the components of the Daily Routine.

Also provided for reference is the **NYS Next Generation Mathematics Learning Standards (2017)** (Tab 9).

The HighScope Preschool Wheel of Learning



The Five Ingredients of Active Learning

Materials: Children are offered an abundance of diverse, age-appropriate materials. The materials are open-ended, lending themselves to be used in a variety of ways. This helps to expand children's experiences and stimulate their thoughts. Since preschool children deal with the world in concrete terms, the materials will help them pose and answer math questions.

Manipulation: Children handle, examine, combine and transform materials and ideas. They make discoveries through hands-on exploration.

Choice: Children make choices about what to do with the materials based on their interests, needs and abilities.

Child Language and Thought: Children are encouraged to describe what they are doing and articulate their understanding of what they observe. They communicate both verbally and nonverbally as they think about their work and modify their exploration.

Adult Scaffolding: Adults support children's current level of thinking and challenge them to advance to the next stage of understanding and reason.

The HighScope Preschool "Wheel"

HighScope Preschool Curriculum Content

Key Developmental Indicators

A. Approaches to Learning

1. **Initiative:** Children demonstrate initiative as they explore their world.
2. **Planning:** Children make plans and follow through on their intentions.
3. **Engagement:** Children focus on activities that interest them.
4. **Problem solving:** Children solve problems encountered in play.
5. **Use of resources:** Children gather information and formulate ideas about their world.
6. **Reflection:** Children reflect on their experiences.

B. Social and Emotional Development

7. **Self-identity:** Children have a positive self-identity.
8. **Sense of competence:** Children feel they are competent.
9. **Emotions:** Children recognize, label, and regulate their feelings.
10. **Empathy:** Children demonstrate empathy toward others.
11. **Community:** Children participate in the community of the classroom.
12. **Building relationships:** Children build relationships with other children and adults.
13. **Cooperative play:** Children engage in cooperative play.
14. **Moral development:** Children develop an internal sense of right and wrong.
15. **Conflict resolution:** Children resolve social conflicts.

Key developmental indicators (KDIs) are the building blocks of thinking, reasoning, and learning at each stage of development.

C. Physical Development and Health

16. **Gross-motor skills:** Children demonstrate strength, flexibility, balance, and timing in using their large muscles.
17. **Fine-motor skills:** Children demonstrate dexterity and hand-eye coordination in using their small muscles.
18. **Body awareness:** Children know about their bodies and how to navigate them in space.
19. **Personal care:** Children carry out personal care routines on their own.
20. **Healthy behavior:** Children engage in healthy practices.

D. Language, Literacy, and Communication[1]

21. **Comprehension:** Children understand language.
22. **Speaking:** Children express themselves using language.
23. **Vocabulary:** Children understand and use a variety of words and phrases.
24. **Phonological awareness:** Children identify distinct sounds in spoken language.
25. **Alphabetic knowledge:** Children identify letter names and their sounds.
26. **Reading:** Children read for pleasure and information.
27. **Concepts about print:** Children demonstrate knowledge about environmental print.
28. **Book knowledge:** Children demonstrate knowledge about books.
29. **Writing:** Children write for many different purposes.
30. **ELL/Dual Language Acquisition:** (If applicable) Children use English and their home language(s) (including sign language).

E. Mathematics

31. **Number words and symbols:** Children recognize and use number words and symbols.
32. **Counting:** Children count things.
33. **Part-whole relationships:** Children combine and separate quantities of objects.
34. **Shapes:** Children identify, name, and describe shapes.
35. **Spatial awareness:** Children recognize spatial relationships among people and objects.
36. **Measuring:** Children measure to describe, compare, and order things.
37. **Unit:** Children understand and use the concept of unit.
38. **Patterns:** Children identify, describe, copy, complete, and create patterns.
39. **Data analysis:** Children use information about quantity to draw conclusions, make decisions, and solve problems.

F. Creative Arts

40. **Art:** Children express and represent what they observe, think, imagine, and feel through two- and three-dimensional art.
41. **Music:** Children express and represent what they observe, think, imagine, and feel through music.
42. **Movement:** Children express and represent what they observe, think, imagine, and feel through movement.
43. **Pretend play:** Children express and represent what they observe, think, imagine, and feel through pretend play.
44. **Appreciating the arts:** Children appreciate the creative arts.

G. Science and Technology

45. **Observing:** Children observe the materials and processes in their environment.
46. **Classifying:** Children classify materials, actions, people, and events.
47. **Experimenting:** Children experiment to test their ideas.
48. **Predicting:** Children predict what they expect will happen.
49. **Drawing conclusions:** Children draw conclusions based on their experiences and observations.
50. **Communicating ideas:** Children communicate their ideas about the characteristics of things and how they work.
51. **Natural and physical world:** Children gather knowledge about the natural and physical world.
52. **Tools and technology:** Children explore and use tools and technology.

H. Social Studies

53. **Diversity:** Children understand that people have diverse characteristics, interests, and abilities.
54. **Community roles:** Children recognize that people have different roles and functions in the community.
55. **Decision making:** Children participate in making classroom decisions.
56. **Geography:** Children recognize and interpret features and locations in their environment.
57. **History:** Children understand past, present, and future.
58. **Ecology:** Children understand the importance of taking care of their environment.

[1]Language, Literacy, and Communication KDIs #21–30 may be used for the child's home language(s) as well as English. KDI #30 refers specifically to ELL/Dual Language Acquisition.

HighScope Infant-Toddler Curriculum Content

Key Developmental Indicators

A. Approaches to Learning

1. **Initiative:** Children express initiative.
2. **Problem solving:** Children solve problems encountered in exploration and play.
3. **Self-help:** Children do things for themselves.

B. Social and Emotional Development

4. **Distinguishing self and others:** Children distinguish themselves from others.
5. **Attachment:** Children form an attachment to a primary caregiver.
6. **Relationships with adults:** Children build relationships with other adults.
7. **Relationships with peers:** Children build relationships with peers.
8. **Emotions:** Children express emotions.
9. **Empathy:** Children show empathy toward the feelings and needs of others.
10. **Playing with others:** Children play with others.
11. **Group participation:** Children participate in group routines.

C. Physical Development and Health

12. **Moving parts of the body:** Children move parts of the body (turning head, grasping, kicking).
13. **Moving the whole body:** Children move the whole body (rolling, crawling, cruising, walking, running, balancing).
14 **Moving with objects:** Children move with objects.
15. **Steady beat:** Children feel and experience steady beat.

D. Communication, Language, and Literacy

16. **Listening and responding:** Children listen and respond.
17. **Nonverbal communication:** Children communicate nonverbally.
18. **Two-way communication:** Children participate in two-way communication.
19. **Speaking:** Children speak.
20. **Exploring print:** Children explore picture books and magazines.
21. **Enjoying language:** Children enjoy stories, rhymes, and songs.

E. Cognitive Development

22. **Exploring objects:** Children explore objects with their hands, feet, mouth, eyes, ears, and nose.
23. **Object permanence:** Children discover object permanence.
24. **Exploring same and different:** Children explore and notice how things are the same or different.
25. **Exploring more:** Children experience "more."
26. **One-to-one correspondence:** Children experience one-to-one correspondence.
27. **Number:** Children experience the number of things.
28. **Locating objects:** Children explore and notice the location of objects.
29. **Filling and emptying:** Children fill and empty, put in and take out.
30. **Taking apart and putting together:** Children take things apart and fit them together.
31. **Seeing from different viewpoints:** Children observe people and things from various perspectives.
32. **Anticipating events:** Children anticipate familiar events.
33. **Time intervals:** Children notice the beginning and ending of time intervals.
34. **Speed:** Children experience "fast" and "slow."
35. **Cause and effect:** Children repeat an action to make something happen again, experience cause and effect.

F. Creative Arts

36. **Imitating and pretending:** Children imitate and pretend.
37. **Exploring art materials:** Children explore building and art materials.
38. **Identifying visual images:** Children respond to and identify pictures and photographs.
39. **Listening to music:** Children listen to music.
40. **Responding to music:** Children respond to music.
41. **Sounds:** Children explore and imitate sounds.
42. **Vocal pitch:** Children explore vocal pitch sounds.

Key developmental indicators (KDIs) are the building blocks of thinking, reasoning, and learning at each stage of development.

Mathematics: A Summary

General teaching strategies for mathematics

- Provide a wide variety of mathematics materials in every area of the classroom.
- Converse with children using mathematics words and terms.
- Encourage children to use mathematics to answer their own questions and solve their own problems.
- Pose challenges that encourage mathematical thinking.

Teaching strategies that support using number words and symbols

- Use numeral words to describe everyday materials and events.
- Call attention to numerals (number symbols) in the environment.
- Encourage children to write numerals.

Teaching strategies that support counting

- Count and compare everything.
- Provide materials to explore one-to-one correspondence.
- Engage children in simple numerical problem-solving.

Teaching strategies that support understanding part-whole relationships

- Provide materials that can be grouped and regrouped.
- Provide materials that can be taken apart and put back together.

Teaching strategies that support naming and using shapes

- Provide shapes for children to see and touch.
- Encourage children to create and transform shapes and observe and describe the results
- Name shapes and the actions children use to transform them.

Teaching strategies that support spatial awareness

- Provide materials and plan activities that encourage children to create spaces.
- Encourage children to handle, move and view things from different perspectives.
- Use and encourage children to use words that describe position, direction and distance.

Teaching strategies that support measuring

- Support children's interest in identifying and comparing measurable attributes.
- Encourage children to estimate quantities
- Use and encourage children to use measurement words.

Teaching strategies that support an understanding of unit

- Support children's use of conventional and unconventional measuring tools.
- Model accurate measuring techniques.

Teaching strategies that support an understanding of patterns

- Provide opportunities for children to recognize and describe patterns in the environment.
- Provide materials and opportunities that lend themselves to creating patterns.
- Look for opportunities to have fun with patterns.

Teaching strategies that support data analysis

- Provide opportunities to sort and count things and to describe and apply the results.
- Help children represent data using lists, tabulation, charts, and graphs.
- Ask and encourage children to ask questions that can be answered by gathering data.

HighScope Preschool Curriculum[i] *Mathematics* Ann S. Epstein PhD

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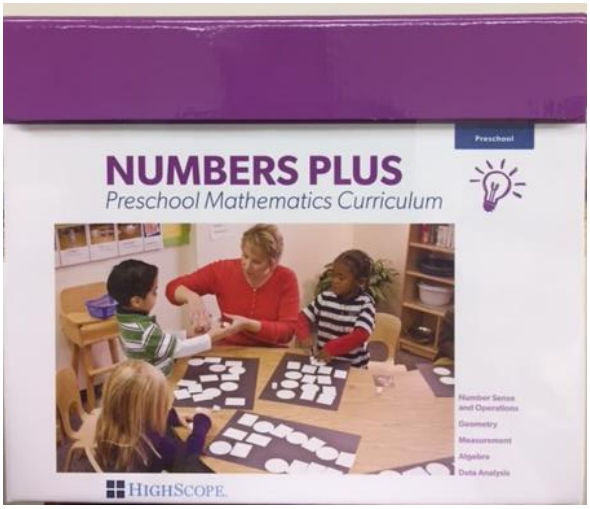
Numbers Plus Information



"*Numbers Plus*, a content-rich curriculum of primarily small-group activities, is sequenced *within* activities, rather than across. Each math activity is created so that children of all developmental and ability levels can share in the activity and each child can have a successful and valuable learning experience."[1]

[1] Numbers Plus Teacher's Manual, p. 7

Numbers Plus Information

Numbers Plus is a set of 120 developmentally based activities addressing the math content areas: Number Sense and Operation, Geometry, Measurement, Algebra and Data Analysis.

- Each activity is sequenced so that children of different developmental and ability levels can participate together

- Each card identifies
  - The content area
  - A list of materials needed
  - The opening statement
  - Ideas for what to do during the middle of the activity
  - Ideas for bringing the lesson to a close
  - On the back of the card is a description of the developmental range of what children might say and do during these stages, ideas how adults can scaffold, and ideas for follow-up to extend the lesson into all learning areas of the classroom

- Please be sure to read pages 2 – 10 in the Teacher's Manual

- Included in the Numbers Plus boxed set, is the parent booklet, "Helping Your Young Child Learn About Mathematics." These can be ordered separately each year for your group of children.

Numbers Plus Activity Grid

The 120 Numbers Plus activities each address one primary content area and one or more topics within that area. These are listed at the beginning of the activity. Topics from other content areas (if any) are also listed. At the end of each activity, other activities that address the same or related topics are listed. While a few activities build on prior ones, most can be done in any order. (See Chapter 3, "Activity Plan," for a description and sample activity.) The following grid summarizes this information; that is, it lists the primary area and topic(s), and any other content area(s) and topic(s) covered in each of the Numbers Plus activities. Use the grid to help you plan activities that provide children with math experiences that address *different* areas and topics, as well as those that follow up and extend children's explorations in the *same* or related subjects. Children need both.

Numbers Plus Activity Grid

(by Content Areas and Topics)

NUMBER SENSE & OPERATIONS						
Title of Activity	*Number Words & Symbols*	*Counting*	*Comparing & Ordering (Quantity)*	*Composing & Decomposing*	*Addition & Subtraction*	*Other Content Areas & Topics*
[illegible]						
2. Bears on a Boat		X			X	
[illegible]						
4. Bowling and Beanbags		X	X		X	
[illegible]						
6. Button Drop	X	X	X	X		*Data Analysis:* Representing
[illegible]						
8. Cake Cutting		X	X	X		
[illegible]						
10. Counting Shapes on Pizza		X	X			*Geometry:* Shape
[illegible]						
12. Dinosaur Hunt	X	X	X			
[illegible]						
14. Dot Cards and Numerals	X	X				
[illegible]						

NUMBER SENSE & OPERATIONS (CONT.)						
Title of Activity	*Number Words & Symbols*	*Counting*	*Comparing & Ordering (Quantity)*	*Composing & Decomposing*	*Addition & Subtraction*	*Other Content Areas & Topics*
16. Going Shopping	X	X	X			
17. Hickory Dickory Dock	X	X				
18. How Many Pennies?		X				*Data Analysis:* Representing
19. How Many Sleep Mr. Fox?	X	X				
20. Keeping Score	X	X				*Data Analysis:* Representing
21. More Than Counting Arrangements	X	X				
22. Magic Trick: More or Less	X	X			X	
23. Number Fish: Bigger and Smaller	X	X				
24. Number Fish: Line Them Up	X	X	X			
25. Numbers for Sums and Cubs	X	X			X	
26. Numeral Hopscotch	X					*Data Analysis:* Representing
27. Numeral Hunt	X	X				
28. Numerals in Newspapers	X					
29. Numeral Soup	X	X				
30. Roll of the Dice		X	X		X	
31. Shopping Lists	X	X				
32. Spinning for Dollars		X			X	
33. Swimming Bears	X				X	
34. Ten in the Bed	X	X		X	X	
35. Ten Little Boggles	X	X				
36. Too Many or Too Few Bears	X	X	X	X	X	

GEOMETRY				
Title of Activity	*Shape*	*Transformation*	*Spatial Reasoning*	*Other Content Areas & Topics*
2. Comparing Shapes	X	X		
4. Feeling Shapes: What Are They?	X			
6. Flip-and-Turn Worms		X	X	
8. I Spy Shapes	X			
10. Making Shapes	X			
12. Musical Shapes	X		X	
14. Pattern Block Critters	X	X	X	
16. Shape Hopscotch	X			*Data Analysis:* Representing
18. Shape Museums	X	X		
20. Shape Pictures	X	X	X	
22. Shape Stories	X	X	X	
24. Treasure Hunt			X	*Number:* Comparing & Ordering (Quantity)

GEOMETRY (CONT.)				
Title of Activity	*Shape*	*Transformation*	*Spatial Reasoning*	*Other Content Areas & Topics*
26. Turn Like a Clock		X		
26. Where Does It Go?			X	*Data Analysis:* Representing, Interpreting & Applying
27. Wrapping Presents	X		X	

MEASUREMENT				
Title of Activity	*Measure-ment Terms*	*Unit*	*Comparing & Ordering (Attributes)*	*Other Content Areas & Topics*
1. Finding Friends				*Geometry:* Spatial Reasoning
2. Clifford's House: Building	X		X	
3. Clifford's House: Measuring	X	X	X	
4. Color Recipes	X			*Number:* Numbers Words & Symbols *Data Analysis:* Representing
5. Construction Zone: Height	X	X	X	
6. Construction Zone: Width	X	X	X	
7. Cuisenaire Stairs	X		X	
8. Fill It Up	X	X	X	
9. How Far Can I Jump?		X	X	*Data Analysis:* Organizing & Comparing, Representing
10. How Long Is a Minute?	X			*Number:* Numbers Words & Symbols *Data Analysis:* Describing
11. How Many Spoons?	X	X	X	
12. How Many Squirts?		X	X	
13. How Tall Am I?		X	X	*Data Analysis:* Organizing & Comparing, Representing
14. How Tall Is My Teacher?		X	X	*Data Analysis:* Organizing & Comparing, Representing
15. Human Rulers	X	X	X	
16. Less Than One Unit	X	X	X	

MEASUREMENT (CONT.)				
Title of Activity	*Measurement Terms*	*Unit*	*Comparing & Ordering (Attributes)*	*Other Content Areas & Topics*
17. Mixing Colors	X		X	[illegible]
18. More Than One Unit	X	X	X	
19. Skyscraper	X	X	X	Number: Counting
20. Straw Poll	X	X	X	
21. Tablecloth	X		X	
22. Toy Soup	X	X	X	*Data Analysis:* Organizing & Comparing
23. Turkey Baster	X		X	
24. What Time of Day Is It?	X		X	
25. Which Weighs More?	X		X	

ALGEBRA			
Title of Activity	*Alternating Patterns*	*Increasing & Decreasing Patterns*	*Other Content Areas & Topics*
1. Animal Parade	X		*Number:* Number Words & Symbols
2. Animal Paths	X		
3. Borders and Frames	X		*Geometry:* Spatial Reasoning
4. Family Drawings		X	*Number:* Number Words & Symbols *Geometry:* Spatial Reasoning *Data Analysis:* Describing, Organizing & Comparing
5. Fence Weaving	X		*Geometry:* Spatial Reasoning
6. Fruit Stand	X		
7. I Spy Patterns	X		
8. Jump, Clap	X		
9. Line Them Up	X	X	
10. Movement Patterns	X		
11. Musical Patterns	X		
12. Paint Chips		X	*Number:* Counting
13. Rhythm Stick Patterns	X		
14. Shades of Paint		X	*Measurement:* Measurement Terms *Data Analysis:* Organizing & Comparing
15. Shape Caterpillars	X		*Geometry:* Shape
16. Toothpicks and Beads	X		*Number:* Counting

DATA ANALYSIS					
Title of Activity	*Describing*	*Organizing & Comparing*	*Representing*	*Interpreting & Applying*	*Other Content Areas & Topics*
1. Bear Families	X	X	X	X	
2. Chocolate Milk		X	X	X	*Measurement:* Unit
3. Collage Creations	X	X	X	X	
4. Does It Look Like Us?	X	X	X	X	
5. Fascinating Fasteners	X	X	X	X	
6. Favorite Colors		X	X	X	*Number:* Comparing & Ordering (Quantity)
7. How Did You Build That?		X	X	X	
8. How Many Did You See?			X	X	*Number:* Counting
9. Inventory	X	X	X	X	*Number:* Counting, Comparing, & Ordering (Quantity)
10. Laundry Lessons	X	X			*Measurement:* Measurement Terms
11. Numeral Race	X		X	X	*Number:* Number Word & Symbols
12. Play Dough Snowmen	X		X	X	*Geometry:* Shape
13. Strike Up the Band	X	X			*Number:* Comparing & Ordering (Quantity)
14. Taste Test			X	X	
15. Teddy Bears	X	X	X	X	
16. What Are You Wearing?	X	X	X	X	

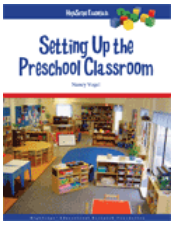
Math Time Line

"Above all, the adult must continually find fresh ways to stimulate the child's activity and be prepared to vary his or her approach as the child raises new questions or imagines new solutions."

--Piaget (1972, pp. 20-21)

Section 4

UPK MATH TIMELINE



BEFORE THE FIRST DAY

- Use the HighScope book*, Setting up the Preschool Classroom*, as a guide. Pay special attention to p. 64 – 66: "Equipment and Materials for the Toy Area"
    - Decide on math materials that will be accessible to children for the first thirty school days
    - Label shelves and containers – This correlates with Math COR Advantage Item V - Patterns (children begin to discover same and different, sorting)
- Post HighScope area signs – This correlates with Math COR Advantage Item T - Geometry and Spatial Awareness
- Post HighScope Daily routine – This correlates with Math COR Advantage Item U - Measurement
- Gather and familiarize yourself with the following teaching books and resources:
    - *HighScope's Lesson Plans for the First 30 Days*
        - ➢ *Also see the Motor Skills Support (Tab 10)*
    - **Mathematics Developmental Continuum**
    - COR Advantage Mathematics Section (Items S,T,U,V,W)
    - Numbers Plus Kit
        - ➢ Numbers Plus Teacher's Manual (Chapter 2 "Curriculum Content and Teaching Strategies" and Chapter 4, "Mathematics at Home")
        - ➢ Note the Activity Grid p. 25 - 32 in the Number's Plus Teacher's Manual for an overview of all lesson cards
        - ➢ Numbers Plus parent booklet, *"Helping Your Young Child Learn About Mathematics"* (distribute to parents during Session 2 – see below). These can be ordered from HighScope once the first set has been distributed to parents

SESSION 1 (Days 1-30; Pause Days 28-30)

- Use the chart **Math Small Group Activities by Content Area Session 1** to plan your small group activities (Tab 5)
- Begin with activities from *Lessons Plans for the First 30 Days* and then move on to lessons from the *Numbers Plus Kit*
- Note your observations for each child as you complete each small group lesson (see p. 84 in HighScope Lesson Plans for the First 30 Days on how to write an anecdote)
- Adjust activities as needed for your particular group of children
- Extend content into all parts of the daily routine (see p. 3 in *Numbers Plus Kit Teacher's Manual)*

- Once a child has been in school at least two weeks, you can begin to administer the Brigance screening tool, noting math items; you can use information gained from the Brigance screening for anecdotes in COR Advantage
- The **NYS Next Generations Mathematics Learning Standards (2017) Aligned with Math Developmental Continuum** (Tab 9) is available for you as a reference and/or to use for lesson plans

- Pause and Reflect (days 28-30)
    - What did you learn about your students and yourself?
    - What worked for your group? What needs adjustments or tweaking?
    - What action do you need to take to individualize for children's developmental levels?
    - Have you identified any changes that need to be made in routine, environment or strategies?
    - What items in COR Advantage have you missed? Fill in the gaps.
    - Using COR Advantage, see where your children are and what should come next within the content and topics addressed in Math.

SESSION 2

- Use the chart **Math Small Group Activities by Content Area Session 2** to plan your small group activities (Tab 6)
- Note your observations for each child as you complete each small group lesson (see p. 84 in HighScope Lesson Plans for the First 30 Days on how to write an anecdote)
- Adjust activities as needed for your particular group of children
    - Reference the COR Advantage Developmental Range Report to support you in scaffolding your lessons (Tab 6)
- Extend content into parts of the day (see p. 3 in *Numbers Plus Teacher's Manual)*
- Begin reading the *HighScope Preschool Curriculum Mathematics* book
- Pause and Reflect (days 59-60); see questions above in Session 1
- Send home with each child a copy of the Numbers Plus parent booklet, "Helping Your Young Child Learn About Mathematics"
- Include in your monthly newsletter a fun math activity you have done in the classroom

SESSION 3 - See bullets above in Session 2

- Pause and Reflect (days 89-90); see questions above in Sessions 1
- Include in your monthly newsletter a fun math activity you have done in the classroom

SESSION 4 AND ONGOING

- Thinking of the developmental levels and interests of your children:
    - Decide which cards you will use from the *Numbers Plus Kit*; keep in mind that activities can be repeated and scaffold for children's **current** developmental level
    - Refer to the **Math Resource Guide for the Daily Routine** (Tab 8) for suggested activities
    - Use the COR Advantage's Developmental Range Report to guide your lesson planning
    - At least weekly, input anecdotes in COR Advantage and use the revised Developmental Range Report to scaffold instruction
    - Pause and reflect on children's progress every 30 school days
    - Include in your monthly newsletter a fun math activity you have done in the classroom

UPK Math Small Group: Session 1

- Overview
- Activities by Content Area
- Materials List
- Suggested List of Mathematical Language
- Motor Skills Support

Though math learning can be informal, it should not be unplanned or haphazard. Teachers should intentionally and systematically incorporate math into the daily early childhood program routine.

"I'm Older Than You. I'm Five!" Math in the Preschool Classroom, p. xi

UPK Small Group Activities by Content Area, Session 1 – Overview

- The first 27 math small group activities were extracted from *Lesson Plans for the First 30 Days.* The order of these math activities follows the sequence of the book.

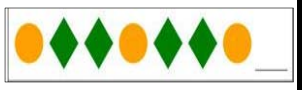
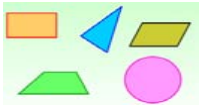
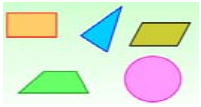
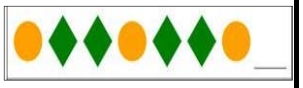
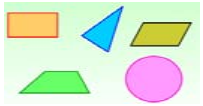
- The 14 subsequent activities are from the *Numbers Plus* kit, and were selected to support the beginning skills on the math developmental continuum.
  - ➢ As teachers begin to use these *Numbers Plus* cards, it is suggested that they consider their children's interests.
  - ➢ First, select a *Numbers Plus* content area, and then select a *Numbers Plus* lesson card.
  - ➢ **Remember to use the scaffolding information on the back of each card to support the individualized needs of the children in your room.** (Tab 3)
  - ➢ While a few of the activities build on prior ones, most can be done in any order.
  - ➢ Each card offers follow up ideas that can be used.
    - ■ Although you may pull a *Numbers Plus* card from one particular content area, the Math Small Group Activities by Content chart shows you the other areas that may be addressed when you do that activity.

- Since young children need to move in order to learn, please see the Motor Skills Support document provided to accompany Lesson Plans for the First 30 Days. These activities were developed by an occupational and a physical therapist.

- Note that the lessons in Session 1 cover all five math content areas, so you will be able to obtain COR anecdotal notes for Items S - W.

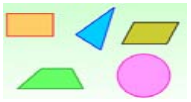
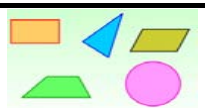
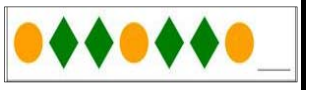
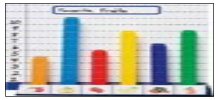
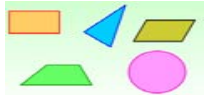
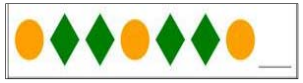
UPK Math Small Group Activities by Content Area-Session 1 (Rev 2018)

Aligned with KDI, COR Advantage and NYS Next Generation Mathematics Learning Standards (NYSNGMLS) (2017)

UPK Small-Group Activities Session 1	**Number Sense and Operations**	**Geometry**	**Measurement**	**Algebra**	**Data Analysis**
	(KDI 31, 32, 33)	**(KDI 34, 35)**	**(KDI 36, 37)**	**(KDI 38)**	**(KDI 39)**
	COR Item S	***COR Item T***	***COR Item U***	***COR Item V***	***COR Item W***
	NYS NGMLS Counting & Cardinality	NYS NGMLS – Geometry	NYS NGMLS – Measurement and Data	NYS NGMLS – Operations and Algebraic Thinking	NYS NGMLS – Measurement and Data
	• Know number names and the count sequence	• Identify and describe shapes	• Describe and compare measurable attributes	• Understand addition is adding to, and understand subtraction is taking from	• NY-PK.MD Sort objects and count the number of objects in each category
	• Count to tell number of objects	• Explore and create two- and three-dimensional objects		• Understand simple patterns	
	• Compare numbers				
First 30 Days, SGT, Exploring the Toy Area, p. 26					
First 30 Days, SGT, Exploring the Art Area, p. 26					
First 30 Days, SGT, Exploring the Block Area, p. 32					
First 30 Days, SGT, Exploring the House Area, p. 35					
First 30 Days, SGT, Where's My Lid?, p. 44					

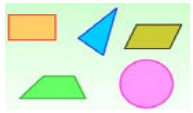
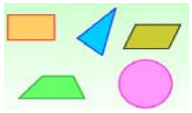
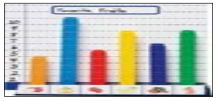
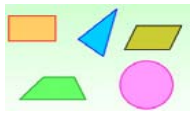
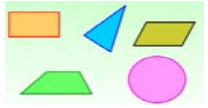
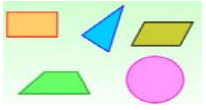
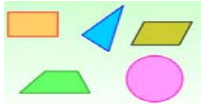
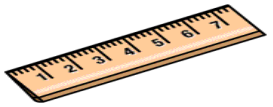
UPK Math Small Group Activities by Content Area-Session 1 (Rev 2018)

Aligned with KDI, COR Advantage and NYS Next Generation Mathematics Learning Standards (NYSNGMLS) (2017)

UPK Small-Group Activities Session 1	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
First 30 Days, SGT, Play-Doh &Cookie Cutters, p. 44					
First 30 Days, SGT, Puzzles, P. 52					
First 30 Days, SGT, Using Funnels, P. 52					
First 30 Days, SGT, Looking at Pebbles, p. 56					
First 30 Days, SGT, Bears on a Boat, p. 66					
First 30 Days, SGT, Counting Shapes on Pizza, p. 66					
First 30 Days, Shades of Paint, p. 70					
First 30 Days, SGT, Frogs on Lily Pads, p. 70					

UPK Math Small Group Activities by Content Area-Session 1 (Rev 2018)

Aligned with KDI, COR Advantage and NYS Next Generation Mathematics Learning Standards (NYSNGMLS) (2017)

UPK Small-Group Activities Session 1	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
First 30 Days, SGT, Pattern Block Critters, p. 80 (also NP Card 14, Geometry)					
First 30 Days, SGT Making Shapes, p. 80 (also NP Card 10 Geometry)					
First 30 Days, SGT, Tube Tunnels, p. 88					
First 30 Days, SGT, Dressing Babies or Animals, p. 88					
First 30 Days, SGT, Bubbles, p. 96					
First 30 Days, SGT, Foil Sculptures, p. 96					
First 30 Days, SGT, Cutting with Scissors, p. 100					
First 30 Days, SGT, Exploring Clay, p. 115					

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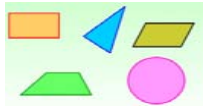
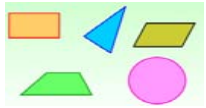
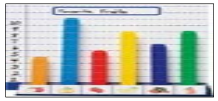
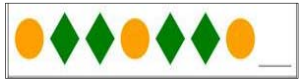
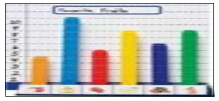
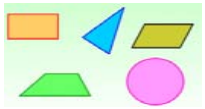
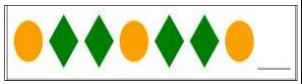
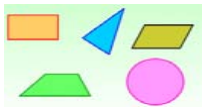
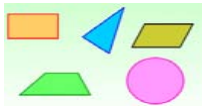
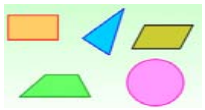
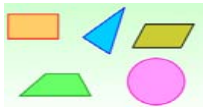
UPK Small-Group Activities Session 1	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
First 30 Days, SGT, Bear Families, p. 115					
First 30 Days, SGT, Fill it Up p. 118 (also NP Card 8, Measurement)					
First 30 Days, SGT, Shape Caterpillars p. 118 (also NP Card 15, Algebra)					
First 30 Days, SGT, Collage: Art Material & Glue, p. 134					
First 30 Days, SGT, Letter and Number Parts, p. 134					
First 30 Days, SGT, Combining Materials, p. 147					
Numbers Plus Kit, Number Sense & Operations, Card 7, "Button Pizza" Number Sense &					

UPK Small-Group Activities Session 1	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Numbers Plus Kit, Number Sense & Operations, Card 11, "Counting Song"					
Numbers Plus Kit, Number Sense & Operations, Card 34, "Ten in the Bed" [1]					
Numbers Plus Kit, Geometry, Card 20, "Shape Pictures"					
Numbers Plus Kit, Geometry, Card 3, "Cookie Cutter Shapes"					
Numbers Plus Kit, Geometry, Card 4, "Feeling Shapes: What Are They?"					
Numbers Plus Kit, Measurement, Card 1, "Building Roads"					
Numbers Plus Kit, Measurement, Card 11, "How Many Spoons"					

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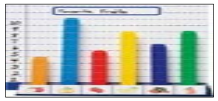
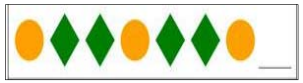
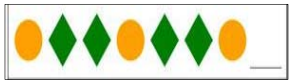
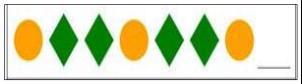
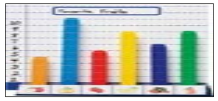
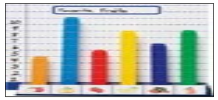
UPK Small-Group Activities Session 1	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Numbers Plus Kit, Measurement, Card 22, "Toy Soup"					
Numbers Plus Kit, Algebra, Card 1, "Animal Parade"					
Numbers Plus Kit, Algebra, Card 10, "Movement Patterns"					
Numbers Plus Kit, Algebra, Card 11, "Musical Patterns"					
Numbers Plus Kit, Data Analysis, Card 16, "What Are You Wearing?"					
Numbers Plus Kit, Data Analysis, Card 6, "Favorite Colors"					

Materials for Session 1

Text used	Small Group Activity	Materials to Order	Materials from Home
HighScope Lesson Plans for the First 30 Days	One for each child	Small Group baskets (18)	
The First 30 Days pg. 44	Group 1: "Where's My Lid?"		Empty plastic containers and bottles of various shapes and sizes and their lids
The First 30 Days pg. 44	Group 2: Playdough and Cookie cutters	Variety of cookie cutter shapes (30), Play dough	
The First 30 Days pg. 52	Group 1: Puzzles	10 Puzzles	10 Lunch bags
The First 30 Days pg. 52	Group 2: Using Funnels	Funnels(various sizes,) plastic trays, sand (or salt, corn meal or bird seed)	Plastic bottles (several sizes) spoons or scoops
The First 30 Days pg. 56	Group 2: Looking at Pebbles	Magnifying glasses (12) Chart paper, markers, funnels (various sizes)	Pebbles and small rocks
The First 30 Days pg. 66	Group 1: Number Sense and Operations, Activity 2: Bears on a Boat	10 Small plastic bears (or other small animals), large rectangle unit blocks	Wash clothes, napkins, blue table cloth
The First 30 Days pg. 66	Group 2: Number Sense and Operations, Activity 10: Counting Shapes on Pizza	Playdough, rolling pins- one for each child, 10-15 Shape cookie cutters	Felt or plastic circles, triangle and rectangles (small enough to fit on a pizza)
The First 30 Days pg. 70	Group 1: Shades of Paint	Tempra paint (primary colors), paintbrushes, pipettes, wooden craft sticks	

Materials for Session 1

Text used	Small Group Activity	Materials to Order	Materials from Home
The First 30 Days pg. 70	Group 2: Frogs on Lily Pads	2" squares of colored paper, plastic frogs, felt squares	
The First 30 Days pg. 80	Group 1: Geometry, Actvity 14: Patern Block Critters	Pattern Blocks, sorting baskets, index cards, camera, paper and writing tools	
The Frist 39 Days pg. 80	Group 2: Geometry, Activity 10: Making Shapes	Playdough, tagboard, cookie cutters one for each child	For each child: Plastic knife, small rolling pin
The First 30 Days pg. 88	Group 1: Tube Tunnels	Matchbox cars (20)	Tubes, paper towel, toilet paper, wrapping paper
The First 30 Days pg. 88	Group 2: Dressing Babies or Animals Materials	Dolls (10) or stuffed animals, masking tape	Fabric scraps, string or yarn
The First 30 Days pg. 96	Group 1: Bubbles! Bubbles! Bubbles!	Smocks (12)	Dish soap (non-toxic) Small bowls (10), straws
The First 30 Days pg. 96	Group 1: Foil Sculptures	Chart paper	Aluminum foil pieces
The First 30 Days pg. 100	Group 2: Cutting with Scissors	Scissors, construction paper or Index cards	
The First 30 Days pg. 115	Group 1: Exploring Clay	Clay, tongue depressors, smocks	Placemats for each child, small bucket for water
The First 30 Days pg. 115	Group 2: Bear Families	Plastic bears (3 sizes and colors,) unit blocks	

Materials for Session 1

Text used	Small Group Activity	Materials to Order	Materials from Home
The First 30 Days pg. 118	Group 1: Measurement, Activity 8: Fill it Up	2 different size measuring cups for each child, a scope for each child	
The First 30 Days pg. 118	Group 2: Algebra Activity 15: Shape Caterpillar	10 construction paper circles of two different colors (5 of each color), glue sticks, paper	
The First 30 Days pg. 134	Group 1: Collage Art materials and Glue	Collage items, glue stick for each child	Sturdy cardboard base for each child
The First 30 Days pg. 134	Group 2: Letter and Number Parts	Large letters (upper and lower case) numbers stencils, paper and writing materials	
The Frist 30 Days, pg. 147	Group 2: Combining Materials: Small Building Toys and Figures	18 Small containers of a variety of building materials, people	
Numbers Plus Kit **Number Sense and Operations**	**Card 7**: "Button Pizza"	Playdough	Buttons (10) Small rolling pin
Numbers Plus Kit **Number Sense and Operations**	**Card 11**: "Counting Song"	None needed	
Numbers Plus Kit **Number Sense and Operations**	**Card 34**: "Ten in the Bed"	Carpet squares	Pillows (5) (may use paper for pillows)
Numbers Plus Kit **Geometry**	**Card 20**: " Shape Pictures"	Sticky notes, 8 1/2" x11" paper, glue sticks, construction paper markers, crayons	Collection of shapes cut out: triangles, rectangles and circles (10 or more)

Materials for Session 1

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit **Geometry**	**Card 3**: "Cookie cutter Shapes"	Shape cookie cutters triangle, rectangle, circle, playdough	Plastic knives, small rolling pin
Numbers Plus Kit **Geometry**	**Card 4**: "Feeling Shapes: What are They?"	Tag board, crayons, markers	Variety of shapes cut out on tag board (5 or more) Feely bag, 3 paper lunch bags
Numbers Plus Kit **Measurement**	**Card 1**: " Building Roads"	4-5 blocks different lengths same width, 2 matchbox size cars, rulers, yardstick, tape measure, small figures: people, animals	Measuring tools
Numbers Plus Kit **Measurement**	**Card 11**: "How Many Spoons"	4-5 blocks different lengths same width, 2 matchbox size cars, rulers, yardstick, tape measure, small figures: people and animals	Rice, measuring spoons, paper cups
Numbers Plus Kit **Measurement**	**Card 22**: "Toy Soup"	Small manipulatives Counting bears beads	Measuring spoons, large spoon (for stirring,) large bowl, small bowls, shells, buttons, pebbles, broken crayons
Numbers Plus Kit **Algebra**	**Card 1**: "Animal Parade"	Counting animals, 3 different kinds bears, dinosaurs, monkeys	
Numbers Plus Kit **Algebra**	**Card 11**: "Musical Patterns"	CD of instrumental music	
Numbers Plus Kit **Data Analysis**	**Card 16:** "What are you Wearing"	Chart paper, markers and colored pencils	Children's own clothes and shoes

Materials for Session 1

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit **Data Analysis**	**Card 6**: "Favorite Colors"	Chart paper crayons	

Suggested List of Mathematical Language

Prekindergarten

Problem Solving
act out
compare
explain
explore
problem

Reasoning and Proof
about
almost
guess

Communication
draw
explain
idea
organize
question
share

Connections
above
after
all
before
below
numeral

Representation
design
show

Number Sense and Operations
add
addition
count
equal
first

group
how many
last
more/most
number
plus
some
subtraction
together

Higher Level words[1]
contrast
compose
count forward
decompose
difference
equal to
estimate
fewer
fewest
greater than
guess
how many

[1] Taken from NYS Math Curriculum and other sources

hundred
least
less
less than
minus
more
most
numeral
opposite
quantity
subitizing
under
zero

Algebra
next
pattern

Higher Level words[2]
alike
classify
different
inside
object
outside
similar
size

Geometry
alike
behind
bottom
circle
down
inside
flat
match
next to
over
same
shape
side
size
solid
square
top
triangle

Higher Level words[3]
beside
between
cone
cube
cylinder
diamond
halves
hexagon
in front of
octagon
oval
parallelogram
pentagon
prism
rectangular prism
sphere
tessellation
trapezoid

Measurement
big/bigger/biggest
day
empty
heavy
heavier
large/larger/largest
light

[2] Taken from NYS Math Curriculum and other sources

[3] Taken from NYS Math Curriculum and other sources

lighter
long/longer/longest
measure
night
small/smaller/smallest
tall/taller/tallest

Higher Level words[4]
afternoon
age
clock
equal parts
estimate
height
hour
length
less of
louder
minute
month
morning
ruler
second
short
shorter
softer
temperature
thick
thin
time
today
tomorrow
unit
week
weight
width
year
yesterday

Statistics and Probability
attribute
chart
color (as an attribute)
different
graph
pictograph
sort

Higher Level words[5]

cent
coin
count
collar
equal
nickel
number line
order
penny
table
tall

[4] Taken from NYS Math Curriculum and other sources

[5] Taken from NYS Math Curriculum and other sources

Motor Skills Support

"By accepting the unity of mind and body, we come one step closer to genuine developmental appropriateness. After all, if we are to truly educate the whole child, we must first recognize children as thinking, feeling, moving human beings."

- *Pica (1977, p. 4)*

High/Scope Step by Step
Lesson Plans for the First 30 Days
(Accompaniment to book by Beth Marshall)

Week 1

Day 1

Greeting Time

- Place the letter link symbols on a "clothesline" (string/yarn & clothespins), and have child choose a symbol by removing it from the "clothesline".
- Have the children do a movement to get to the books spread out on the floor. For example: have children go through a tunnel / chair tunnel, or jump over a low "wall" constructed from blocks.

Planning Time

Group 1: Train

- Train: Instead of walking and holding hands, try knee walking and holding onto scarves.

Small Group Time

Setting Up a Movement Path

When deciding on a "usual meeting place", see if you can also have a "usual path" to get there. Along this pathway, have children perform a gross motor movement such as jumping, crab walk, broad jump, etc. Movement ideas can be obtained from the Early Childhood website/Embedded Programs/Moving Minds under transition movements and since it will be a small group of children this movement can allow for adult guidance in its performance.

Large Group Time

Use equipment such as a chair tunnel, large barrel, balance beam, etc. placed at the "entrance" to the large group area. This will encourage children to move and plans ways in using the equipment to gain access to the area.

Day 2

Planning Time

Group 2: Train

- Train: Instead of walking and holding hands, try knee walking and holding onto scarves.

Day 2

Recall Time

Group 2: Train

- Train: Instead of walking and holding hands, try knee walking and holding onto scarves.

Day 3

Planning Time

Group 2: Area Cards & Objects From Areas

Hang area cards on a "clothesline" so child has to pinch a clothespin to remove it and then match it to the object. Instead of the child walking to the clothesline, have them knee walk, crab walk, crawl through a tunnel, jump along a "pathway", etc.

Small-Group Time

Review movement cards or list of developmentally appropriate movements and then apply them when the children need to transition to another area. You can have the children do the same movement for the entire week.

Day 4

Recall Time

Group 1: Mystery Bag

Besides filling the bag with an item that was played with, also fill the bag with rice, beads, beans, etc. and have the child reach into the bag and take out the object. You can even have the child guess what the object is before it is pulled out from the bag.

Large Group Time

Moving Our Bodies

Step 2: After moving in standing, ask the children to kneel and repeat the activity. Change the children's positions to hands & knees (quadruped), laying on their backs (supine), or laying on their stomachs (prone).

Day 5

Planning Time

Group 1: Area Cards & Objects From Areas

Place area cards apart from the objects in order to allow for movement. Children can choose how they want to move, with or without using the movement cards, or the teacher can choose a particular movement for all the children to do.

Group 2: Look Through a Tube

Have child climb up onto a raised surface, (such as a "rocker board"), look through tube, lower tube, and jump down to floor. For safety, adult should stay nearby.

Day 5

Recall Time

Group 1: Area Cards

Movements can be performed:

- after a child's area card has been identified and discussed what was done there, or
- card is identified, the child whose card it is, does the movement, and then discusses what he did there.

For a lot of children, the anticipation of movement encourages them to talk and for others moving first facilitates talking.

- Cards are placed on a vertical surface. Child identifies which area he worked in and then stands approximately 2' from "his card" scrunches paper into a ball and throws it at the picture.
- After child identifies his work area, place that area card on a cardboard block. Have the child roll and knock down the block with his area card.
- Area cards are placed on the floor, below the raised surface the child is standing on. The child identifies his area card, points to it, and then jumps on the card.

Group 2: Bring Back Something You Played With

This is a good opportunity to do a transition movement because the child is going to get an object to show his group, and then returning to the group, (moving from one area to another).

Second Week

Day 6

Planning Time

Group 2: Camera

Child climbs or steps up onto a raised surface with the camera, takes a "picture", then jumps down from the raised surface. Adult t supervision is required for safety.

Recall Time

Group 1: Name & Letter Link Symbol Cards

While the children are chanting the name & letter link symbol, the adult leading the group can demonstrate different ways to move to the chant. Movements demonstrated **in sitting:** (1) Tailor sit rocking side-to-side, (2)heel-sit tapping with alternating hand taps on the floor in front of the body, (3)alternating foot taps, long sit with alternating leg lifts; **in quadruped (hands & knees position):** (1)keeping hands and knees "fixed" on the floor, rock your body to the (L) & to the (R), (2)alternating between simultaneous (L) arm & leg raise with simultaneous (R) arm & leg raise (rocking side- to -side with slight lifting of extremities)**; in standing:** (1)marching in place, (2)kicking in place using alternating legs, (3)alternating knee taps, alternating toe taps, (4) up & down on tiptoes while staying in 1-place.

Day 6

Recall Time

Group 2: Large and Small Bags

Use large and small bags which have different closures on them, such as a zippered bag, Velcro closure.

Day 7

Planning Time

Group 2: Camera

Child climbs or steps up onto a raised surface with the camera, takes a "picture", then jumps down from the raised surface. Adult t supervision is required for safety.

Recall Time

Group 1: Large and Small Bags

Use large and small bags which have different closures on them, such as a zippered bag, Velcro closure.

Group 2: Name & Letter Link Symbol Cards

While the children are chanting the name & letter link symbol, the adult leading the group can demonstrate different ways to move to the chant. Movements demonstrated **in sitting**: (1) Tailor sit rocking side-to-side, (2)heel-sit tapping with alternating hand taps on the floor in front of the body, (3)alternating foot taps, long sit with alternating leg lifts; **in quadruped (hands & knees position):** (1)keeping hands and knees "fixed" on the floor, rock your body to the (L) & to the (R), (2)alternating between simultaneous (L) arm & leg raise with simultaneous (R) arm & leg raise (rocking side- to -side with slight lifting of extremities); i**n standing:** (1)marching in place, (2)kicking in place using alternating legs, (3)alternating knee taps, alternating toe taps, (4) up & down on tiptoes while staying in 1-place.

Small-Group Time

Group 2: Where's My Lid?

End: Place all the containers that now have their lids attached in a pile and place the 2-baskets/bins away from the pile. Ask the children to separate the containers and lids. To put them back into the two baskets/bins, the children perform a movement to get to them.

Day 8

Recall Time

Group 1: Magic Wand

Children can climb or step-up onto a raised surface, then point with "magic wand", and then jump down to share what they did.

Day 8

Small-Group Time

Group 1: Puzzles

To encourage movement, place the puzzle bags in various places within the group space:

- Down on the floor to encourage stand <>squat
- Under the table to encourage stand <>squat <> crawl
- Raised surface to encourage standing foot flat <>tiptoe

To encourage a change in position, place **puzzle board** in various places within the group space:

- On a chair seat, to encourage kneeling
- On the floor to encourage prone prop, side sit, Tailor sit

Group 2: Using Funnels

Middle: If you hear the children counting their scoops, restate what they said and have them lift the sand-filled bottle that many times.

Day 9

Planning Time

Group 1: Write or Draw Plans

Place paper on a vertical surface, (surface may be smooth or "bumpy"= by placing paper over sand paper of varying grit), and vary the writing tools (different sized crayons, different thickness markers).

Recall Time

Group 2: Hats

Incorporate a movement for children to do to get to the hats. The movement can be a transition movement (look at movement cards), children go through a tunnel to get to the hats, crawl under a table to get to the hats, or climb up onto a raised surface to get to the hats, etc.

Small-Group Time

Group 1: Using Funnels

Middle: If you hear the children counting their scoops, restate what they said and have them lift the sand-filled bottle that many times.

Day 9

Large-Group Time

Musical Carpet Squares

Step 2: Instead of walking from square to square, choose a different movement, refer to movement cards for ideas.

Day 10

Planning Time

Group 2: Write or Draw Plans

Place paper on a vertical surface, (surface may be smooth or "bumpy"= by placing paper over sand paper of varying grit), and vary the writing tools (different sized crayons, different thickness markers).

Recall Time

Group 1: Hats

Incorporate a movement for children to do to get to the hats. The movement can be a transition movement (look at movement cards), children go through a tunnel to get to the hats, crawl under a table to get to the hats, or climb up onto a raised surface to get to the hats, etc.

Group 2: Magic Wand

Children can climb or step-up onto a raised surface, then point with "magic wand", and then jump down to share what they did.

Small-Group Time

Group 2: Puzzles

To encourage movement, place the puzzle bags in various places within the group space:

- Down on the floor to encourage stand <>squat
- Under the table to encourage stand <>squat <> crawl
- Raised surface to encourage standing foot flat <>tiptoe

To encourage a change in position, place puzzle board in various places within the group space:

- On a chair seat, to encourage kneeling
- On the floor to encourage prone prop, side sit, Tailor sit

Day 10

Large-Group Time

Rowing Boats

Step 2:

Other positions to "row":

- Sitting facing each other, with legs spread, one child's legs on top of the other's
- Sitting back-to-back, with arms hooked
- Tall kneel facing each other holding hands.

Other Ideas

Outside Time

To collect objects provide children with tongs and tweezers.

To collect grass or flowers, have children use scissors to "snip". This activity requires adult supervision &/or assistance.

To take care of living things, provide children with squirt bottles or a bucket of water to use eye droppers or sponges to remove the water so they can water the grass, flowers, trees, etc.

Provide children with various containers to collect objects: container with a lid that snaps on/off, screws on/off, with a stopper so that child needs to push/pull it, etc.

Week 3

Day 11

Planning Time

Group 2: Puzzle

To remove the puzzle piece, children can do a movement to get to it.

Day 11

Recall Time

Group 1: Rolling a Ball

Depending on the children's level of abilities, replace rolling a ball with:

- Adult bouncing the ball to the child
- Adult throwing a ball underhand to the child
- Adult throwing a ball overhand to the child

Vary the type & size of balls used:

- playground ball, spikey ball, nerf football, tennis ball, spikey ball, etc.

Day 12

Planning Time

Group 1: Puzzle

To remove the puzzle piece, children can do a movement to get to it.

Recall Time

Group 2: Rolling a Ball

Depending on the children's level of abilities, replace rolling a ball with:

- Adult bouncing the ball to the child
- Adult throwing a ball underhand to the child
- Adult throwing a ball overhand to the child

Vary the type & size of balls used:

- playground ball, spikey ball, nerf football, tennis ball, spikey ball, etc.

Small-Group Time

Group 1: Shades of Paint

Materials:

For each child, provide

- three **squeeze bottles** of paint

- paper & **Q-tips, cosmetic sponges**
- **container in which paint can be shaken to mix**

Group 2: Frogs on Lily Pads

Materials for the Children to "Act-out" the story:

- different colored shelf liner cut into shape of a lily pad
- blue paper for the "pond"
- children to pretend to be frogs

Beginning: Instead of using a plastic frog, an adult demonstrates jumping to a "lily pad" and naming the color landed on.

Middle: Give each child a container of colored shelf liner only. Ask the children to tell their own story about a frog and a lily pad. Watch to see how children arrange the shelf liner on the floor, (each child may need to have their space designated by masking tape), and then the children jump on the "lily pads" just like the frog in their story.

Day 13

Planning Time

Group 1: Hula Hoop

Have children sit in different positions while holding onto the hoop:

- Tailor sit
- Long sit
- Tall kneel
- Heel sit

Change how high or low the hula hoop is held by everyone in the group:

- By your knees
- By your stomachs
- At your shoulders
- By your noses
- Above your heads

Day 13

Planning Time

Group 2: Train & Train Tracks

Lay out the train tracks in a simple oval design. Place sticky notes with area names around the track and a carpet square or shelf-liner next to each area name. The children are the "trains", moving around the track, stopping at the "station" where they would like to work. Children can choose to move around the track by choosing a movement from the movement book or:

- An adult can assist them to wheelbarrow walk
- Child can be given a ball to bounce-catch it along the track
- Child can be given a ball to dribble it along the path.

Recall Time

Group 1: Matching Beads

Materials:

- A string of colored beads
- A bag/container containing additional beads hidden in various "sensory materials" (sand, rice, packing peanuts, cotton balls, placed inside a tennis ball: make a slit in the ball and place beads inside of it, child will have to squeeze the ball to remove a bead).

OR

Materials:

- A string of colored pop beads
- A cloth bag containing additional pop beads in the same colors as those on the string.

Child removes a pop bead from the bag and pulls off the matching colored pop bead from the string. Child then pushes the matching pop beads together, and then shares what they did at work time.

Day 14

Planning Time

Group 1: Flashlight

To encourage different positions for the children to shine their flashlights, place the area cards in the planning space and have the children shine the flashlight on the cards to indicate the area to work in. Positions for the children to shine their flashlights:

- Prone prop: encourage the child to raise his arm, which is holding the flashlight, off the floor.
- Supine, (lying on their backs): pictures are taped to the underside of a table. The table should be high enough for the child to have to slightly raise their arm with the flashlight off their body to shine it on the card.

Recall Time

Group 1: Area Cards and Clothespins

Have a child do a movement, (refer to movement cards), to take his card and clothespin to the corresponding area card.

Small-Group Time

Group 1: Frogs on Lily Pads

Materials for the Children to "Act-out" the story:

- different colored shelf liner cut into shape of a lily pad
- blue paper for the "pond"
- children to pretend to be frogs

Beginning: Instead of using a plastic frog, an adult demonstrates jumping to a "lily pad" and naming the color landed on.

Middle: Give each child a container of colored shelf liner only. Ask the children to tell their own story about a frog and a lily pad. Watch to see how children arrange the shelf liner on the floor, (each child may need to have their space designated by masking tape), and then the children jump on the "lily pads" just like the frog in their story.

Day 14

Small-Group Time

Group 2: Shades of Paint

Materials:

For each child, provide

- three squeeze bottles of paint
- paper & Q-tips, cosmetic sponges
- container in which paint can be shaken to mix

Day 15

Planning Time

Group 1: Train and Train Tracks

Lay out the train tracks in a simple oval design. Place sticky notes with area names around the track and a carpet square or shelf-liner next to each area name. The children are the "trains", moving around the track, stopping at the "station" where they would like to work. Children can choose to move around the track by choosing a movement from the movement book or:

- An adult can assist them to wheelbarrow walk
- Child can be given a ball to bounce-catch it along the track
- Child can be given a ball to dribble it along the path.

Group 2: Hula Hoop

Have children sit in different positions while holding onto the hoop:

- Tailor sit
- Long sit
- Tall kneel
- Heel sit

Change how high or low the hula hoop is held by everyone in the group:

- By your knees

- By your stomachs
- At your shoulders
- By your noses
- Above your heads

Day 15

Large-Group Time

Silent Moves – Visual Processing

Step 2: More examples of moves to make:

- Place your hands behind your back
- Place 1-arm above your head, and the other arm out to the side
- Place hands on opposite shoulders

Step 3: Examples of ways to walk to next activity:

- Hands on head
- Hands on head while walking on tiptoe
- Hands on shoulders
- Hands on hips
- Hands behind back while "skating" (sliding feet on floor)

Week 4

Day 16

Recall Time

Group 1: Recall Soup

At the end of the activity to remove "ingredients" have the children use tongs.

Large-Group Time

Popcorn!!

Materials:

- Scrunchy balls, bean bags

Step 2: Instead of standing to shake the parachute have the children:

- Tailor sit
- Long sit
- Tall kneel

Day 17

Recall Time

Group 2: Recall Soup

At the end of the activity to remove "ingredients" have the children use tongs.

Other Ideas

Outside Time

Other small balls:

- Ping pong balls
- Children scrunch tissue paper into small balls
- Marbles
- Pebbles

Day 18

Planning Time

Group 1: Magnetic Letters

Materials:

- Area cards
- Cookie sheet
- Magnetic letters
- Toy fishing pole with magnet attached or make a fishing pole using a dowel, string, & magnet. Child finds the letter from his name and picks it up using the "fishing pole" then does a transition movement, (refer to movement cards), to take his letter and place it on the area card.

Group 2: Pegs & Pegboards

Materials:

- Area cards
- Styrofoam & golf tees or pumpkin, golf tees & hammer

Day 18

Recall Time

Group 1:"Hot Potato"

To pass the "potato" have children:

Sit in a line:

- pass the "potato" over their heads
- twist to pass the "potato"

Stand in a line:

- pass the "potato" over their heads
- twist to pass the "potato"
- pass the "potato" between their legs.

Small-Group Time

Group 1: Bubbles! Bubbles! Bubbles!

Materials:

- Vary the type of straws (straws with small openings, "crazy" straws, etc.).

Large-Group Time

Sliding/Skating to Music

Step 2: The adults present should also do the activity. While the children explore ways to move, the adults are moving forwards, backwards, sideways, in circles, etc. This will encourage the children to try new ways of moving.

Day 19

Planning Time

Group 2: Magnetic Letters

Place area cards and magnetic letters apart from each other in the "group space". Have the children do a transition movement, refer to movement cards, to take their letter to the area cards.

Day 19

Recall Time

Group 1: Camera

Child climbs or steps up onto a raised surface with the camera, takes a "picture" of where they played. Child jumps down from the raised surface to discuss details. Adult t supervision is required for safety.

Small-Group Time

Group 2: Cutting With Scissors

Materials: Add various types of scissors. (By providing various types of scissors, it will encourage an appropriate grasp pattern for that child who using a standard scissor is too difficult.)

Large-Group Time

Silent Moves – Verbal Processing

Step 2: Include in your verbal directions: "Put your hands behind your back".

"Give yourself a hug".

Vary the children's positions when following the verbal directions: (standing, tailor sit, long sit, kneeling, supine (lying on back)).

Day 20

Planning Time

Group 1: Pegs & Pegboards

Place the pegs and pegboards apart from each other, so that a transition movement can be incorporated into this activity. Child takes a peg and does a transition movement to bring it to the pegboard.

Recall Time

Group 2: "Hot Potato"

To pass the "potato" have children:

Sit in a line:

- pass the "potato" over their heads

- twist to pass the "potato"

Stand in a line:

- pass the "potato" over their heads
- twist to pass the "potato"
- pass the "potato" between their legs.

Day 20

Small-Group Time

Group 2: Cutting With Scissors

Materials: Add various types of scissors. (By providing various types of scissors, it will encourage an appropriate grasp pattern for those children, who using a standard scissor, is too difficult.)

Week 5

Day 21

Planning Time

Group 1: Planning Bus

Materials: Small pieces of paper or light cardboard or card stock to use as "bus tickets", small step stool to use as "bus steps".

Ahead of time, set up the children's chairs in a line like bus seats. Place the step stool towards the front of the "bus". As the children start to get on the "bus", have them step-up onto the stool and jump down, then choose their seat. To take their chair back, encourage the children to push their chair rather than lift.

Group 2: Area Cards and Animal Figures

To set-up the activity, arrange the area cards so they are separated by a distance within the group space from the animal figures. Have the children move like the animal they were given to get to the area card.

Recall Time

Group 1: Write or Draw

Place the paper on:

- the wall at a height where the child has to stand, kneels, lie on his stomach, or sit on the floor.

- A binder with the opening towards the child while he lies on his stomach, sits up, or kneels with the binder on their chair.
- The underside of the table and have the children lay on their backs to write.

Day 21

Recall Time

Group 2: Bell

Materials:

- Cards with children's names & letter link symbols
- A bag
- A bell or shaker; Add: rhythm sticks or triangle instrument

Day 22

Planning Time

Group 1: Area Cards and Animal Figures

To set-up the activity, arrange the area cards so they are separated by a distance within the group space from the animal figures. Have the children move like the animal they were given to get to the area card.

Group 2: Planning Bus

Materials: Small pieces of paper or light cardboard or card stock to use as "bus tickets", small step stool to use as "bus steps".

Ahead of time, set up the children's chairs in a line like bus seats. Place the step stool towards the front of the "bus". As the children start to get on the "bus", have them step-up onto the stool and jump down, then choose their seat. To take their chair back, encourage the children to push their chair rather than lift.

Recall Time

Group 1: Bell

Materials:

- Cards with children's names & letter link symbols
- A bag
- A bell or shaker; Add: rhythm sticks or triangle instrument

Day 22

Recall Time

Group 2: Write or Draw

Place the paper on:

- the wall at a height where the child has to stand, kneels, lie on his stomach, or sit on the floor.
- A binder with the opening towards the child while he lies on his stomach, sits up, or kneels with the binder on their chair.
- The underside of the table and have the children lay on their backs to write.

Small-Group Time

Group 2: Bear Families

Materials:

- **Add:** tongs to pick up bears

Middle:

Change the children's positions to sort to:

- lying on their stomachs, sitting on floor,
- kneeling on a chair with materials on the table,
- kneeling on the floor with the bears placed under the chair seat; the chair seat is used as a "tabletop",
- standing at the table with the bears placed on the floor so the children bend to reach a bear and place it on the table for sorting.

Give children different types of tools to pick-up the bears, such as various types of tongs, clothespins, etc.

Other Ideas

Outside Time

Other materials: squirt bottle for water, food coloring added to water, sponges, small squirt toys & bucket of water for refilling water "toys". The squirt bottles or toys can be used to "erase" the pictures they drew on the ground with chalk.

Day 23

Planning Time

Group 1: Classroom Map

Vary the placement of the map to encourage children to assume various positions to move their car:

- on the wall at eye-level, so children need to stand
- on the wall at knee –level, so children need to kneel
- on the wall at floor-level, so children need to lay on their stomachs
- underside of table, so children need to lay on their backs

To develop children's arm strength: tape coins to the bottom of the "car". This will add some weight to the car.

Group 2: Buckets & Beanbags

Materials:

Add to list: masking tape or spot marker and paper, (tissue, construction, newspaper, etc.).

Tape or a spot marker is placed approximately 2-feet from the bucket by each work area. When the child chooses an area to work, he stands on the tape or spot marker to throw his beanbag (sponge, soft ball), into the bucket. Or instead of providing the child with an object to throw, the child can make his own by providing various types of paper (tissue, construction, newspaper, etc.), and have the child "scrunch" it into a ball. Child then stands at a designated spot to throw it into the bucket.

Large-Group Time

Musical Shapes

Step 1: Refer to the movement book to decide what the children will do standing on a particular shape.

Step 2: To work on directions, vary the cue "Everyone standing on a square, clap your hands" to

- clap your hands above / over your head
- clap your hands to the left
- clap your hands to the right'
- clap your hands behind your back
- clap your hands in front of your stomach
- clap your hands under your chin
- clap your hands between your legs.

Day 24

Planning Time

Group 2: Flashlight

Children stand on a raised surface to shine their flashlight on a work area. After an area is chosen, children hand the flashlight to an adult and jump down from the raised surface. The raised surface height can be varied by using chairs of various heights or other sturdy, safe objects.

Recall Time

Group 2: Area Cards & Clothespins

When setting up, separate the cards with children's name & letter link symbol from the area cards. Children can be asked to choose a movement of their own, choose from the movement cards, or a specific movement can be chosen by the teacher using the movement cards.

Small-Group Time

Group 1: Bear Families

Materials:

- Add: tongs to pick up bears

Middle:

Change the children's positions to sort to:

- lying on their stomachs, sitting on floor,
- kneeling on a chair with materials on the table,
- kneeling on the floor with the bears placed under the chair seat; the chair seat is used as a "tabletop",
- standing at the table with the bears placed on the floor so the children bend to reach a bear and place it on the table for sorting.

Give children different types of tools to pick-up the bears, such as various types of tongs, clothespins, etc.

Group 2: Exploring Clay

Materials:

Add or replace small dish of water with: squirt bottle of water, sponge, wash cloths.

Middle: When the clay needs to be softened with water, let the children use the squirt bottle to make it wet, or give them a damp sponge to squeeze or a damp wash cloth to wring. This will allow them to further use their hands to develop hand strength.

Day 24

Large-Group Time

Rhyming With "Down By the Bay"

No change in activity, except for ways to encourage the children to set a beat. To set a beat have children:

- sit & stomp with their feet
- sit & "clap" with their feet

- assume crab position and stomp with their feet
- lay on their stomachs and tap hands on floor.

Day 25

Planning Time

Group 1: Buckets & Beanbags

Materials:

Add to list: masking tape or spot marker and paper, (tissue, construction, newspaper, etc.).

Tape or a spot marker is placed approximately 2-feet from the bucket by each work area. When the child chooses an area to work, he stands on the tape or spot marker to throw his beanbag (sponge, soft ball), into the bucket. Or instead of providing the child with an object to throw, the child can make his own by providing various types of paper (tissue, construction, newspaper, etc.), and have the child "scrunch" it into a ball. Child then stands at a designated spot to throw it into the bucket**.** Refer to

Group 2: Classroom Map

Vary the placement of the map to encourage children to assume various positions to move their car:

- on the wall at eye-level, so children need to stand
- on the wall at knee –level, so children need to kneel
- on the wall at floor-level, so children need to lie on their stomachs
- underside of table, so children need to lay on their backs

To develop children's arm strength: tape coins to the bottom of the "car". This will add some weight to the car.

Large-Group Time

Singing Songs

Step 4: Children still choose how they want to move to their next activity; however, give them a specific "path" to move on. For example:

- Tell them they have to move by keeping each foot touching the tape line
- They have to move between the tape lines
- They have to move from 1-cone to another

Week 6

Day 26

Planning Time

Group 1: Little Mouse with a String

Materials: Instead of a string, give each child:

- a clothespin/ clip
- zippered bag such as a lunch bag
- Velcro fastened bag such as a lunch bag

After the child has tied a string, (or used another of the suggested materials), to something, the child brings it back to the table by doing a movement.

Group 2: Planning Path

Refer to movement cards for other ways to move along path.

Recall Time

Group 1: Cups & Figures

Materials:

- Toy figures
- Area cards
- A large cup to go with each area card
- Large ball

Set-up:

Place large cup and area card on the floor in front of the ball. After the child is given a toy figure, have him lay on the ball with his hands on the floor by the cups. (A movement card, "Prone over the Ball", demonstrates this position. It can be used to provide visual instruction). The child then takes his toy figure and places it in the appropriate cup while in this position. Then the child stands to share details of what he did.

Small-Group Time

Group 2: Letter and Number Parts

Materials: Add wikki sticks to the materials given to the children.

Middle: When encouraging children to write or trace the numbers & letters, let them also use the wikki sticks to make the number & letters. The child can look at the number/letter and make it from wikki stick. Or, the child can place the wikki stick on top of the written number/letter and shape it to it.

Day 26

Large-Group Time

Singing Songs

Step 3: Can use the movement cards in the same way as the song book was used. Three sticky notes are placed on the movement cards, each having the child's name and letter link symbol written on it. Today these three children will choose the movement.

Day 27

Planning Time

Group 1: Planning Path

Refer to movement cards for other ways to move along path.

Group 2: Little Mouse With a String

Refer to Day 26 under the Planning Time section. Since the children are pretending to be "little mice" they can travel through a "mouse hole". The "mouse hole" can be a tunnel, 2-3 chairs lined up for the child to crawl under, or place a large hula hoop upright so the child has to crawl or step through it.

Recall Time

Group 2: Cups & Figures

Place the figures in one spot and the cup & area card in another, now the children can do a movement to place the figure in the cup. The movement can be something from the movement cards.

Small-Group Time

Group 1: Letter and Number Parts

Materials: Add wikki sticks to the materials given to the children.

Middle: When encouraging children to write or trace the numbers & letters, let them also use the wikki sticks to make the number & letters. The child can look at the number/letter and make it from wikki stick. Or, the child can place the wikki stick on top of the written number/letter and shape it to it.

*In addition to using wikki sticks, the children can use bingo markers to "trace" the letters and numbers.

Large-Group Time

Nursery Rhyme: "Hickory, Dickory, Dock"

Materials: Spot markers – at least 2 for each child.

Step 3: When you say the phrase "The mouse ran up the clock", replace the children wiggling their fingers to them jumping forward to the spot marker that is placed in front of them. When you say the phrase "The clock struck one" have one child strike the triangle while the other children jump back to their original spot which could also be a

spot marker. The child may turn and jump back or jump backwards. Depending on the distance between the starting spot marker and the other, children may make jumps of various sizes (broad jumping).

Day 28

Recall Time

Group 1: Recall Two Things

Place child's paper on a vertical or inclined surface. This will encourage the appropriate position of the wrist as needed for writing.

Group 2: Recall Stories

With any writing task, it is best to place the paper on a vertical or inclined surface. Sitting at a table, each child can be provided with an inclined surface by using large binders to put the paper on. The binder is positioned in front of each child with its binding facing away from the child. The binder is kept closed with the paper attached to the outside of it. This now creates an inclined surface to write on.

Large-Group Time

Dancing With Letters

Step 2: Change the positions of the children while they move their letter:

- Lying on backs move letter over your head, up high (towards ceiling), & under your legs
- Sitting on the floor (tailor sit, long sit, side sit) to move letter in front, up high, & behind
- Tall kneel to move letter in front, up high, and behind.

Day 29

Planning Time

Group 1: Building Toy

Have the children do a movement to get to the building toy base with their toy piece.

Recall Time

Group 1: Map

Vary the placement of the map to encourage children to assume various positions to move their car:

- on the wall at eye-level, so children need to stand
- on the wall at knee –level, so children need to kneel

- on the wall at floor-level, so children need to lie on their stomachs
- underside of table, so children need to lay on their backs

To develop children's arm strength: tape coins to the bottom of the "car". This will add some weight to the car.

Day 29

Recall Time

Group 2: Recall Two Things

Place child's paper on a vertical or inclined surface. This will encourage the appropriate position of the wrist as needed for writing.

Day 30

Planning Time

Group 1: Planning Stories

With any writing task, it is best to place the paper on a vertical or inclined surface. Sitting at a table, each child can be provided with an inclined surface by using large binders to put the paper on. The binder is positioned in front of each child with its binding facing away from the child. The binder is kept closed with the paper attached to the outside of it. This now creates an inclined surface to write on.

Group 2: Building Toy

Have the children do a movement to get to the building toy base with their toy piece.

Recall Time

Group 2: Map

Vary the placement of the map to encourage children to assume various positions to move their car:

- on the wall at eye-level, so children need to stand
- on the wall at knee –level, so children need to kneel
- on the wall at floor-level, so children need to lie on their stomachs
- underside of table, so children need to lay on their backs

To develop children's arm strength: tape coins to the bottom of the "car". This will add some weight to the car.

Day 30

Large-Group Time

Beanbag Toss

Step 2: Encourage children to toss their bean bag using an underhand or an overhand toss. Place the bucket against the wall and mark off distances at which the children need to stand to throw their bean bag. Start with the children standing 1-foot from the wall, 2-feet, etc.

UPK Math Small Group: Session 2

- Overview
- Activities by Content Area
- Materials List
- COR Developmental Range Report
- Lesson Plans and Support Materials

Math – like literacy or any other content area – should be embedded in real and meaningful experiences that are part of a comprehensive curriculum.

"I'm Older Than You. I'm Five!" Math in the Preschool Classroom, p. xi

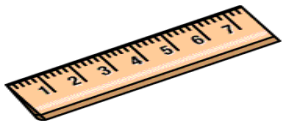
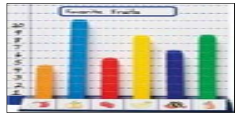
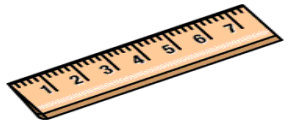
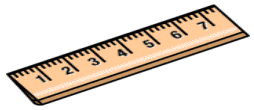
UPK Small Group Activities by Content Area, Session 2 – Overview

- Provided are 23 lessons in Session 2 which were extracted from the *Numbers Plus* kit to support your lesson planning.
- In addition, 14 math activities are provided from other HighScope resource books, Music Blocking Blocks Song Cards (Tab 6) and supplemental lesson plans (Tab 6).
- The lessons have been grouped by Content Area, but also show the additional content area the lesson may touch upon. It is not the expectation of the binder that you move through the content in the order of the grid, but rather select lessons in each content area that match your children's interests and development.
    - ➢ To build mastery, children need to experience activities in the same Content Area 3 - 5 days in a row. Make sure to change Content Area weekly.
- It is important that your lessons cover all five content areas in some way.
    - ➢ If you choose to use lessons other than these, be sure to cover all five content areas by the pausing point.
- You will be entering anecdotes on a weekly basis for each child in each of these five content areas.

Rev 2018

UPK Math Small Group Activities by Content Area-Session 2 (Rev 2018)

Aligned with KDI, COR Advantage and NYS Next Generation

UPK Small-Group Activities Session 2	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
	NYS NGMLS Counting & Cardinality	NYS NGMLS – Geometry	NYS NGMLS – Measurement and Data	NYS NGMLS – Operations and Algebraic Thinking	NYS NGMLS – Measurement and Data
	• Know number names and the count sequence	• Identify and describe shapes	• Describe and compare measurable attributes	• Understand addition is adding to, and understand subtraction is taking from	• NY-PK.MD Sort objects and count the number of objects in each category
	• Count to tell number of objects	• Explore and create two- and three-dimensional objects		• Understand simple patterns	
	• Compare numbers				
Numbers Plus Kit, Number Sense and Operations, Card 6, "Button Drop"					
Numbers Plus Kit, Number Sense and Operations, Card 12, "Dinosaur Hunt"					
Numbers Plus Kit, Number Sense and Operations, Card 27, "Numeral Hunt"					
"I'm Older Than You. I'm Five!", p. 34, "Dot Cards"					

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UPK Small-Group Activities Session 2	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
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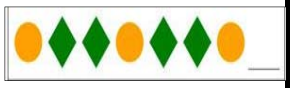
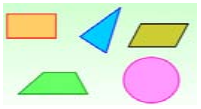
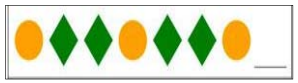
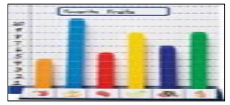
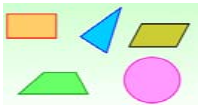
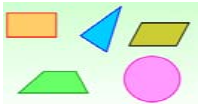
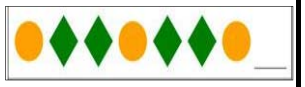
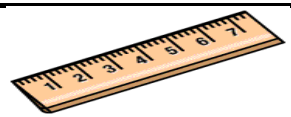
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Small-Group Times to Scaffold Early Learning, p. 53, "Going Shopping"					
Movement Plus Rhymes, Songs, & Singing Games, p.12, "One, Two, Tie My Shoe"					
Movement Plus Rhymes, Songs, & Singing Games, p. 6, "Bubble Gum"					
Number Plus Kit, Geometry, Card 2, "Comparing Shapes"					
Number Plus Kit, Geometry, Card 5, "Feeling Shapes: Which Ones Match"					
Number Plus Kit, Geometry, Card 7, "Identifying Shapes"					
Numbers Plus Kit, Geometry, Card 11, "Marshmallow Shapes"					

UPK Math Small Group Activities by Content Area-Session 2 (Rev 2018)

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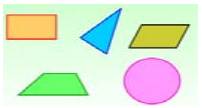
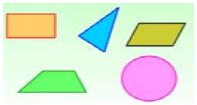
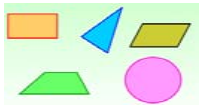
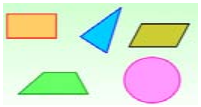
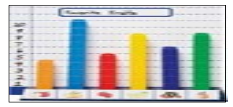
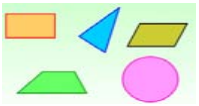
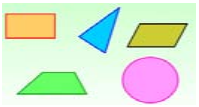
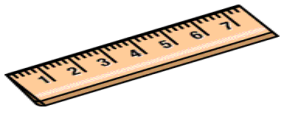
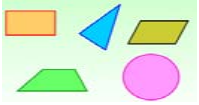
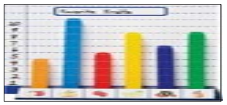
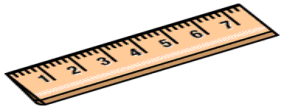
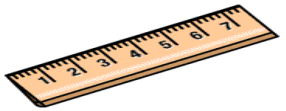
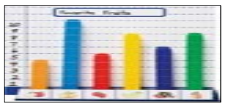
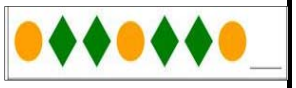
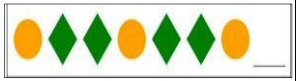
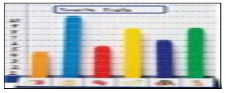
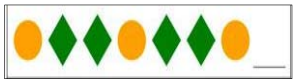
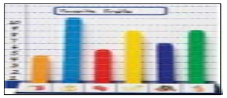
UPK Small-Group Activities Session 2	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Movement Plus Rhymes, Songs, & Singing Games, p. 80, "Shape Song"					
Story Starters for Group Times, p. 75, "Shape Tales"					
"I'm Older Than you I'm Five!", p. 86, "Secret Shape Sheets"					
Small-Group Times To Scaffold Early Learning, "Flip and Turn Worms" p. 50					
Numbers Plus Kit, Measurement, Card 4, "Color Recipes"					
Numbers Plus Kit, Measurement, Card 5, "Construction Zone: Height"					
Numbers Plus Kit, Measurement, Card 6, "Construction Zone: Width"					

UPK Math Small Group Activities by Content Area-Session 2 (Rev 2018)

Aligned with KDI, COR Advantage and NYS Next Generation

UPK Small-Group Activities Session 2	Number Sense and Operations (KDI 31, 32, 33) *COR Item S*	Geometry (KDI 34, 35) *COR Item T*	Measurement (KDI 36, 37) *COR Item U*	Algebra (KDI 38) *COR Item V*	Data Analysis (KDI 39) *COR Item W*
Numbers Plus Kit, Measurement, Card 9, "How Far Can I Jump"					
Numbers Plus Kit, Measurement, Card 2, "Clifford's House: Building"					
Numbers Plus Kit, Measurement, Card 3, "Clifford's House: Measuring"					
Numbers Plus Kit, Measurement, Card 14, "How Tall is My Teacher"					
Story Starters for Group Times, p. 62, "Dickering Dinosaurs"					
Numbers Plus Kit, Algebra, Card 8, "Jump, Clap"					
Numbers Plus Kit, Algebra, Card 9, "Line Them Up"					
Numbers Plus Kit, Algebra, Card 7, "I Spy Patterns"					

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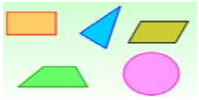
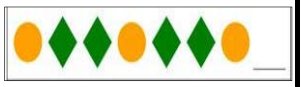
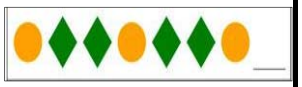
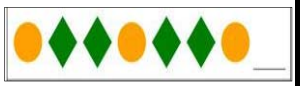
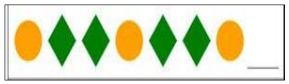
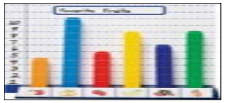
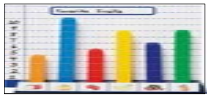
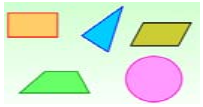
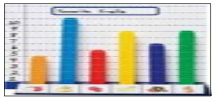
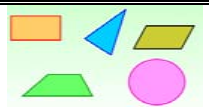
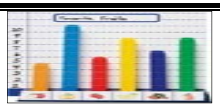
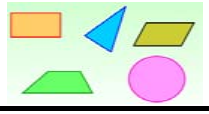
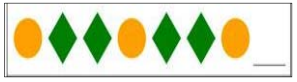
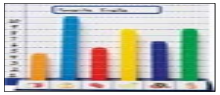
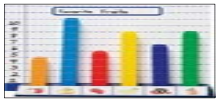
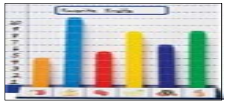
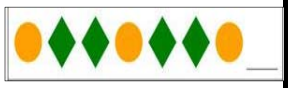
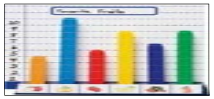
Aligned with KDI, COR Advantage and NYS Next Generation

UPK Small-Group Activities Session 2	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Numbers Plus Kit, Algebra, Card 13, "Rhythm Stick Patterns"					
Numbers Plus Kit, Algebra, Card 2, "Animal Paths"					
Recipe Activity - "Fruit Kabobs"					
Numbers Plus Kit, Algebra, Card 6, "Fruit Stand"					
Numbers Plus Kit, Data Analysis, Card 2, "Chocolate Milk"					
Song Card - "Dinosaur Graphing Song"- www.rcsdk12.org/prek/blocks					
Numbers Plus Kit, Data Analysis, Card 4, " Does It look Like Us?"					
Numbers Plus Kit, Data Analysis, Card 5, "Fascinating Fasteners"					

UPK Math Small Group Activities by Content Area-Session 2 (Rev 2018)

Aligned with KDI, COR Advantage and NYS Next Generation

UPK Small-Group Activities Session 2	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Numbers Plus Kit, Data Analysis, Card 7, "How Did You Build That?"					
Numbers Plus Kit, Data Analysis, Card 3, "Collage Creations"					
Small-Group Times to Scaffold Early Learning, p. 47," Basket Toss"					
Song Card - "Animal Habitat Graphing Song"- www.rcsdk12.org/prek/blocks					
Cooking Activity "Ants on a Log"					

UPK: Materials for Session 2

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit **Number Sense and Operations**	Card 6: "Button Drop"	Poker chips, plastic buttons, chart paper	Paper cups or other container(note sizes on card)
Numbers Plus Kit **Number Sense and Operations**	Card 12: "Dinosaur Hunt"	Small plastic dinosaurs, plastic insects, variety of small animals	Large container (holds up to 10 dinosaurs)
Numbers Plus Kit **Number Sense and Operations**	Card 27:" Numeral Hunt"	Sticky notes/ Index Cards Small clipboards(9) Small paper bags	None
"I'm Older than You. I'm Five!"	"Dot Cards" p.34	Basket for each child, construction paper, cardboard, variety of beads and buttons, glue Markers or crayons	Acorns, pebbles, beans. bottle lids
Small-Group Times to Scaffold Early Learning	"Going Shopping" p.53	Plastic store items, plastic animals, buttons, beans, straws (50 or more), dice, basket	Shopping bag (holds 20 items), additional items for "shopping"
Movement Plus Rhymes, Songs,& Singing Songs	"One Two ,Tie My Shoe" p.12	Rhythm sticks	Chopsticks
Movement Plus Rhymes, Songs,& Singing Songs	"Bubble Gum" p.6	None	None

UPK: Materials for Session 2

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit, **Geometry**	Card 2: "Comparing Shapes"	Paper, markers or crayons	Set of triangles, circles, and rectangles in different sizes, colors and materials, containers
Numbers Plus Kit, **Geometry**	Card 5: "Feeling Shapes: Which Ones Match"	Tag board, markers or crayons, feely bag	Set of triangles, circles, and rectangles in the same size
Number Plus Kit, **Geometry**	Card 7: "Identifying Shapes"	Tag board, scissors, chart paper	Set of 5-6 different types of triangles
Numbers Plus Kit, **Geometry**	Card 11: "Marshmallow Shapes"	Paper, markers or crayons	Large bag of mini marshmallows, gumdrops or play-doh
Movement Plus Rhymes, Songs,& Singing Songs	"Shape Song" p. 80	Carpet squares or hula hoops	None
Story Starters for Group Time	"Shape Tales" p.75	Construction paper, glue, white paper, tape	Set of circles, triangles, rectangles and squares in different sizes and colors for each child, include various other shapes
I'm Older Than You. I'm Five!"	"Secret Shape Sheets" p. 86	Poster board, puzzles, blocks pencils	Household items to trace

UPK: Materials for Session 2

Text used	Small Group Activity	Materials to Order	Materials from Home
Small Group Times to Scaffold Learning	Flip and Turn Worms, p. 50	For each child: 5-10 flat elongated objects such as wooden blocks, duplos, or legos that can also stand on end	
Numbers Plus Kit, **Measurement**	Card 4: "Color Recipes"	Blank recipe cards or index cards, large tub, paint: red, yellow and blue, popsicle sticks , plastic cups (3)	Teaspoons and tablespoons for each child, set of measuring spoons
Numbers Plus Kit, **Measurement**	Card 5: "Construction Zone: Height"	Duplo blocks, wooden blocks, chalk, straws- two sizes	Ruler, string
Numbers Plus Kit, **Measurement**	Card 6: "Construction Zone: Width"	Duplo blocks, wooden blocks, chalk , straws two sizes	Ruler, string
Numbers Plus Kit, **Measurement**	Card 9: "How Far Can I Jump"	Masking tape, sticky notes, unit blocks, letter links , chart paper	None
Numbers Plus Kit, **Measurement**	Card 2: "Clifford's House: Buidling"	Clifford book by Norman Bridwell, masking tape, glue, paint, crayons, markers, pieces of fabric	Cardboard boxes and cartons in different sizes, unconventional measuring tools such as string, pipe cleaners

UPK: Materials for Session 2

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit, **Measurement**	Card 3: "Clifford's House: Measuring	1 foot ruler, chalk, chart paper, markers, yardsticks, tape measures	Cliffords House from the previous lesson Card 2, unconvential measuring tools such as string or pipe cleaners
Small Group Times to Scaffold Learning	"How Tall is My Teacher" p. 59	Butcher paper, markers/crayons, measuring tools	1 adult dress shoe, 1 child size shoe, unconventional measuring tools
Story Starters for Group Times	"Dickering Dinosaurs" p. 62	Blocks of different lengths, paper, writing tools	
Numbers Plus Kit**,** **Algebra**	Card 8: "Jump, Clap"	None	None
Numbers Plus Kit, **Algebra**	Card 9: "Line Them Up"	Collection of items animals, blocks, buttons, shells etc., paper and markers	Short and long sticks or rods, rice, beans, pebbles
Numbers Plus Kit, **Algebra**	Card 7: " I Spy Patterns"	Chart paper, various types of patterns	Wallpaper pattern, catalogs, patterned fabric scraps
Numbers Plus Kit, **Algebra**	Card 13: "Rhythm Stick Patterns"	Rhythm sticks, blocks in different colors	None

UPK: Materials for Session 2

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit, **Algebra**	Card 2: "Animal Paths"	12 Geometric shapes in 2 different colors (6 of each color) and small enough to fit serveral across a sheet of paper, 8 1/2 by 11 construction paper, small toy animal such as counting bears, 2 baskets, glue sticks	
Recipe Activity	"Fruit Kabobs"		2 kinds of fruit, kabob sticks, recipe cards, small bowls, paper plates,
Numbers Plus Kit, **Algebra**	Card 6: "Fruit Stand"	Construction paper tape, glue	None
Numbers Plus Kit, **Data Analysis**	Card 2: "Chocolate Milk"	Small paper cups	Milk, instant chocolate mix (may use fruit juice, cut up fruit or veggies and dip)
Song Card	"Dinosaur Graphing Song"		Song Card from www.rcsdk12.org/ prek/blocks
Number Plus Kit, **Data Anaylsis**	Card 4: "Does it Look Like Us"	Paper, markers or pencils, glue sticks, scissors	Magazines/catalogs
Numbers Plus Kit, **Data Analysis**	Card 5: "Fascinating Fastners"	Varity of fastners, chart paper, markers	Dress- up clothes

UPK: Materials for Session 2

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit, **Data Analysis**	Card 7 "How Did You Build That?"	Blocks (assorted shapes), counting bears, chart paper, writing tools	2 containers
"I'm Older than You. I'm Five!"	"Collage Collection" p. 30	Construction paper, collage materials, cardboard or tagboard, glue	Materials to add to collage materials, containers for sorting
Small Group Times to Scaffold Learning	"Basket Toss" p. 47	Bean bags or other tossable items, chart paper, markers	Small and large containers
Song Card	"Animal Graphing Song"		Song Card from www.rcsdk12.org/prek/blocks

Assessment Level: COR Advantage
Category: Mathematics
School Year: 2013 / 2014
Period: 3

COR Advantage Sample

Developmental Range by Item Report for Rochester Test Classroom

Date Generated: 06/03/2014

The Developmental Range by Item report groups children who have achieved the same developmental level on the selected item, helping to identify specific objectives to plan curriculum for in the classroom.

5 - Number and counting	
Level 0 - The child begins to develop the concept of "one" by viewing, touching, and/or manipulating single objects, such as a face, a hand or foot, or a rattle.	
Level 1 - The child indicates that he or she wants more of something. Requesting more indicates that the child understands that a quantity can be increased by more or one more.	
Level 2 - The child rote counts but does not yet have an understanding of what number means (that is, does not count with one-to-one correspondence).	
Level 3 - The child is developing a sense of number and counts up to 10 objects, associating one and only one number with each object counted (using one-to-one correspondence). The child may occasionally double-count (for example, 1, 2, 3, 4, 4, 5) or skip a number (for example, 1, 2, 3, 4, 5, 6, 8). He or she may not realize that the last number counted represents the total. [Note: If a child consistently double-counts (counts the same objects over again), score at level 2.]	Melissa A Patty B Abby B Melissa B
Level 4 - The child can identify four or more numerals from 0 to 9. [Note: Check off each numeral at any time you observe the child identifying that numeral, for example, by reading (naming) it, or by pointing to it spontaneously or in response to a comment or question.]	Jen A Patty A
Level 5 - The child correctly counts more than 10 objects and knows that the last number he or she says tells how many objects there are in total (for example, the child counts correctly to 12 and says there are 12 objects).	Amanda A
Level 6 - The child counts two sets of objects and says whether they have the same number (quantity) or, if they are different, how many more or fewer there are in one set than the other. [Note: If a child says one set has more than the other but cannot yet say by "how many more," do not score at this level.]	Abby A
Level 7 - The child puts together or takes apart items in sets of up to nine objects. He or she knows, for example, that five can be put together (composed) of two plus three, four plus one, or two plus two plus one. Likewise, the child knows five can be divided (decomposed) in these same combinations.	

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Small Group Time: Fruit Kabob

NYS Foundations for the Common CORE or Early Learning Guidelines: Domain(s) IV Cognition and General Knowledge, B. Critical and Analytic Thinking, J. Properties of Ordering, K. Scientific Thinking KDI:17,35,38 COR: B. Problem-solving with materials, J. Fine motor skills, V. Patterns	
Target Vocabulary	Kabob Skewer Fruit names chosen Pattern Choose Start Next Repeat
Materials	Visual recipe card Small bowls for fruit; spoons Paper plates or trays for each child Skewers (may use coffee stirs) Choose fruit sturdy enough to place on skewer Examples: choice of two for AB pattern Seedless Grapes Strawberries (sliced in medallions) Blueberries Melon Pineapple
Opening Statement	Today we are going to make something very special! Hold up the skewer and show the fruit.
Beginning	Let's first wash our hands. Review and display the recipe card and ingredients. Explain that the tray or paper plate is their workspace. Today we are going to make a pattern. Let me show you. First I take the skewer and look for the pointy end. Now I'm going to choose two fruits. First, I'm going to take one grape and place it on the skewer. What do you think I'm going to do next? Yes, I'm going to choose another fruit and put it on the skewer. Place the second fruit on the skewer. Together you repeat the pattern Grape, strawberry. Hmm… What do you think comes next? Repeat grape …strawberry … grape… strawberry. I made a pattern! Now it's your turn to make one. Let's get started!

Middle *Your ideas for scaffolding children at different developmental levels*	Pass out to each child the skewer and their own bowl of fruits and place in their workspace. I wonder which fruit you will start with? Guide the children with each step. Which fruit will you put on the skewer next? Observe what fruit the children chooses. Give the children the opportunity to continue at their own developmental level. Remember to note COR Advantage Item V with anecdotes.
Questions/ Comments	I wonder which fruit will come next? Tell me about your fruit pattern… Let me try out your pattern… Oh, I see you lined up all the grapes one after another… Look you made a pattern Grape…Strawberry…
End *warning and transition to next part of routine*	You all worked very hard today making a pattern! Using your example pattern, have each child repeat the pattern and then dismiss to wash hands. It is your choice to save the kabob for snack or allow them to eat their pattern before transitioning to the nexy activity.
Follow-Up	Learning patterns requires a lot of repetition. Have available pattern materials thorough out the day. Example: In the block area, align the unit blocks, square…rectangle during worktime. At transistion, lining up boy…girl…boy…girl You may also do a Data analysis component, What is your favorite fruit?

1. Wash your hands and select a skewer.

2. Put on a strawberry.

3. Put on a slice of banana.

4. Repeat your pattern, strawberry-banana.

5. 

Eat and enjoy your pattern.

Animal Habitat (Graphing Song)

Tune: “Mary had a Little Lamb”

Directions: Cut out the labeled pictures on the pages below. Make a graph by putting the words and pictures of “Farm” and “Jungle” on construction paper or flannel board. Place animal pictures under correct column as you sing the song.

COR Advantage: W – Data Analysis, Y – Music, BB – Observing and Classifying, DD – Natural and Physical World, HH - History

Some animals live on a farm, on a farm, on a farm.
Some animals live on a farm, can you guess which ones!

Some animals live in the jungle, in the jungle, in the jungle,
Some animals live in the jungle, can you guess which ones!

Child choose an animal from the pile, and group decides where it lives and what sound it makes, i.e.:

Cows live on a farm, on a farm, on a farm,
Cows live on a farm, and they say, “mooooo.”

Gorillas live in the jungle, in the jungle, in the jungle,
Gorillas live in the jungle, they say “eeh eeh eeh.”

(continue with other animals)

Jungle

Farm

Gorilla

Elephant

Jaguar

Tiger

Horses

Pigs

Cows

Chickens

Dinosaurs (Graphing Song)

Tune: “Mary had a Little Lamb”
BBCD#4, Track #15

Directions: Cut out the labeled pictures on the pages below. Make a graph by putting the words and pictures of “Carnivore and “Herbivore” on construction paper or flannel board. Place dinosaur pictures under correct column as you sing the song, i.e. Tyrannosaurus and Velociraptor under the word “Carnivores.” For the last verse, take all dinosaur pictures off.

COR Advantage: W – Data Analysis, Y – Music, BB – Observing and Classifying, HH - History

Some dinosaurs were herbivores, herbivores, herbivores.
Some dinosaurs were herbivores. They liked to eat plants.

Some dinosaurs were carnivores, carnivores, carnivores.
Some dinosaurs were carnivores. They liked to eat meat.

Tyrannosaurus Rex were carnivores, carnivores, carnivores.
Tyrannosaurus Rex were carnivores. They liked to eat meat.
Stegosaurus were herbivores, herbivores, herbivores.
Stegosaurus were herbivores. They liked to eat plants.
(continue with other dinosaurs)

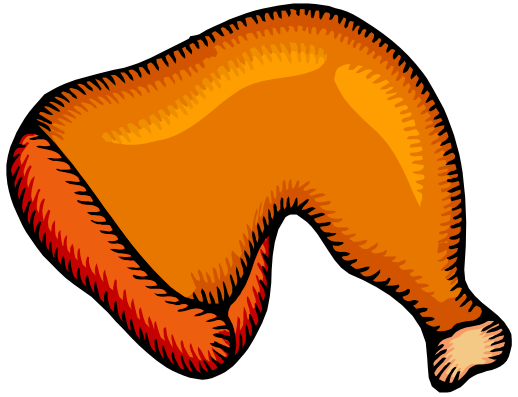
(last verse)
Dinosaurs lived long ago, long ago, long ago.
Dinosaurs lived long ago. Now they are extinct!

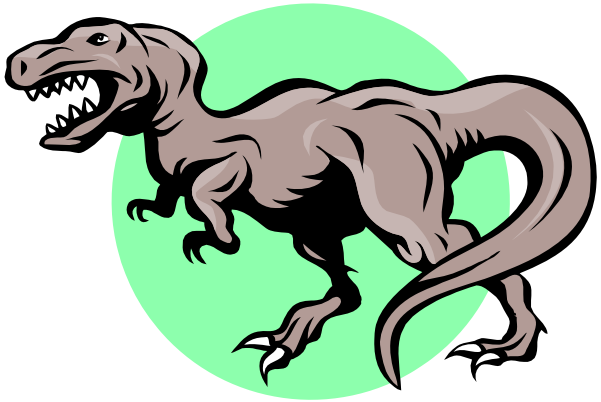
Another favorite is the Dinosaur Pokey: You put your claws in…. and you scratch them all about; You put your feet in… and you stomp them all around; tail/wag it all about; jaws/chomp them all about, etc.

Herbivore

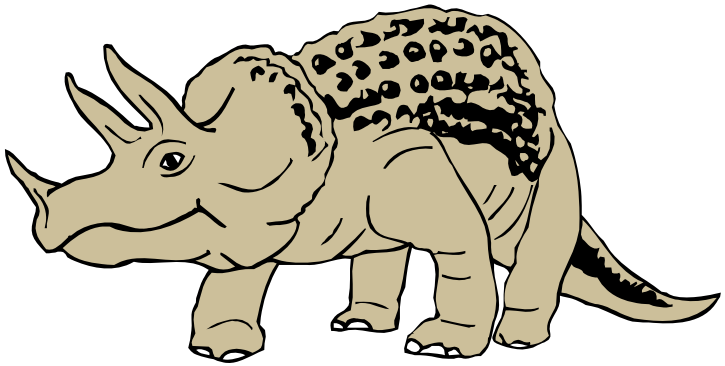
Stegosaurus

Carnivore

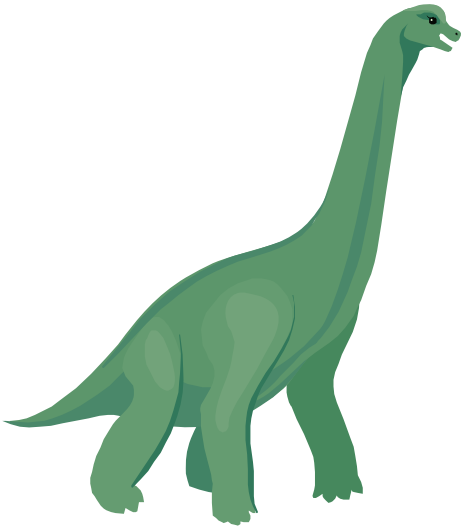




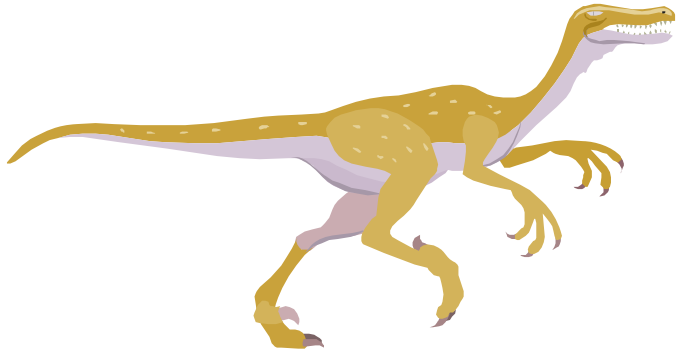
Tyrannosaurus Rex



Triceratops



Brontosaurus



Velociraptor

UPK Math Small Group: Session 3

- Overview
- Activities by Content Area
- Materials List
- Lesson Plans and Support Materials
- Blank Lesson Plan Form

Scaffolding children's learning also includes purposefully "encouraging children to describe their actions and explain their reasoning, with thought-provoking comments such as 'I wonder what would happen if…'"

Meaningful Math in Preschool, Making Math Count Throughout the Day, p. 59

UPK Small Group Activities by Content Area, Session 3 – Overview

- Provided are 36 lessons in Session 3 which were extracted from the *Numbers Plus* kit, other HighScope resource books, and team-developed lessons.

- To build mastery, children need to experience activities in the same Content Area several days in a row.

- Included in this session are 2 lessons that provide you the opportunity to develop your own small groups using the books Beep, Beep, Vroom, Vroom and Mouse Count.

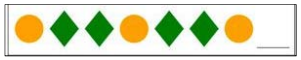
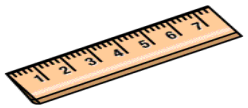
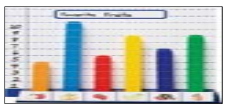
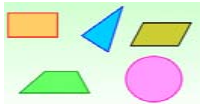
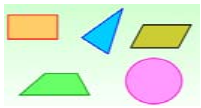
- It is important that during this session your lessons cover all five content areas.
  - If you choose to use lessons other than these, be sure to cover all five content areas by the pausing point.

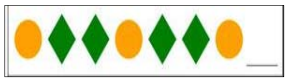
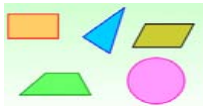
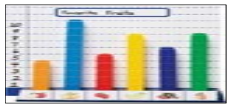
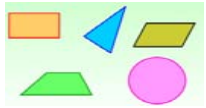
- You will be entering anecdotes for each child in each of these five content areas.

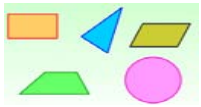
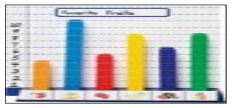
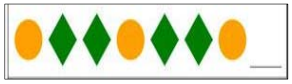
Rev 2018

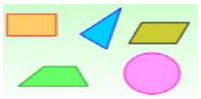
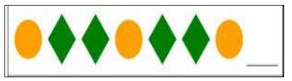
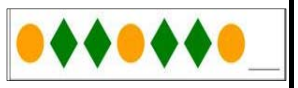
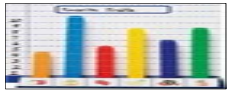
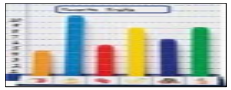
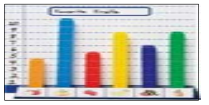
UPK Math Small Group Activities by Content Area-Session 3 (Rev 2018)

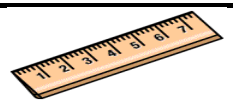
Aligned with KDI, COR Advantage and NYS Next Generation

UPK Small-Group Activities Session 3	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
	NYS NGMLS Counting & Cardinality	NYS NGMLS – Geometry	NYS NGMLS – Measurement and Data	NYS NGMLS – Operations and Algebraic Thinking	NYS NGMLS – Measurement and Data
	• Know number names and the count sequence	• Identify and describe shapes	• Describe and compare measurable attributes	• Understand addition is adding to, and understand subtraction is taking from	• NY-PK.MD Sort objects and count the number of objects in each category
	• Count to tell number of objects	• Explore and create two- and three-dimensional objects		• Understand simple patterns	
	• Compare numbers				
Story Starters, "Follow My Path," p. 64					
Story Starters, "Rescue the Kitty," p. 72					
Story Starters, "Robot Trail Mix," p. 74					
Arts Smart, "Wood Scrap Sculptures" p. 52					
Arts Smart, "Obstacle Course" p. 112					

UPK Small-Group Activities Session 3	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Arts Smart, "Quilting with Fabric Squares," p. 162					
Number Plus Kit, Number Sense and Operations, Card 26, "Numeral Hopscotch"					
Small-Group Times to Scaffold Early Learning, "Shape Hopscotch," p. 69					
Number Plus Kit, Number Sense and Operations, Card 28, "Numerals in the Newspaper"					
Number Plus Kit, Number Sense and Operations, Card 29, "Numeral Soup"					
Numbers Plus Kit, Number Sense and Operation, Card 30, "Roll of the Dice"					
"Shape Hokey Pokey" www.rcsdk12.org/prek/blocks					

UPK Small-Group Activities Session 3	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
50 Large Group Activities for Active Learners, p. 61 "Goldilocks and the Rhythm Sticks"					
"Bakery Shop Counting Song" www.rcsdk12.org/prek/blocks					
"Five Green and Speckled Frogs" www.rcsdk12.org/prek/blocks					
"Hickory Dickory Dock" www.rcsdk12.org/prek/blocks					
Children's book Ten Black Dots, by Donald Crews (see lesson plan).					
Children's book The Shape of Things, by Dayle Ann Dodds (see lesson plan)					
Develop your own math lesson around the children's book, Beep Beep Vroom Vroom, by Stewart Murphy					

UPK Small-Group Activities Session 3	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Develop your own math lesson around the children's book, Mouse Count, by Ellen Stoll Walsh					
Recipe Activity: Silly Putty (see Lesson Plans)					
Recipe Activity: Rice Cake Faces (see Lesson Plans)					
Numbers Plus Kit, Algebra, Card 3, "Borders and Frames"					
Numbers Plus Kit, Algrbra, Card 16, "Toothpicks and Beads					
Numbers Plus Kit, Data Analysis, Card 9, "Inventory"					
Numbers Plus Kit, Data Analysis, Card 11, "Numeral Parts"					
Numbers Plus Kit, Measurement, Card 25, "Which Weighs More"					

UPK Small-Group Activities Session 3	Number Sense and Operations	Geometry	Measurement	Algebra	Data Analysis
	(KDI 31, 32, 33)	(KDI 34, 35)	(KDI 36, 37)	(KDI 38)	(KDI 39)
	COR Item S	*COR Item T*	*COR Item U*	*COR Item V*	*COR Item W*
Numbers Plus Kit, Measurement, Card 20 "Straw Poll"					
Numbers Plus Kit, Measurement, Card 19, "Skyscraper"					
"I'm Older Than You, I'm 5 "Sand Bakery," p. 82					
"I'm Older Than You, I'm 5 "Snack Sort," p. 99					
Recipe Activity: Ants on a Log (see Lesson Plan)					
Recipe Activity: Ice Cream in a Bag (see Lesson Plan)					
Building a City (see Lesson Plan)					
Honey Pot Grid Game (see Lesson Plan)					
First 30 Days, SGT, Unexplored Materials, p. 143					

Text used	Small Group Activity	Materials to Order	Materials from Home
Story Starters for Small Group Times	"Follow My Path", p 64		For each child: two kinds of objects (at least 6 of each)
Story Starters for Small Group Times	"Rescue the Kitty", p. 72	For each child: Set of 5 or more rectangle blocks, people or animals	
Story Starters for Small Group Times	"Robot Trail Mix", p. 74	Chart paper and markers	Ideas for each child: 6-8 of small animals, beads, shells, pegs, nuts and bolts, buttons, golf tees
Art Smart, The Creative Arts in Preschool	"Wood Scrape Sculpture", p. 52	Glue, cardboard base,	Wood scrapes of different shapes, wooden sticks
Art Smart, The Creative Arts in Preschool	"Obstacle Course", p. 112	Hula hoop, balance beam, hollow blocks, cloth tunnel, chairs	Large boxes, coffee cans
Art Smart, The Creative Arts in Preschool	"Quilting with Fabric Squares", p. 162	Glue, cardboard for each child, you can use tissue paper in place of fabric	Fabric scraps, book The Quilt by Anna Jones or Quilt Counting 1,2,3 by Lesa Cline-Ransome
Numbers Plus Kit, Number Sense and Operations	Card 26, "Numeral Hopscotch"	Tape, chart paper, markers	Dot cards for numerals 1-5 (3 cards of each numeral), container

Text used	Small Group Activity	Materials to Order	Materials from Home
Small-Group Times to Scaffold Early Learning	"Shape Hopscotch", p. 69	Chart paper and markers	Tape masking hop scotch, Circle, Rectangle, Triangle shape card, several smaller paper shapes, container
Numbers Plus Kit, Number Sense and Operations	Card 28, "Numerals in Newspapers"	Scissors, paper, glue (or tape), crayons or markers	Newspaper advertisements containing large numerals (coupons, sales fliers), envelopes
Numbers Plus Kit, Number Sense and Operations	Card 29, "Numeral Soup"	Small magnetic numerals (approximately 20, 2 of each number), magnet wand	Plastic tub filled with rice, very dry sand or birdseed, set of numeral cards from 0-9, cookie sheet or another metallic surface
Numbers Plus Kit, Number Sense and Operations	Card 30, "Roll of the Dice"	For each child: 2 dice, crayons or markers, Chart paper, counting bears, large numerals made of plastic, wood or heavy cardboard	
Song Card	"Shape Hokey Pokey"		Song Card, one for each child: paper circle, triangle, square

Text used	Small Group Activity	Materials to Order	Materials from Home
50 Large Group Activities for Active Learners	"Goldilocks and the Rhythm Sticks", p. 61	2 rhythm sticks for each child, the book The Three Bears	
Song Card	"The Bakery Shop Counting Song"	Velcro dots	Song Card
Song Card	"Five Green and Speckled Frogs"	Velcro dots	Song Card
Song Card	"Hickory Dickory Dock"	Velcro dots	Song Card
Book: Ten Black Dots by Donald Crews	Lesson included in Tab 7	Book: Ten Black Dots, glue, construction paper	10 black circles for each child or a bingo marker for each child, see sample lesson in tab 7 of this binder
Book: The Shape of Things by Dayle Anne Dodds	Lesson included in Tab 7	Collection of contstruction paper circles, rectangle (10 or more of each), 8 1/2 x 11 paper, glue or glue sticks, sticky notes, Book: The Shape of Things	
Book: Beep, Beep, Vroom, Vroom by Stuart Murphy		Suggestion: Rubber cars of 3 different colors	
Book: Mouse Count by Ellen Stoll Walsh			Suggestion: Jar with lid, 10 pom poms that can be used as mice, rubber snake (or make a snake from a tube sock)
Recipe: Silly Putty	Lesson included in Tab 7	Elmer's Glue, craft sticks for stirring, measuring spoon	Liquid starch, cups,

Text used	Small Group Activity	Materials to Order	Materials from Home
Recipe: Rice Cake Faces	Lesson included in Tab 7	Recipe card included in tab 7, emotion face cards, hand mirror	Small bowls for fruit, spoons, paper plates or trays (one for each child), fruit (raisins, strawberries, bananas, blueberries, grapes),cherrios,
Numbers Plus Kit, Algebra	Card 3, "Borders and Frames"	Pictures mounted on paper with at least a 1 inch border, 3-4 types of materials to decorate the borders (stickers, foam shapes, gems, wood shapes), colored pencils and markers, glue	
Numbers Plus Kit, Algebra	Card16, "Toothpicks and Beads"	Small plastic or wooden beads in different colors, modeling clay, sticky notes, masking tape, pipe cleaners	Toothpicks, cups,
Numbers Plus Kit, Data Analysis	Card 9, "Inventory"	Duplo's or Legos (at least 10 same size, variety of colors), writing materials, chart paper, markers	
Numbers Plus Kit, Data Analysis	Card 11, "Numeral Parts"	3-4 numerals from 0-9 for each child, chart paper, markers	

Text used	Small Group Activity	Materials to Order	Materials from Home
Numbers Plus Kit, Measurement	Card 25, "Which Weighs More"	Balance Scale for every 2-3 children,2 small pails, scoop for filling the pails, counting bears, nuts and bolts, crayons	Large collection of items that vary in weight: fabric scraps, pebbles, stones
Numbers Plus Kit, Measurement	Card 20, "Straw Poll"	Collection of things from the classroom that correspond to the lengths of the straws	Drinking straws, play dough, rolling pins
Numbers Plus Kit, Measurement	Card 19, "Skyscraper"	10 small cube blocks for each child	Pictures of Skyscrapers
I'm Older Than You, I'm Five	"Sand Bakery", p, 82	Sand table, sets of measuring cups, sets of measuring spoons, marker	Old kitchen utensils, old plastic mixing bowls recipe cards
I'm Older Than You, I'm Five	"Snack Sort", p. 99	Chart paper and markers	Mixed snack such as trial mix, fruit salad, or vegetable salad, individual serving containers
Recipe Activity	"Ants on a Log", lesson included in tab 7	Recipe card included in tab 7	20 paper plates and knives, 6 tablespoons, 6 small bowls, 20 pieces of celery (or pretzel rods) Sunflower seed butter (or cottage cheese or cream cheese), raisins dried cranberries, rice crispy cereal

Text used	Small Group Activity	Materials to Order	Materials from Home
Recipe Activity	"Ice Cream in a Bag", lesson included in tab 7	Recipe card included in tab 7, emotion face cards, hand mirror	For each child: pint-sized ziploc bag, gallon-sized ziploc bag 1/2 measuring cup, measuring teaspoons, milk, vanilla, sugar, salt, ice, vanilla
Lesson Plan- Tab 7	"Build A City"	400 unifix cubes (enough for 20 people), 20 dice: number and dot	20 My city game mat (in tab 7), photos of building and cities
Lesson Plan- Tab 7	"Honey Pot Grid Game"	400 couting bears (enough for 20 people), 20 dice: number and dot	20 Honey Pot grid board (in tab 7)

Small Group Time Planning Form Date:

NYS Foundations for the Common CORE or Early Learning Guidelines: Domain(s) KDI: COR: Lesson Objective:	
Target Vocabulary	
Materials	
Opening Statement	
Beginning	.
Middle *Your ideas for scaffolding children at different developmental levels*	
Questions	
End *warning and transition to next part of routine*	
Follow-Up	

Small Group Time: Silly Putty

NYS Foundations for the Common CORE or Early Learning Guidelines: Domain(s) Domain IV, H-Measurement, L-Scientific Thinking KDI: 36 and 45 COR: BB. Observing and classifying, U. Measurement Lesson Objective: Measuring and Comparing changes in matter	
Target Vocabulary	Liquid Solid Stretch Measure Long Short
Materials	Elmer's Glue StaFlo Liquid Starch (must be this brand) Popsicle or craft sticks 20 Small cups or containers Storage bag or container ¼ cup measuring cup ½ cup measuring cup
Opening Statement	Today we are going to combine two liquids (things that we can pour) and see what happens.
Beginning	Have the children measure out 1/2 cup of white Elmer's glue and pour it into their container. Support children measuring out a ¼ cup StaFlo Liquid Starch. Have them use their sticks to stir and talk about the change that happens.
Middle *Your ideas for scaffolding children at different developmental levels*	When it's formed, take it out of the cup and shape it with your hands. Children can stretch it and shape it. Talk about the length as they stretch the putty. As an extension, children can use markers and color on the putty. Children can then stretch it and talk about what they observe.
Questions	Which did we add more of the, the glue or starch? How did you know that? What happened to the glue and starch when we began to stir? How does it feel? What could we use with the putty?
End *warning and transition to next part of routine*	Place in a clear, plastic, resalable container or bag when you're finished using it. Safety warning: though Elmer's is non-toxic, liquid starch, such as StaFlo, shouldn't be consumed.
Follow-Up	Add the putty to your art area. Have glitter and scissors available for further extension activities.

RECIPE CARDS FOR SILLY PUTTY

1. Put ½ cup of glue in your bowl.

2. Add ¼ cup of liquid corn starch into your bowl.

3. Stir

4. Play!

Small Group Time: Ants on a Log

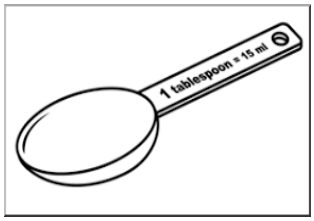
NYS Next Generation Mathematics Learning Standards (2017): Describe and Compare measurable attributes

HighScope KDIs: 36 and 37
COR: U- Measurement
Lesson Objective: Measuring

DUE TO POTENTIAL CHOKING HAZARD, RAISINS AND CELERY SHOULD ONLY BE SERVED TO CHILDREN 4 AND OLDER

Target Vocabulary	Number words (counting out 5-10 ants) Spread Measuring Tablespoon Recipe Ingredients
Materials	Paper plates Plastic knives 6 Tablespoons 6 Small bowls 20 Pieces of celery or 20 pretzel rods Sunflower seed butter, cottage cheese or cream cheese in several bowl Raisins, dried cranberries or Rice Krispies cereal
Opening Statement	Sing the song, The Ant's Go Marching 1 by 1. Ask the question, "What do you know about ants?"
Beginning	Today we are going to make our own marching ants. They will be marching on a log and we will be using these recipe cards (show the recipe cards). Show them how the cards are numbers. Review each one, talking about measuring out the Sunflower seed butter and spreading it. Tell the children they can use 5-10 ants (their choice of how many). Explain that as soon as they put their ants on the log and count them, they may eat their snack. Place the bowls of sunflower seed butter and tablespoons on the table (3 for each small group to avoid long wait periods). Take the opportunity to discuss how children will have to take turns measuring out the sunflower seed butter.
Middle *Your ideas for scaffolding children at different developmental levels*	Place the recipe cards on the small group table. As you pass out the small group baskets (that have the plates, plastic knife, 10 ants, and celery or pretzel log) have each child use hand sanitizer. Support children as they follow the recipe cards, pointing to the numbers of the cards as they follow the sequence.
Questions	Moving from child to child, ask: I see you have the "sunflower seed butter on".....what step comes next? How many ants did you decide to put on your log?
End *warning and transition to next part of routine*	Have the children count the number of ants on their log. Remind them that the number that they end on tells how many they have. For COR, note if the children are counting with 1:1 correspondence and how high they count.
Follow-Up	Read the book Hey Little Ant by Phillip Hoose. Put plastic ants in the sand table with tweezers and little containers to put them in as children find them. Put up a chart where children can record how many ants they found next to their name (letter link).

Developed by B. Decker 2018



1. Put one tablespoon of sunflower seed butter on your plate.

2. Spread the sunflower butter on your celery using your knife.

3. Put on your raisins (ANTS).

4. Eat your ants on a log.

Activity: Honey Pot Grid Game

Number Sense and Operations

Objectives:

To develop skills in 1:1 correspondence, number recognition 1-6, counting 1-6.

Introduction:

Tell the children that today they have many hungry bears. Their bears are looking for honey. They will be using their dice to help each bear find a honey pot.

Materials: Each child should have a basket containing:

- Honey Pot grid board
- 20 plastic bear counters
- A Dice with dots or numbers 1-6

Instructions:

- Have the child roll the dice and identify the number. They will need to count out that many bears and put one bear on a honey pot.
- The child rolls the dice again and repeats counting out bears, placing them on honey pots until their board is full.
- Children can be encouraged to play the game a second time.
- Children should be allowed to explore the materials and develop their own "rules" for playing the game if they so desire.
- Questions: How many bears have eaten their honey? How many more bears need to eat?

Variations/Extensions:

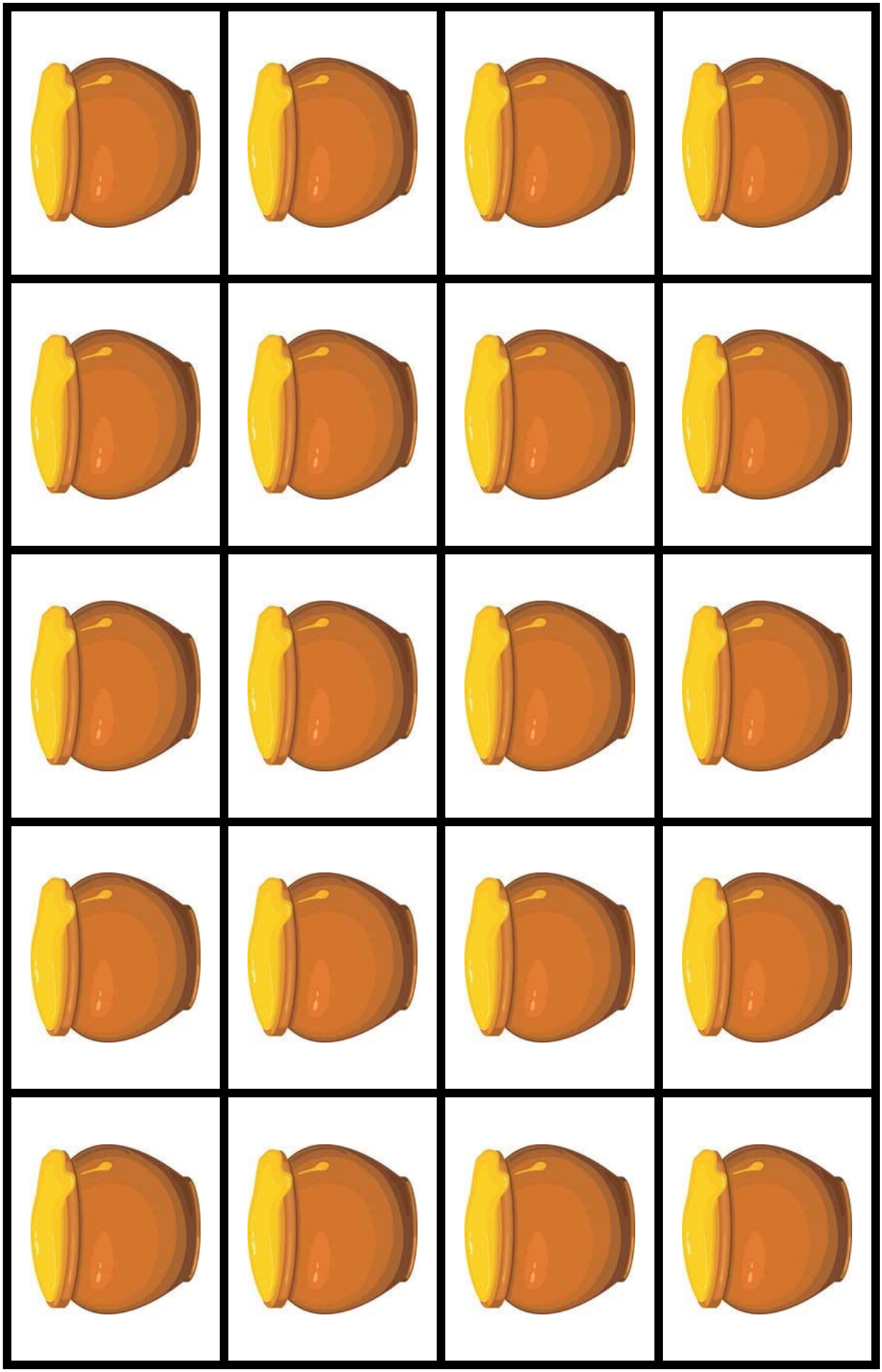
- Put out stamps and empty grid board. Let children create their own grid game boards.
- Send the games home for families to play.

Set Up & Clean Up Instructions:

Set Up: Make 20 honey pot grid boards and put them in page protectors or laminate them
Clean Up: Children put all the materials away in a location where they can access them again during worktime.

BD/ 4/2009

Honey Pot Grid Game



Small Group: Ice Cream in a Bag

Early Learning Guidelines: Domain IV: Cognition and General Knowledge, G. Number Sense, H. Measurement and K. Scientific Thinking KDI: 31, 36, 39, 50 COR: S, U, W, CC	
Target Vocabulary	Recipe Ingredients 1st , 2nd, 3rd, 4th ,5th,6th measure teaspoon tablespoon tightly liquid solid
Materials	**Each student will make their own bag of ice cream. I suggest you have an extra set of measuring tools.** • Visual recipe card. • Pint-sized Ziploc bag/per child • Gallon- sized Ziploc bag/per child • Measuring cup for ½ cup milk • Teaspoon to measure ½ tsp Vanilla • Tablespoon to measure 1 Tbsp. Sugar • Ice (fill ¾ in each gallon Ziploc) • Teaspoon to measure 6 tsp salt
Opening Statement	How many of you like ice cream? Well today we're going to be "ice cream makers!!"
Beginning	Let's first wash our hands. Review and display the visual recipe card, measuring tools and ingredients. Read the directions together. Put the child's name with permanent marker on the Gallon size bag and pint size bag (this may be done ahead of time.)
Middle *Your ideas for scaffolding children at different developmental levels*	Pass out the small pint size bag. Have each child follow the visual directions, as you support them pouring, milk and adding the vanilla. Remember to say "hold your bag tightly, with two hands." Model this. Set the small bag aside. Fill each large bag ¾ full with ice. Add the salt. Place the pint bag inside the large bag and seal. Have each child begin to Shake, Shake, Shake the bag for 5 minutes.
Questions	• What ingredients do you think we will need to make ice cream? • Do you know what it means to measure something? • When do you use measuring spoons? • What do you think will happen when we place the small bag in the big ice bag?

	• How many times did you shake your bag? • Now we are finished with SGT. I wonder what we do next?
Ending *Warning and transition to next part of routine*	After 5 minutes tell the children to stop. Check the consistency. The milk mixture will turn to a solid. Point this out to the children. Open each bag with the child's help and place the ice cream in a container for eating. Have the children support clean-up and transition to the next activity
Follow-Up	• Chart: What is your favorite ice cream? And then tally the results. This gives a Data Analysis component • Parent Activity, Invite parents to a "Homemade" ice cream social! • Add bowls, spoons, measuring cups and measuring spoons to your to the House Area. • Think about saving your vanilla extract bottles, salt containers etc. and display them in the House Area for our cooks!

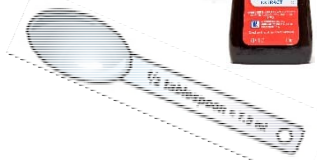
Ice Cream in a Bag

1

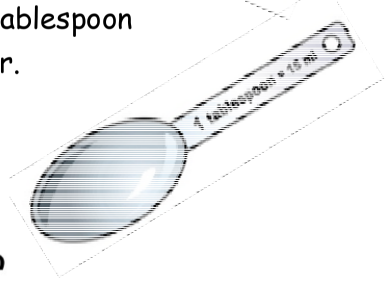
Put ½ cup of milk into a pint size zip-lock bag.

2

Add ½ teaspoon of vanilla.

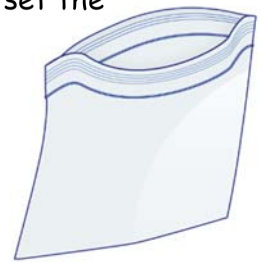


Add 1 tablespoon of sugar.



3

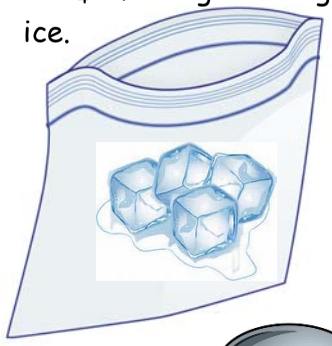
Zip-lock the bag tightly. Try to get most of the air out! Then set the bag aside.



*You may want to tape the bag.

4

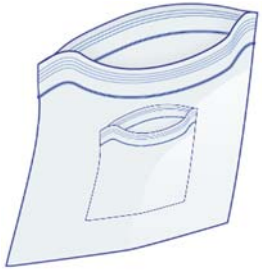
Fill ¾ of the gallon bag with ice.



Add 6 tablespoons of salt to the ice.

5

Place the sealed pint sized bag inside the gallon bag of ice.



Seal and shake for 5 minutes. (You can add "shake" music at this time.)

6

Take the ice cream bag out of the ice.

Carefully take the ice cream out of the bag and put into a bowl.

ENJOY !!

Rice Cake Faces Lesson Plan

NYS Next Generation Mathmatics Learning Standards (2017):): Describe and Compare measurable attributes; Counting and Cardinality; Measurement and Data; Geometry KDI: 9,32,34,36 CO: S,T,U		
Target Vocabulary	Recipe Numbers 1-5 may extend to 10 Ordinals 1st, 2nd, 3rd, 4th, 5th , 6th Rice cake Sun butter Cream cheese Spread Fruit names chosen Tablespoon	Knife Reflection Choose Put Start Feelings Happy , Sad Scary, Mad, other choices
Materials	Visual recipe card Visual Cards of Emotions Small bowls for fruit/ spoons Paper plates or trays for each child to create Choose fruit, raisins, cherrios to create face Strawberries/bananas (sliced in medallions) Blueberries Grapes/ sliced in half May choose other fruits (**CHOKING ALERT- FOOD CHOCIES- Child 3 and under**) Hand mirror (at least 3)	
Opening Statement	Today we are going to make something very special! Hold up the Rice Cake…We are going to make a" face "using this rice cake. Are you ready…Let's get started!!	
Beginning	Let's first wash our hands. Review and display the recipe card and ingredients. Explain that the tray or paper plate is their workspace. Today we are going to make a face. Discuss with the students what type of face they would like to make. Some children may like to have a mirror to look at their own face. "What do you see in your reflection?" Two eyes,one nose etc. Others may like to see emotion cards to share how their face will feel. Two What will your face look like? Let's get started !!	

Middle *Your ideas for scaffolding children at different developmental levels*	Pass out to each child their own bowl and knife for spreading, place in their workspace. Each child is given the opportunity to measure out one tablespoon of Sun butter or cream cheese. Scoop onto the rice cake. Allow the children to spread the Sun butter/cream cheese on the circle shape rice cake. Additional bowls/spoons and a varity of fruits are placed on the table. I wonder which fruit you will start with? Guide the children, counting out their choices. "I see you took two blueberries, three banana slices and five cherrios. " I wonder what your face is going to look like?" Count with the child 1-2 etc. Observe what fruit the children chooses. Give the children the opportunity to continue at their own developmental level. Each face is the child's own creation! Remember to note COR Advantage: S, T,U with anecdotes.
Questions	Ask while moving from child to child: • I wonder what your face will look like? • How many eyes does your face have? • Tell me more about your face? • What would your face like to tell us? • I see you chose… • Oh I see you… • Can we count together? • I see…
End *warning and transition to next part of routine*	You all worked very hard today making your faces! Let's clean-up our space. Each child is dismissed to wash hands. It is your choice to save the FACES for a snack or allow them to eat their creation before transitioning to the nexy activity.
Follow-Up	In the Art area, have available paper and writing utencils for drawing other types of faces. Add manipulitives and different shapes for children to create different shape faces(squares, triangles etc.) Place in the book Area, a variety of Counting books,also books about Shapes, Feelings, and foods. Some examples: *Round is a Tortilla* by Roseanne Thong, *Shapes.Shapes,Shapes* by Tana Hoban, *Glad Monster, Sad Monster* by Ed Emberley, *The Way I Feel* by Janan Cain *The Feelings Book* by Todd Parr, *Mouse Count* by Ellen Stoll Walsh.

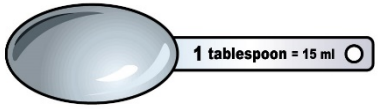
Rice Cake Faces Recipe

1

One Rice Cake.

2

Add 1 tablespoon
Sun Butter or Cream Cheese

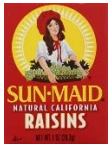


3

Spread the Sun Butter
or Cream Cheese on the
Rice Cake.

4

Add toppings of your
choice to make a face

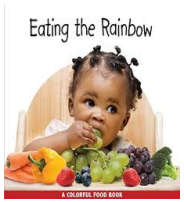


CHOKING ALERT:
for child 3 and under

5

Count as you
create your face…

6



ENJOY !!

Activity: Building a City

Number Sense and Operations, Measurement

KDI: 31, 32,33, 36, 37

Objectives:

To practice counting objects 1:1. Recognizing numbers 1-6. Using comparison words of taller, shorter, longer, and the same as.

Introduction:

As a class, look at photographs of buildings in a city. Talk about their height and what makes some of the structures the same or different. Introduce the word "skyscraper". Explain that today we are going to build our own cities.

Materials:

- My city game mat (in tab 7)
- Unifix cubes or 1 inch wooden cubes (20 per child)
- Dice with either numbers or dots depending on the group's readiness
- Photos and books on: cities, construction workers, and construction vehicles

Instructions:

- Give each child a basket with a copy of the City Map, 20 unfix cubes, a dice (numbers or dots).
- The child rolls the dice and identifies the number. They place that many cubes on their city mat, wherever they choose.
- Children continue rolling the dice and making buildings on each of the squares.
- The teacher works with children recognizing numbers, counting the cubes and acknowledging how tall or short buildings are. Move from child to child.
- Once all the squares on the mat are filled with towers and the children feel their buildings are the desired height, the game is complete. Children can study their city. Which building in the tallest? Which is the smallest? Are their any buildings that are the same height? What happens inside the buildings on their city mat?

Variations/Extensions:

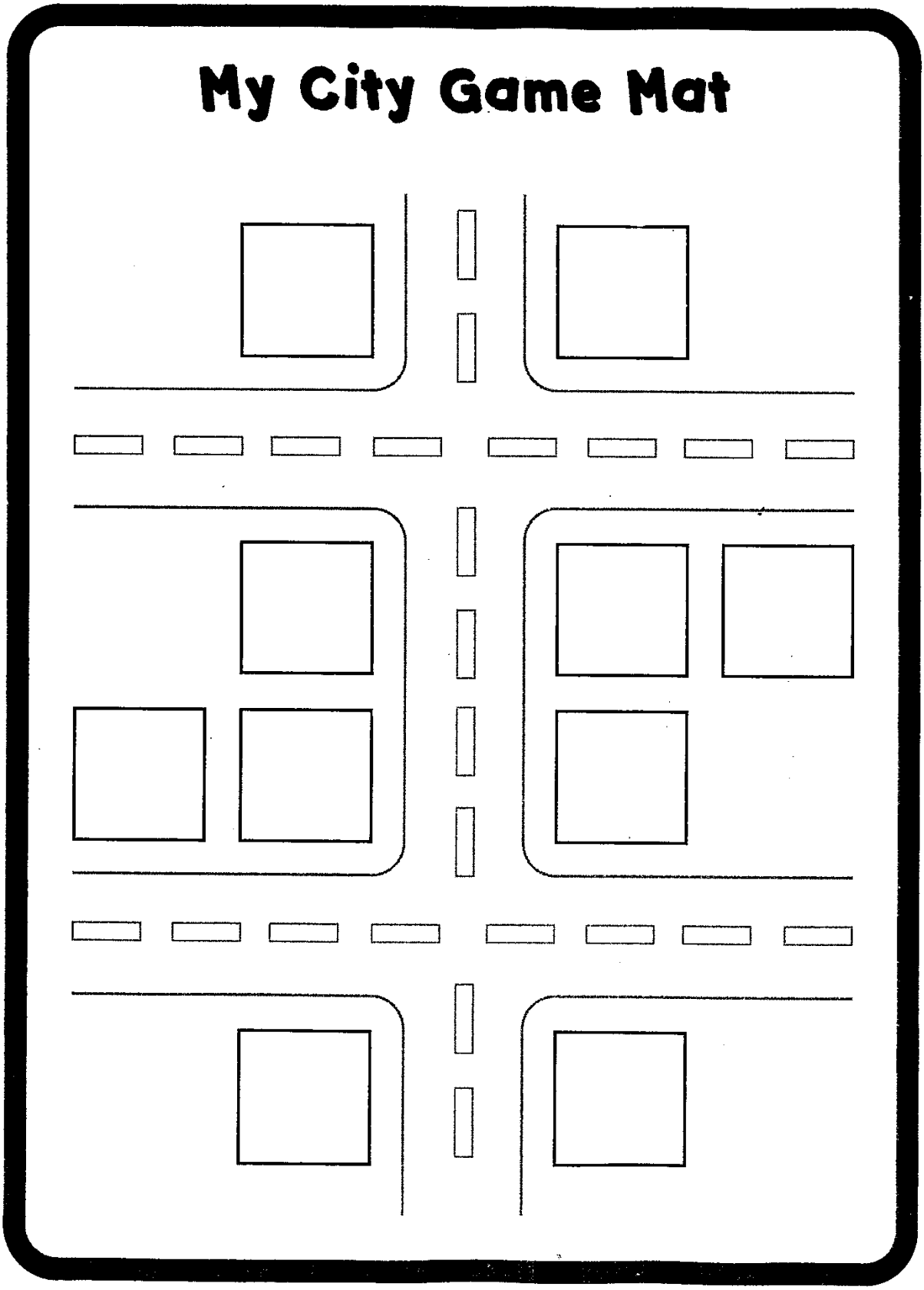
- Use only two colors of unifix cubes. Tell the children as they make their buildings to do an A-B pattern.
- Talk about what machines and/or tools are used to build tall buildings. The class can explore community helpers that build buildings. Once the buildings are built, talk about what happens inside their buildings?

Set Up & Clean Up Instructions:

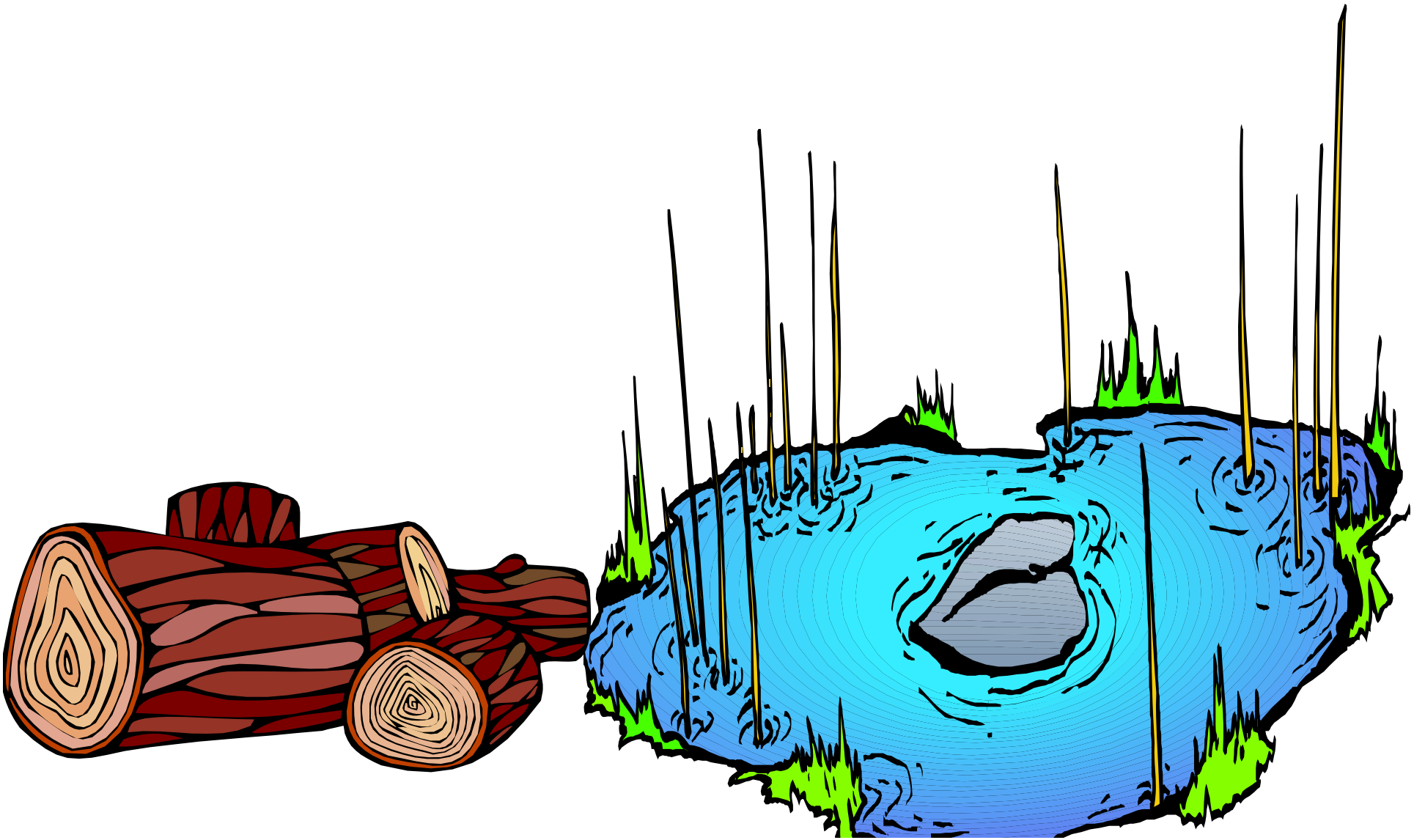
Set Up: Make several copies of the city mat and laminate them (or put them in page protectors). Determine the children's readiness for either a number dice or one with dots that they can count.
Clean Up: Decide where the materials will go so they can be used during work time.

BD/ 4/2009

My City Game Mat



Five Green and Speckled Frogs



Five Green and Speckled Frogs

BBCD#4, Track #19
Traditional Song

Five green and speckled frogs
Sittin' on a speckled log,
Eating some most delicious bugs, yum yum!
One jumped into the pool,
Where it was nice and cool,
Now there are four green speckled frogs, glub glub!

**Continue to subtract frogs as they jump into the pool!*

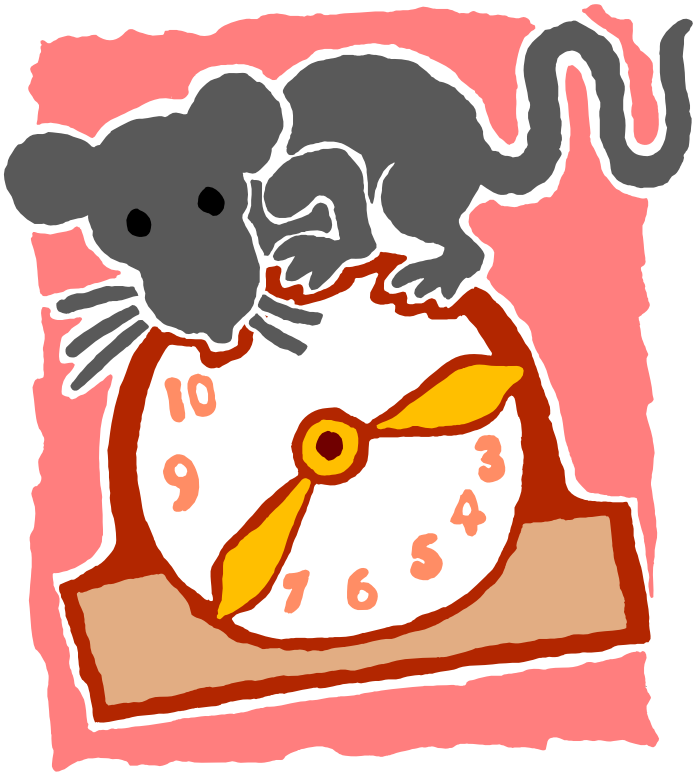
Frog cut-outs (with extras)








Hickory, Dickory Dock



1

2

3

4

5

6

7

8

Hickory, Dickory Dock

(No xylophone)

Hickory, dickory dock.
Tick Tock *(tap, tap)*
The mouse ran up the clock
Tick Tock *(tap, tap)* *play Xylophone up*
The clock struck one,
The mouse ran down. *play Xylophone down*
Hickory, dickory dock.
Tick Tock *(tap, tap)*

Instead of mouse, ask children, "What else could run up the clock?" Use their answers in the song! Instead of one show children other numbers and have them name them in the song. At the end of the song, tap and count each number (see below).

The clock struck two, the mouse said, "boo!"
Hickory Dickory Dock. One, Two!

The clock struck three, the mouse said, "Wee!"
Hickory Dickory Dock. One, Two, Three!

The clock struck four, she ran out the door.
Hickory Dickory Dock. One, Two, Three, Four!

The clock struck five, the mouse did the jive.
Hickory Dickory Dock. One, Two, Three, Four, Five!

The clock struck six, the mouse ran quick.
Hickory Dickory Dock. One, Two, Three, Four, Five, Six!

The clock struck seven, his engines were revin'.
Hickory Dickory Dock. One, Two, Three, Four, Five, Six, Seven!

The clock struck eight, he said "I'm late!"
Hickory Dickory Dock. One, Two, Three, Four, Five, Six, Seven, Eight!

9 Little Muffins in the Bakery Shop

Chant rhythmically as you would do in 5 Little Monkeys Jumpin' on the Bed

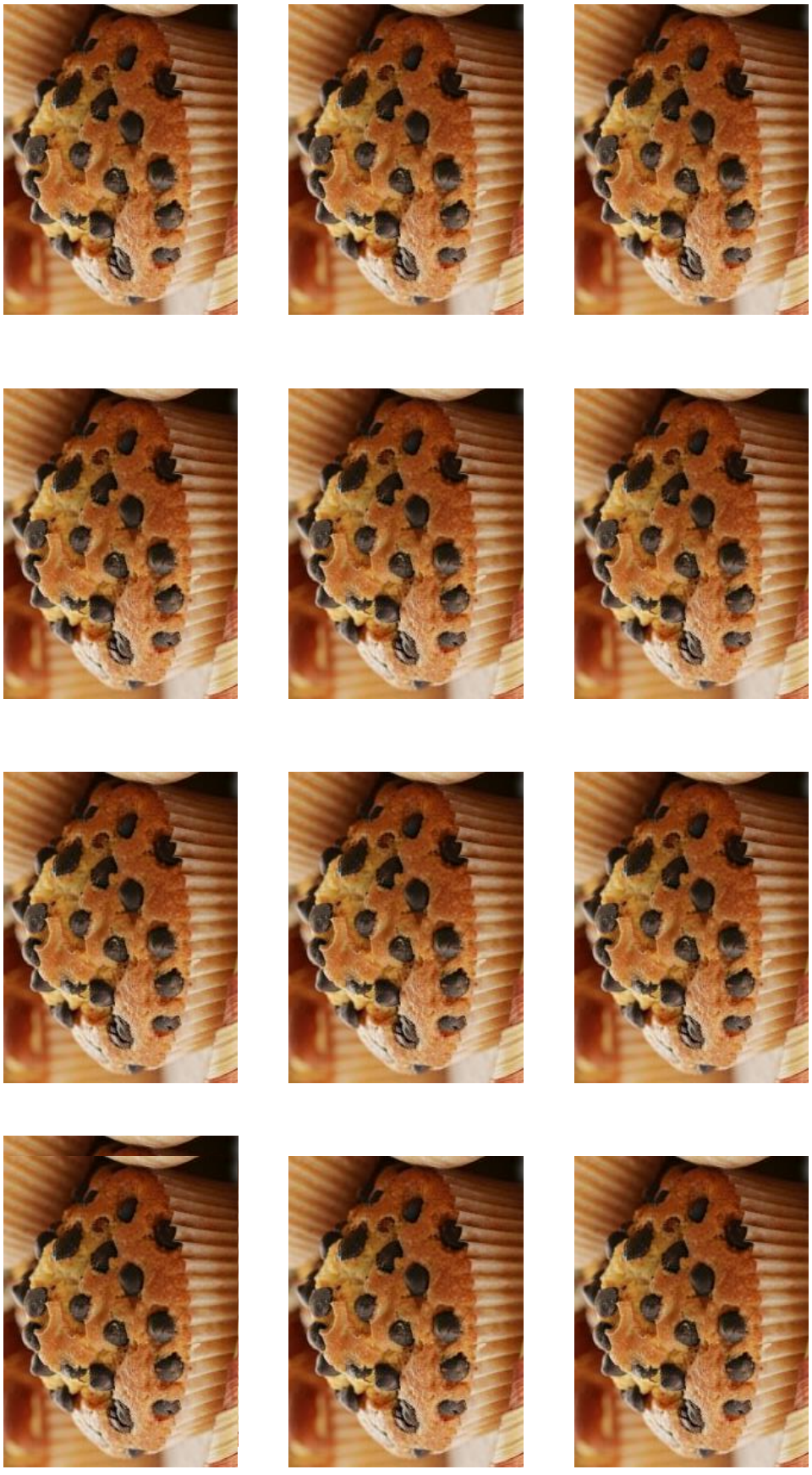
9 Little Muffins in the Bakery Shop

Use muffin cut-outs below and Velcro onto bakery picture. Use children's names, and have them pretend to pay a quarter and take a muffin off the page. Count how many are left each time.

There were 9 little muffins in the bakery shop,
They had chocolate chips on top.
Along came Tony with a quarter to pay,
He bought one muffin and he took it away.

Continue chant with 8, 7, 6. 5. 4, 3, 2, and 1 muffin.

Children can also think of other foods that are sold at a bakery, e.g. donuts, cookies, bagels, and say the chant using their ideas. As an art activity, have the children make their own pictures of food to put into the bakery shop!



Sample Lesson for Ten Black Dots

By Donald Crews
Greenwillow, 1968

INTRODUCING THE BOOK

Read the book aloud and show children the illustrations. Discuss how the dots are used on each page. Then, ask children to name other objects that might include the given number of dots.

Number Sense and Numeration Activity
Dotty Pictures

Materials (for each child)

- 20 pieces of 8 1/2-by 11-inch white construction paper- one for each child
- 20 plastic sandwich bag containing 10 1/2-inch black dots or commercial stick-on dots
- glue
- crayons or markers

1. Tell the children that the class will be making their own Ten Black Dots and each child will do a page. Distribute the small group baskets containing bags of dots, glue, crayons or markers, and paper. Tell children to use from one to ten dots to create their own pictures.

2. When children have completed their illustrations, ask them to tell you about their illustrations. Record their words on their page, making sure they tell you how many dots that they used.

3. Assemble all the pages and put it together for a class book. The following day, read the book at small group.

Sample Lesson for the the book: The Shape of Things

NYS Foundations for the Common CORE or Early Learning Guidelines
Domain(s) 5 – Cognition and Knowledge of the World: Identify and describe shapes.
COR Item T, Geometry: Shapes and spatial awareness
KDI: 34 **Shapes:** Children identify, name, and describe shapes.
35. Spatial awareness: Children recognize spatial relationships among people and objects

Lesson Objective:
Level 1-Children currently identifying one shapes by its correct name. Children will glue shapes on paper and be able to name 2 shapes.
Level 2-Children currently identifying 2 shapes by their correct name. Children will put shapes together to create a picture and name two of the shapes used.
Level 3 –Children currently identify 4 shapes. Children create pictures by combining shapes that create a new shape and name that shape.

Target Vocabulary	Circle, Triangle, Rectangle, Square, Semi-circle, illustrator
Materials	Collection of construction paper circles, rectangles, and triangles (10 or more) 8 1/2 X 11 inch paper Glue or glue sticks Sticky notes
Opening	Show the children the book called: The Shape of Things which they read the day before at small group. Ask the children if they remember any of the objects the author made out of circle, triangles, squares and rectangle.
Beginning	**Look at a few of the pages and talk about the shapes that were put together to make a boat and house.** **Today I am going to give you your small group basket. There are lots of shapes in the basket. I wonder what you will make when you put some of your shapes together.** Give children their baskets that contain paper, shapes, and glue sticks.
Middle *Your ideas for scaffolding children at different developmental levels*	While the children are working, move from child to child comment, **"Tell me about the shapes you are using?"** When they have completed their work say, "**Tell me about your picture."** Record the child's words on a sticky note, and add the note to the back of the picture.
Questions	**If child cannot name shapes, the teacher will state, " I see you are using a…." and point to the shape.** **What shapes did you use? How do you know it is a ……(triangle etc.)** **Tell me wht happened when you put these two shapes together?**

Shape Hokey Pokey

Developed by M. Speranza

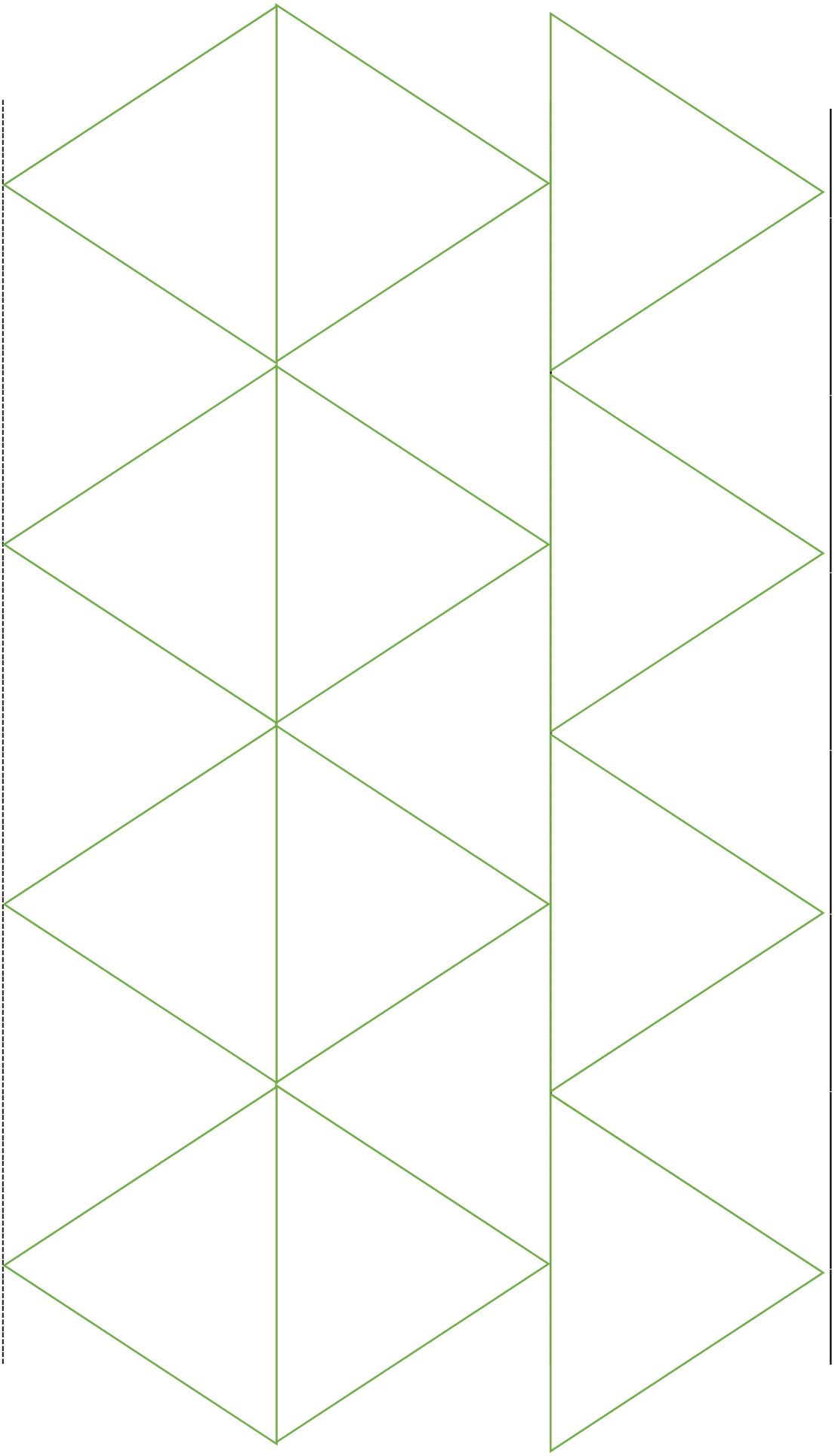
Give one of each shape (made of construction paper or other material) – circles, squares, triangles, etc. to each child. Begin with the non-specific first verse where children hold all the shapes to help everyone feel successful. As you continue the song, children listen for that shape and follow the actions of the song. Be sure to pause between verses to ask the children to find the next shape, giving them ample time before starting the verse. Also note that it may be challenging for some preschoolers to separate one shape from the others if you use construction paper to make the shapes. If so, try to make the shapes from a thicker material such as foam board.

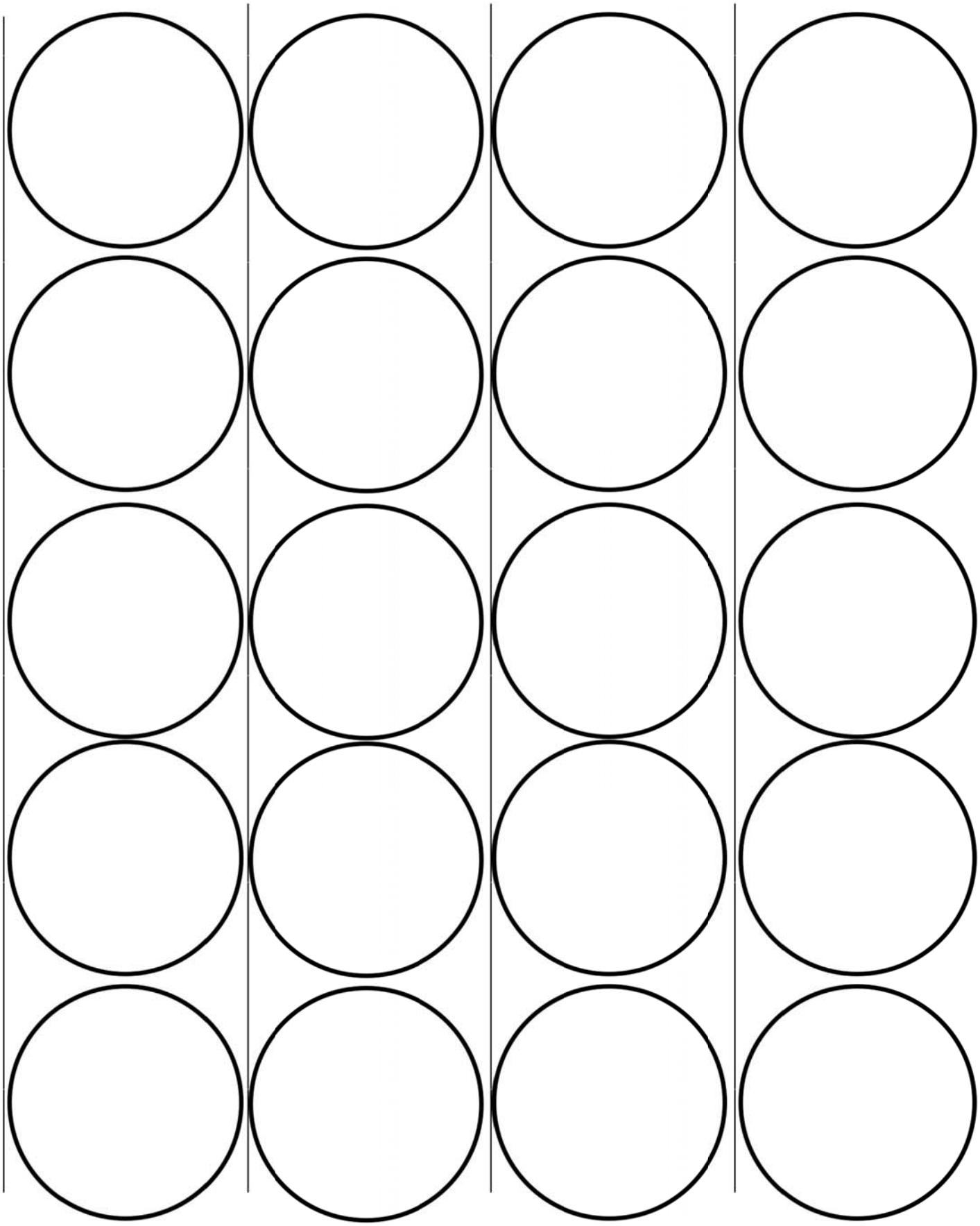
COR Advantage: J – Fine Motor Skills, T – Geometry, Y - Music

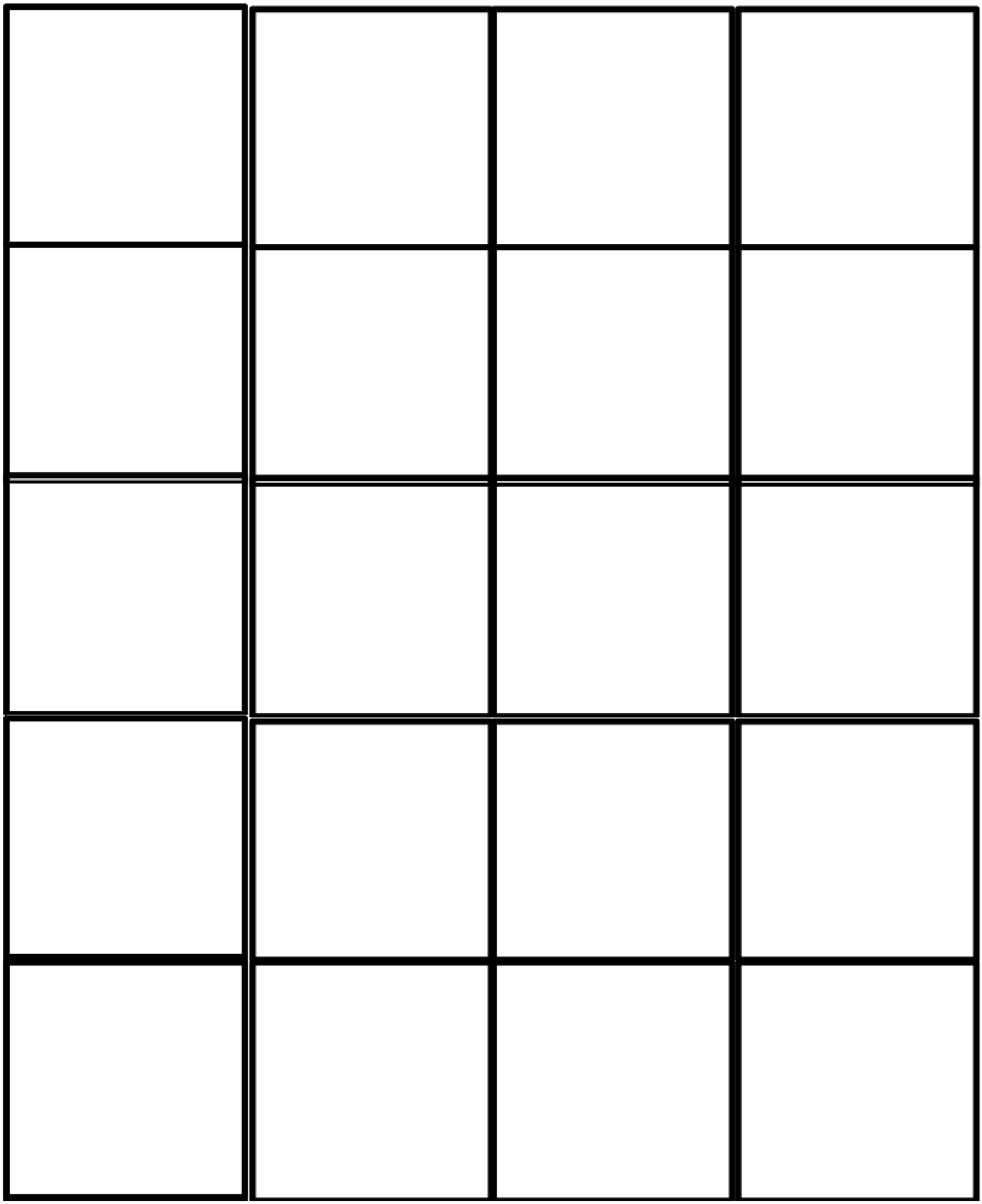
You put your shapes in, you put your shapes out,
You put your shapes in and you shake them all about.
You do the hokey pokey and you turn yourself around,
That's what it's all about!

You put your circle in, you put your circle out,
You put your circle in, and you shake it all about.
You do the hokey pokey and you turn yourself around,
That's what it's all about!

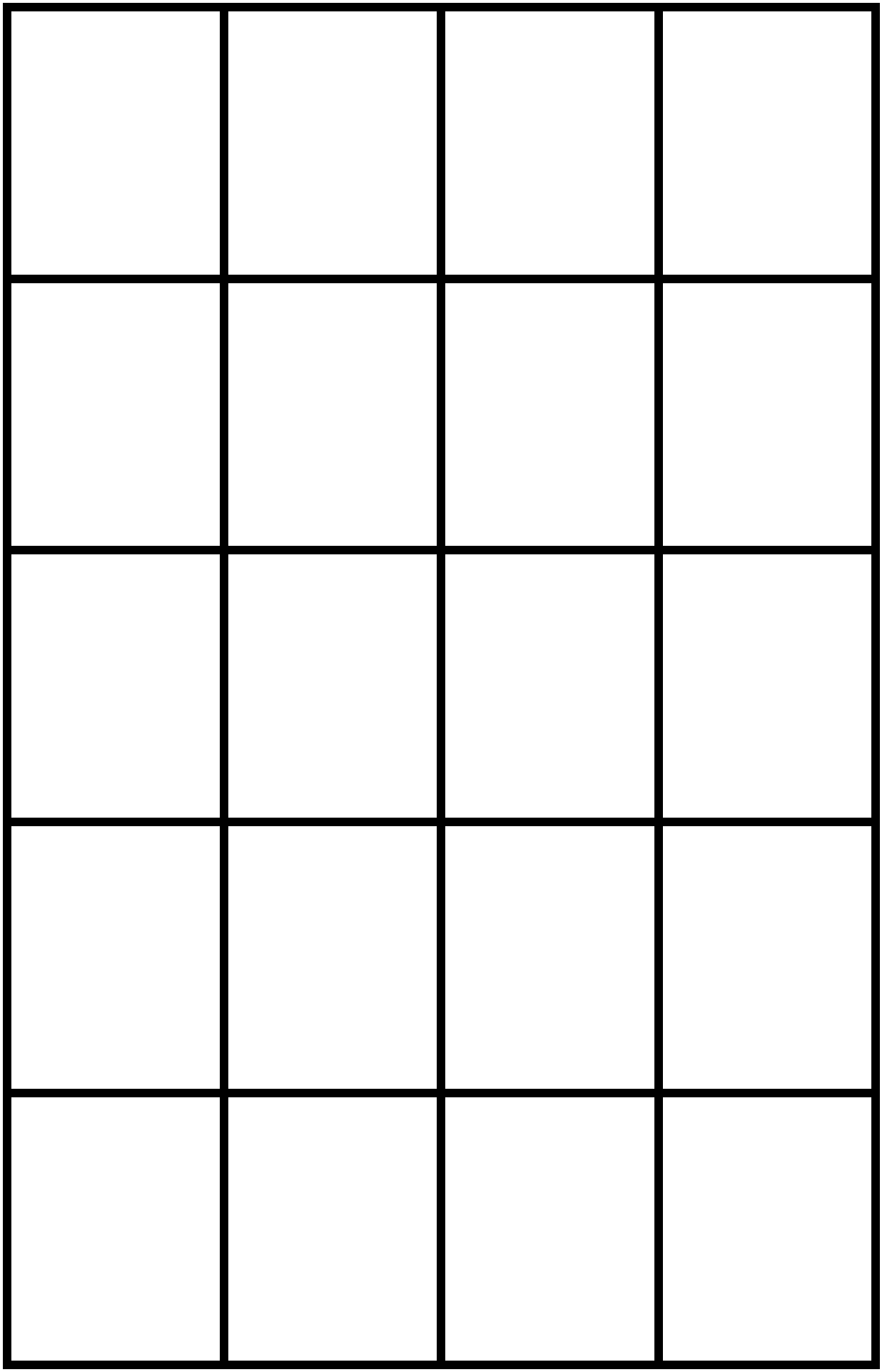
(Continue with other shapes and end the song by repeating the first verse.)







Grid Game



Mathematics Developmental Continuums

Preschool children's mathematics abilities are an important predictor of their later school success in all areas of the curriculum

Duncan et al., 2007

Section 8

Early Childhood Mathematics Developmental Continuum - Overview

- The **Mathematical Developmental Continuum** was designed using information from the following resources: HighScope COR Advantage, NYS Pre-K FCC, HighScope KDIs, RCSD Math Stage Cards, (developed in 1996) and the Common Core Curriculum Map in Mathematics (draft.)
- It identifies the mathematics milestones from beginning development to the kindergarten entry point. This document reads as columns; left column top to bottom, then right column top to bottom.
- As the child moves along the developmental continuum, he/she will reach milestones that are COR Advantage levels. These levels are identified on the chart, i.e. S-0, S-1, S-2. When a level is reached, remember to enter the anecdote into COR Advantage. The detailed COR Advantage Scoring Guide for the content area follows each section.
- The goal for teachers will be to move children along the continuum, which aligns with the kindergarten entry point.
- After each Content Area, you will find the corresponding COR Advantage Scoring Guide page.

Child looks at or handles one object and then another (V-0)		**Child copies a complex pattern (AABBAABB)**
Child gathers three or more objects (V-1)		**Child creates own complex pattern with 3 repeats (AABBAABBAABB) (V-5)**
Child lines up three or more objects one after another (V-2)		**Child translates a written pattern into sounds, symbols, movements and physical objects on own (V-6)**
Child looks at 2 or more objects and says they are the same and why		**Child explains how increasing and decreasing patterns work (V-7)**
Child sorts by 2 attributes		**Child sees the pattern in a number line**
Child looks at 2 or more objects and says they are different and why		
Child copies a simple pattern (ABABAB) (V-3)		
Child recognizes a simple pattern (ABABAB) (V-3)		
Child extends a simple pattern (ABABAB) (V-3)		
Child recognizes, copies, or extends an existing simple pattern (V-3)*		
Child creates a unique simple pattern with 3 repeats (V-4)		

*Please note: This is the actual wording of V-3. Since it uses the word "or," a child can technically be marked at V-3. if he/she does only one of the skills.

Child shows interest in (looks at, touches, handles) one object from a collection of objects (W-0)					
Child collects objects (W-1)					
Child can generate a list (pg. 115, Mathematics HighScope)					
Child groups things into two or more collections (W-2)					
Child uses the comparison words more or less					
Child represents information (data) in concrete ways (W-3)					
Child represents information (data) in abstract ways (W-4)					
Child interprets information (data) from a representation (W-5)					
Child applies information (data) from a representation (W-6)					
Child poses a question of interest and collects and interprets information (data) to figure out the answer (W-7)					

Mathematics Developmental Continuum - Geometry and Spatial Awareness

Child tracks a moving object (T-0)		Child accurately names a square	
Child fits an object into an opening that is the correct size (T-1)		Child accurately names a rectangle (Child recognizes and names two-dimensional shapes - circle, traingle, square, rectangle) (T-3)	
Child explores shapes and makes a picture using them		Child recognizes shapes in the environment	
Child creates and builds shapes from components		Child uses position words ("on" and "under," "up" and "down," "in" and "out," "in front of," "behind," and "next to")	
Child moves self or objects in response to a simple position or direction word (T-2)		Child transforms (composes and decomposes) shapes into another shape and identifies the resulting shape (T-4)	
When asked, child points to a circle		Child describes what makes a shape a shape (identifies shape attributes) (T-5)	
When asked, child points to a triangle		Child names a cube (T-6)	
When asked, child points to a square		Child names a cylinder (T-6)	
When asked, child points to a rectangle		Child names a pyramid (T-6)	
Child accurately names a circle		Child describes three-dimensional shapes to compare their similarities and differences (T-7)	
Child accurately names a triangle			

Mathematics Developmental Continuum - Measurement

Child explores (looks at, touches, handles) one or more objects with measurable attributes (size, weight) (U-0)		**Child measures using non-standard unit**	
Child fills a container (U1)		**Child uses standard measuring procedures (U-5)**	
Child nests or stacks three objects by size (U-2)		**Child fills a container 1/2 full and states that**	
Child uses a measurement term - (For example "big "and "little") (U-3)		**Child measures something using two different units and explains why the outcome is different (U-6)**	
Child uses terms "full" and "empty"		**Child, on his/her own, correctly measures using a standard measuring unit and says what the unit measures (U-7)**	
Child uses terms "long" and "short"		**Child uses a scale to weigh objects using the terms heavier and lighter**	
Child directly compares or orders things based on measurable attributes using the word "same."		**In conversation uses the measurement words of time: yesterday, today and tomorrow, accurately**	
Child uses the terms "before" and "after"		**Child uses a scale to weigh objects using the terms heavier and lighter**	
Child directly compares or orders things based on measurable attributes using the word "same" and words with er and est endings (U-4)		**In conversation uses the measurement words of time: yesterday, today and tomorrow, accurately**	

Mathematics Developmental Continuum - Numbers and Counting

Child looks at, touches, or handles a single object (S-0)		Child consistently counts (with 1:1 correspondence) up to 10 objects (S-3)	
Child uses a word, sign or phrase to ask for "more" (S-1)		Child identifies four or more single-digit numbers (S-4)	
Child explores numbers through the use of manipulatives and real life experiences		Child says that one number is "more" than another (i.e. "Four is more than three.")	
Child uses number words or rote counts (not necessarily without skipping a number) (S-2)		Child identifies the number of objects in a group are "more" or "less" than the number of objects in another group	
Child rote counts consistently 1-5 (S-2)		Child counts with 1:1 correspondence more than 10 objects and says the last number counted tells how many (S-5)	
Child identifies "first" and "last "related to order or position		Child identifies the number of objects in a group are "greater than," "less than " or "equal to" the number of objects in another group	
Child rote counts to 10 (S-2)		Child says how many more or fewer are in one set than in another set (S-6)	
Child counts 1:1, 5 objects knowing that the last number counted says "how many"		Child subitizes up to 6 objects	

Mathematics Developmental Continuum - Numbers and Counting

Child counts with 1:1 correspondence 15 objects			
Child counts with 1:1 correspondence 20 objects			
Child begins writing numbers			
Child demonstrates an understanding of addition and/or subtraction			
Child composes and/or decomposes a number in two or more ways (S-7)			
Child represents a number of objects with a written numbers 0-5			
Child writes the numbers 1-10 (may have some reversals)			

W Data analysis

Although they do not go about this process as systematically as adults, children nevertheless enjoy gathering and recording quantitative (numerical) information. As with other areas of early mathematics, infants focus on single objects or events. By toddlerhood, children group things into collections that they later learn to quantify and compare. Preschoolers can begin to represent this information on simple charts and make sense of the data. Gradually, children begin to ask their own questions that can be answered by gathering and interpreting data.

LEVEL 0

Child shows interest in (looks at, touches, handles) one object from a collection of objects.

The child, when presented with a set of objects (such as a basket of small blocks or a mobile with several hanging parts), focuses his or her attention on one of the items. He or she might look at the item of interest, reach for or touch it, attempt to grasp it, and so on.

- 11/21 While lying on his blanket, Lucas reached for the shiny ring that was among several toys next to him.
- 1/15 While lying under the animal mobile, Alexis watched the zebra swing back and forth.

LEVEL 1

Child collects objects.

The child gathers objects into a pile. He or she may gather all of them together from a loose arrangement and/or pick out objects from a bigger collection to gather into a smaller pile. [*Note:* The objects the child gathers do not need to be similar or related to one another.]

- 10/25 At choice time in the toy area, Javier took several cars from the car box and put them on the floor next to him.
- 5/16 At free play, Rachel crawled around the rug, picking up yarn balls and putting them in her basket.

LEVEL 2

Child groups things into two or more collections.

The child gathers objects into at least two piles. The child may divide an entire set of objects into two or more sets and/or select only some objects from the set to include in his or her piles. [*Note:* The objects the child groups do not need to be similar or related to one another.]

- 2/19 At group time at the water table, Ellie gathered fish figures. She put some in her cup and some in Evan's cup.
- 6/8 At outside time, Marley made three piles of gravel on the blacktop.

LEVEL 3

Child represents information (data) in *concrete* ways.

The child organizes simple information using concrete objects (for example, a toy, a block, him- or herself) to show what group or category the information belongs in.

- 5/16 Before leaving for a field trip, Miss Johnson asked all the children in Mr. Scott's group to stand on the blue rug and all the children in her group to stand on the red rug so they could be in groups to get on the vans. Annalee went to the red rug (she was in Miss Johnson's group).
- 2/7 At recall time, Dewei put a teddy bear counter on the block area sign to show where he played at work time.

LEVEL 4

Child represents information (data) in *abstract* ways.

The child records simple information in a less direct way (such as making a tally mark or writing his or her name) on a list, chart, or simple graph.

- 12/4 At snacktime, Josie made a tally mark under the picture of the goldfish on the chart to indicate that she liked the goldfish crackers in the trail mix.
- 6/19 At recall time, Zoey wrote the letter *Z* under the art area, house area, and water table columns on the recall chart to show where she had played that day.

LEVEL 5

Child interprets information (data) *from a representation.*

The child makes sense of the data recorded on a list, chart, or simple graph. For example, the child looks at the number of tally marks and concludes that more children like apples than pears.

- 11/9 At the end of work time, Tomas looked at the sign-up list for the three computers and said, "Man, lots of kids used Computer 2 today."
- 6/19 At recall time, Kevin looked at the recall chart, counted where Zoey wrote her *Z,* and said, "Zoey went to three areas today."

LEVEL 6

Child applies information (data) *from a representation.*

After interpreting the information recorded on a list, chart, or simple graph, the child uses that information to answer a question or solve a problem. For example, after seeing that there are more tally marks next to apples than pears on a chart of children's favorite fruits, the child concludes that the class should buy more apples at the farmers' market.

- 2/2 During morning message, after the class tallied which rainforest animal they wanted to study, Jackson said, "Lots of kids want to do jaguars, but kids didn't pick tapir. Maybe they don't know what it is; that's why they didn't pick it."
- 3/9 During center time, Alexis looked at the bar graph and said, "More kids like chocolate than vanilla. I guess I should bring chocolate cupcakes on my birthday!"

LEVEL 7

Child poses a question of interest and collects and interprets information (data) to figure out the answer.

The child identifies the type(s) of quantitative (countable) data needed to answer a question of interest to him or her. To be scored at this level, the child must do more than ask a question. The child must also collect and interpret the information.

- 1/18 During morning meeting, Dustin asked how many kindergartners rode the bus. Mary said it was a lot. Dustin said he was going to count all the kids that stood in the bus line and all the kids that stood in the walker line. At the end of the day, he did so and told Mrs. Albright that there were "a lot of bus riders — 18," and "not so many walkers, only 4."
- 12/6 At lunchtime, Jasmine wondered how many children received the school lunch and how many children brought their own lunch. When Mrs. Gainsley asked her how she could find out, she said, "I know, I could make a chart." At choice time, she made a chart and tallied what each child in the class did for lunch. She excitedly brought the chart to Mrs. Gainsley and said, "It's almost even. Twelve kids bring their lunch and 11 kids get school lunch."

T Geometry: Shapes and spatial awareness

Infants look at shapes, and toddlers instinctively match and sort them, long before they learn the names of shapes. Infants and toddlers move their bodies and objects, eventually attaching simple position, direction, and distance words to them. Preschoolers begin to recognize what makes a shape a shape (triangles have three sides and three corners) and compare shapes. Older children master a variety of shape and spatial concepts and use them to solve spatial problems.

LEVEL 0

Child tracks a moving object.

The child follows an object or person with his or her eyes. As the child's focus improves, he or she can better distinguish the outlines of objects. This eventually allows the child to become aware of the contours of distinct shapes.

- 12/6 As Kristin sat in her bouncy seat, her eyes followed Kimmy (her caregiver) when she walked back and forth across the room.
- 6/12 Outside, while sitting on Jessa's (the caregiver's) lap, Mario watched the swing moving back and forth.

LEVEL 1

Child fits an object into an opening that is the correct size.

The child fits an object into an opening of the appropriate size. If the child discovers an opening is too small, he or she may look for something with a bigger opening.

- 3/16 During choice time in the toy area, Aiden put the shapes into the correct slots of the shape sorter.
- 10/11 During outside time, Juana placed rubber balls into a tennis ball canister.

LEVEL 2

Child moves him- or herself or objects in response to a simple position or direction word.

The child moves his or her own body or an object to demonstrate an understanding of basic spatial words such as *on* and *under, up* and *down,* and *in* and *out.*

- 4/16 During cleanup time, when her caregiver told her to put the ball in the basket, Avery did so.
- 9/27 During choice time, when Cody called "Sue?" Sue (his caregiver) said, "Cody, I'm here, under the loft." Cody walked to the loft and looked underneath it to find her.

LEVEL 3

Child recognizes and names two-dimensional shapes (circle, triangle, square, rectangle).

The child can say the names of basic two-dimensional shapes. The child may recognize and name shapes from everyday objects in the classroom environment.

- 4/30 During work time, Braden looked up at the clock on the wall and said, "Hey, the clock is a circle!"
- 3/19 During small-group time, Ashley named both the triangle and the rectangle sticker as she put them on her picture.

LEVEL 4

Child transforms (composes and decomposes) shapes into another shape and identifies the resulting shape.

The child puts together (composes) and takes apart (decomposes) shapes to make another shape, aligning and rotating them as needed, and says the name of the resulting shape.

- 3/10 During small-group time, while working with the Magna-Tiles, Lucas put two triangles together and said, "I made a square."
- 11/2 During work time at the sand table, Olinda filled two square molds with sand and dumped them out next to each other. She said, "Look, I made a rectangle!"

LEVEL 5

Child describes what makes a shape a shape (identifies shape attributes).

The child describes the characteristics of a shape, for example, that triangles have three sides, rectangles have four edges and four corners, squares are like rectangles but all the sides are the same, and/or circles are round.

- 10/7 During work time in the toy area, Payton put a rubber band on the geoboard and said, "I made a square. It has four sides."
- 2/16 During work time in the toy area, while working with the pattern blocks, Adam fit many pattern blocks together in a mosaic-type design. He pointed to an opening and said, "I'm looking for one with three points. I need a triangle."

LEVEL 6

Child names a three-dimensional shape (cube, cylinder, pyramid).

The child identifies basic three-dimensional shapes. These shapes may include cube, cylinder, or pyramid.

- 9/20 At center time, Jaden said, "These are blocks, but I can call them cubes." (They were cube shaped.)
- 4/19 During art, Prema chose a tube to create her sculpture. "I need the cylinder to make the neck," she said.

LEVEL 7

Child describes three-dimensional shapes to compare their similarities and differences.

The child identifies the characteristics of three-dimensional shapes and says what is the same and/or different about them. For example, the child compares the number of sides in a cube versus a pyramid and/or notes whether their sides are "flat" or "slanted."

- 2/12 During a meeting on the carpet, Juan explained that "cylinders have circles on the top and bottom, but cubes have squares."
- 3/5 During math workshop while working with geometric solids, Kahn said, "This pyramid has four triangles and one square. This box has four rectangles and two squares."

U Measurement

The motivation to measure comes from children's interest in comparing things: Who is older? Whose road is longer? Infants explore one object at a time but as children handle two or more things, they become aware of measurable properties that differentiate them (for example, this one feels heavier). As language develops during toddlerhood and preschool, children learn basic measurement terms and explore the tools used to measure. Children gradually learn how to measure correctly by using the same unit, starting at the baseline, and not leaving gaps or overlaps while measuring.

LEVEL 0

Child explores (looks at, touches, handles) one or more objects with measurable attributes (size, weight).

As the child uses all the senses to investigate objects, he or she gradually becomes aware of properties that are measurable. The child has no labels for these properties; he or she simply experiences these differences (for example, something that is big, something that is heavy).

- 6/17 Natima handled both the beanbag filled with rice and the beanbag filled with cotton batting.
- 2/4 Outside, Dev's eyes gazed up and down the large oak tree.

LEVEL 1

Child fills a container.

Size is an attribute the child often pays attention to. He or she enjoys putting things in containers of various sizes.

- 4/6 During choice time, Asia filled a large wooden bowl with pine cones.
- 12/19 During outside time at the water table, Tayshon used a cup to put water in a bucket.

LEVEL 2

Child nests or stacks three objects by size.

The child nests or stacks three objects (such as nesting cups) from the biggest to the smallest and/or the smallest to the biggest.

- 11/3 During choice time, Jerry put the small bowl inside the medium bowl and then placed them both in the large bowl.
- 2/8 During choice time, Aleena stacked four nesting blocks from largest to smallest.

LEVEL 3

Child uses a measurement term.

The child uses a measurement term to describe one thing but does not compare it to another thing. The term is simply used to name or identify a specific characteristic. For example, at this level, a child may use the words *big, bigger,* and *biggest* all to describe something as big, without comparing it to the size of something else. [*Note:* If a child describes something using the word endings *er* or *est,* determine whether this is a true comparison. If so, score at level 4. If not, score at level 3.]

- 2/7 Outside, when going down the hill on a sled, Jinhai said, "My sled is the fastest too."
- 10/7 During work time in the block area, Ayla said, "Look, my barn is really big."

LEVEL 4

Child directly compares or orders things based on measurable attributes using the word *same* and words with *er* and *est* endings.

The child orders things by directly comparing them with each other and describes them by using the word *same* and the word endings *er* and *est*. [*Note:* If a child describes something using *er* or *est* word endings, it is important to determine whether or not this is a true comparison. If so, score at level 4. If not, score at level 3.]

- 1/18 During small-group time, Zachary stacked pegs and compared them to Ian's stack. He said, "Ours are the same." He added several more pegs and said, "Mine is taller now."
- 4/11 During work time in the art area, Regina cut lengths of yarn. She laid them out on the table next to one other and said, "The red one is the longest."

LEVEL 5

Child uses standard measuring procedures.

When measuring, the child follows standard procedures, that is, measures using the same unit, begins measuring at the baseline, and neither leaves gaps nor overlaps units while measuring.

- 2/26 At small-group time, Carla measured her tape line with inch cubes. She started at the beginning of the tape and lined up her inch cubes one after another. She said, "My line is 18 blocks long."
- 8/4 At work time in the block area, Justin wanted to see how tall his "castle" was. He stacked pegs next to his castle. He counted them and said, "My castle is 15 pegs and a little bit of this extra one."

LEVEL 6

Child measures something using two different units and explains why the outcome is different.

At this level, the child knows that measuring something with two different units will result in two different outcomes, even though the size of the object stays the same. For example, he or she may anticipate that measuring something with a smaller unit (a paperclip) will result in a larger outcome (number of units) than measuring the same object with a longer unit (a pencil).

- 6/2 At center time, Moira lined up the Unifix cubes along her notebook. She counted the cubes and said, "It's 10." When Mrs. Kim wondered what else she could use to measure, Moira said "Crayons." She measured her notebook with crayons and said, "It only took four. The crayons are bigger."
- 11/7 Outside on the playground, Jessa counted the bricks on the low wall. She said, "This wall is 34 bricks long." She measured the wall with a jump rope and said, "It takes three and a bit more jump ropes. The jump rope is way bigger than the bricks."

LEVEL 7

Child, on his or her own, correctly measures using a standard measuring unit and says what the unit measures.

The child uses standard units when measuring and says what each type of unit measures. The units include those for length, weight, and volume and are appropriate to what is used in that country (for example, inches and feet in the US versus centimeters and meters in Canada).

- 12/8 During math workshop, Sara added scoops of beans to the balance scale. She carefully added more. When Mr. Thompson asked what she was doing, she said, "I want it to be 20 ounces. I think I need one or two more beans to make it right."
- 2/22 At recess, Cecilia used a yardstick to measure how far she jumped. She jumped, drew a line in the dirt to mark where she landed, and measured the line. She said, "I jumped 15 inches!"

S Number and counting

Children learn to count by counting things — objects, people, and events. For infants, developing number sense is as basic as grasping the "oneness" of an object. Toddlers learn number words. Through everyday experiences, preschoolers learn that number words (*one, two, three*) refer to quantity and gradually realize that the last number counted tells "how many" there are. Later, children begin to compare quantities and combine and separate numbers into their components.

LEVEL 0

Child looks at, touches, or handles a single object.

The child begins to develop the concept of "one" by viewing, touching, and/or manipulating single objects, such as a face, a hand or foot, or a rattle.

- 8/3 Lying on the mat, CJ looked at the ball next to him.
- 7/22 Outside, Blake held a pine cone, turning it over and over.

LEVEL 1

Child uses a word, sign, or phrase to ask for "more."

The child indicates that he or she wants more of something. Requesting more indicates that the child understands that a quantity can be increased by more or one more.

- 2/13 At lunch, Maria held her empty bowl toward the bowl with the corn in it and said "More."
- 7/11 During choice time in the block area, Joshua said "Mo'" and went to get more blocks.

LEVEL 2

Child uses a number word or rote counts.

The child rote counts but does not yet have an understanding of what number means (that is, does not count with one-to-one correspondence).

- 1/14 While sitting on her teacher's lap and looking at a number book, Elizabeth spontaneously said the words "three" and "one" as the teacher turned the pages.
- 10/29 During choice time in the block area, Mikey counted his cars, saying "1, 2, 3, 5, 3, 4, 5, 7!" while counting the same three cars over and over.

LEVEL 3

Child consistently counts (with one-to-one correspondence) up to 10 objects.

The child is developing a sense of number and counts up to 10 objects, associating one and only one number with each object counted (using one-to-one correspondence). The child may occasionally double-count (for example, 1, 2, 3, 4, 4, 5) or skip a number (for example, 1, 2, 3, 4, 5, 6, 8). He or she may not realize that the last number counted represents the total. [*Note:* If a child consistently double-counts (counts the same objects over again), score at level 2.]

- 5/30 At work time in the toy area, Cheyenne counted out toy monkeys — "1, 2, 3, 3, 4, 5" — and gave them to her teacher.
- 8/19 At snacktime, Keira counted seven goldfish crackers on her plate. She touched each cracker as she counted (and there were seven crackers).

LEVEL 4

Child identifies four or more single-digit numerals.

The child can identify four or more numerals from 0 to 9. [*Note:* Check off each numeral *at any time* you observe the child identifying that numeral, for example, by reading (naming) it, or by pointing to it spontaneously or in response to a comment or question.]

- 5/18 At choice time in the house area, Samuel called the doctor. He said, "3, 7, 5, 2" as he punched those numbers into the cell phone.
- 6/19 At work time in the toy area, while playing a board game, Anyna spun the number spinner (with numerals 1–9 on it). She said the numeral when the spinner stopped on it and moved her game piece that many spaces. She did this for the numerals 4, 1, 5, and 8.

LEVEL 5

Child counts (with one-to-one correspondence) more than 10 objects and says the last number counted tells how many.

The child correctly counts more than 10 objects and knows that the last number he or she says tells how many objects there are in total (for example, the child counts correctly to 12 and says there are 12 objects).

- 4/14 At work time in the toy area, Maggie counted 13 pegs. She said, "I've got 13!"
- 7/23 Upon arrival, Akio counted each child's cubby symbol. He turned to his uncle and said, "There are 18 kids in my room!" (He was correct.)

LEVEL 6

Child says how many more or fewer are in one set than in another set.

The child counts two sets of objects and says whether they have the same number (quantity) or, if they are different, how many more or fewer there are in one set than the other. [*Note:* If a child says one set has more than the other but cannot yet say by "how many more," do not score at this level.]

- 1/28 During center time, Anton counted the black cubes and Michaela counted the blue cubes. "I have 15!" Anton said. "There's 14 blues," replied Michaela. "Mine are one more," said Anton. [Anecdote is for Anton]
- 9/22 During math time, Naomi passed out papers to two table groups. She counted eight children at the red table. Then she counted five children at the yellow table and said, "There's three more kids at the red table."

LEVEL 7

Child composes and/or decomposes a number in two or more ways.

The child puts together or takes apart items in sets of up to nine objects. He or she knows, for example, that five can be put together (composed) of two plus three, four plus one, or two plus two plus one. Likewise, the child knows five can be divided (decomposed) in these same combinations.

- 2/10 During center time, Jonathan rolled the big dice to make sums. He rolled 3 and 1. He said, "Hey, that's 4. Know what else is 4? — 2 and 2, and 0 and 4."
- 5/19 During math workshop, Gretchen made tally marks on her whiteboard for the ways to make 7. She tallied 1 and 6, 3 and 4, and 2 and 5.

V Patterns

Children become aware of patterns in objects, movements, sounds, and events. They do this through their own observations and when adults call their attention to them. This awareness grows as children progress from handling single objects, to lining up and ordering objects, to noticing regularities in the arrangement of objects. For example, some patterns repeat (for example, red-blue-red-blue-red-blue), while others change in predictable ways (for example, as age increases, so does height). Working with patterns and relationships is the basis for studying algebra later in school.

LEVEL 0

Child looks at or handles one object and then another.

At this level, the child works with single objects (looking at or touching one object and then another, transferring something from hand to hand), rather than attending to more than one object at time. When the child is finished exploring one object, he or she may move on to another object.

- 1/19 Lucy looked at the rattle that Justine (her caregiver) had placed in her hand and then looked back at Justine.
- 6/7 Dante picked up a large metal jar lid, turned it around in his hands, and looked at it. He dropped it and picked up a different lid.

LEVEL 1

Child gathers three or more objects.

The child now works with more than one object at a time. He or she groups objects into sets of three or more. Although the child does not yet explore the relationship between objects, just seeing them together lays the foundation for organizing them later on.

- 2/17 During choice time, Armondo carried a pail and put a cup, a toy horse, and a Mason jar ring in it.
- 9/16 Outside, Augustina found a stick, a rock, and several leaves. She put them all in a pile.

LEVEL 2

Child lines up three or more objects one after another.

The child lines up objects (not necessarily in a straight line). Although the objects are not arranged in order, seeing them beside one another helps the child become aware of their properties so he or she can later spot patterns and relationships.

- 2/6 At group time, Anna took the rocks from her basket and placed them in a line.
- 11/19 At choice time in the house area, Hakim lined up the cups on the table.

LEVEL 3

Child recognizes, copies, or extends an existing simple pattern (such as ABABAB or AABBAABBAABB).

The child attends to simple alternating patterns (such as ABABAB or AABBAABBAABB). The child demonstrates his or her awareness by naming the pattern (for example, red-blue-red-blue-red-blue), copying the pattern, and/or extending an existing pattern.

- 3/8 At work time in the book area, Sophia looked at the striped fabric on the pillow. She said, "Look, it goes yellow-green-yellow-green."
- 9/28 At work time in the toy area, Caleb noticed that Beth had created a pattern with the pegs. He handed her a red peg and said, "This comes next." [Anecdote is for Caleb]

LEVEL 4

Child creates a unique (not copied) simple pattern with at least three repeats.

The child makes up a simple pattern that repeats at least three times. The pattern might be visual (such as alternating red and blue beads) or based on movement (such as alternating pats to nose and shoulders). To be scored at this level, it must be an original pattern of the child's, not one copied from someone or somewhere else.

- 12/9 During work time in the art area, Hayden made a bracelet for her sister, stringing the beads in a red-blue-red-blue-red-blue pattern.
- 5/9 During large-group time, Isaac had an idea for a movement pattern. He demonstrated a shoulders-head-shoulders-head-shoulders-head sequence.

LEVEL 5

Child creates his or her own (not copied) complex pattern (such as AABAABAAB or ABCABCABC) with at least three repeats.

The child makes up a more complex pattern (such as AABAABAAB or ABCABCABC) that repeats at least three times. As with the previous level, the pattern might be visual or based on movement, and it must be original rather than copied.

- 7/18 During work time in the art area, Lydia used a marker to create a striped border around her picture. She did red-green-blue-red-green-blue-red-green-blue all the way around.
- 8/12 Outside, Juan showed another child his "fun way" to get to the slide. He went hop-hop-jump-hop-hop-jump-hop-hop-jump all the way to the slide.

LEVEL 6

Child translates a pattern into sounds, symbols, movements, and physical objects on his or her own.

The child uses a pattern in one form (such as a visual pattern) to create a pattern in another form (such as a sound pattern). For example, the child might translate the written pattern 122122122 into a sound pattern that goes soft-loud-loud-soft-loud-loud-soft-loud-loud. The child must originate the idea, and the pattern must be repeated at least three times.

- 10/12 In music class, Cole created a pattern using the bongos to match the symbol pattern on the wall. He hit the drums soft-hard-soft-hard-soft-hard to match the XOXOXO pattern.
- 12/14 During math workshop, Serena looked at the AAABAAABAAAB pattern on the whiteboard and lined up her blocks red-red-red-blue-red-red-red-blue-red-red-red-blue.

LEVEL 7

Child explains how increasing and decreasing patterns work.

An increasing or decreasing pattern (algebraic function) is one in which there is a systematic relationship between one thing going up and another going up or down (for example, as age increases, so does height; for each scoop of cereal added to the bowl, the level in the box goes down). The child at this level recognizes these connections, which sets the stage for further algebraic understanding in later years.

- 4/1 During morning meeting, after Mrs. White pulled two children's name sticks from the helper jar, Justine said, "Every day the helper jar loses two kids and the helped jar gets two more kids. Pretty soon, the helper jar will be empty and the helped jar will be full."
- 3/31 During free play, Tyrone fed the class guinea pig (Sniffy) one scoop of food. He said, "Miss Lockhart, we're going to have to buy more food. Every time we feed Sniffy, the food in the container goes down some more."

NYS Pre-K Next Generation Mathematical Standards

Children develop at different rates and each child is unique in his/her own development, growth, and acquisition of skills.

NYS Pre-K Foundation for the Common Core
(Guiding Principals for the Development of the NYS Pre-K FCC, p. 8)

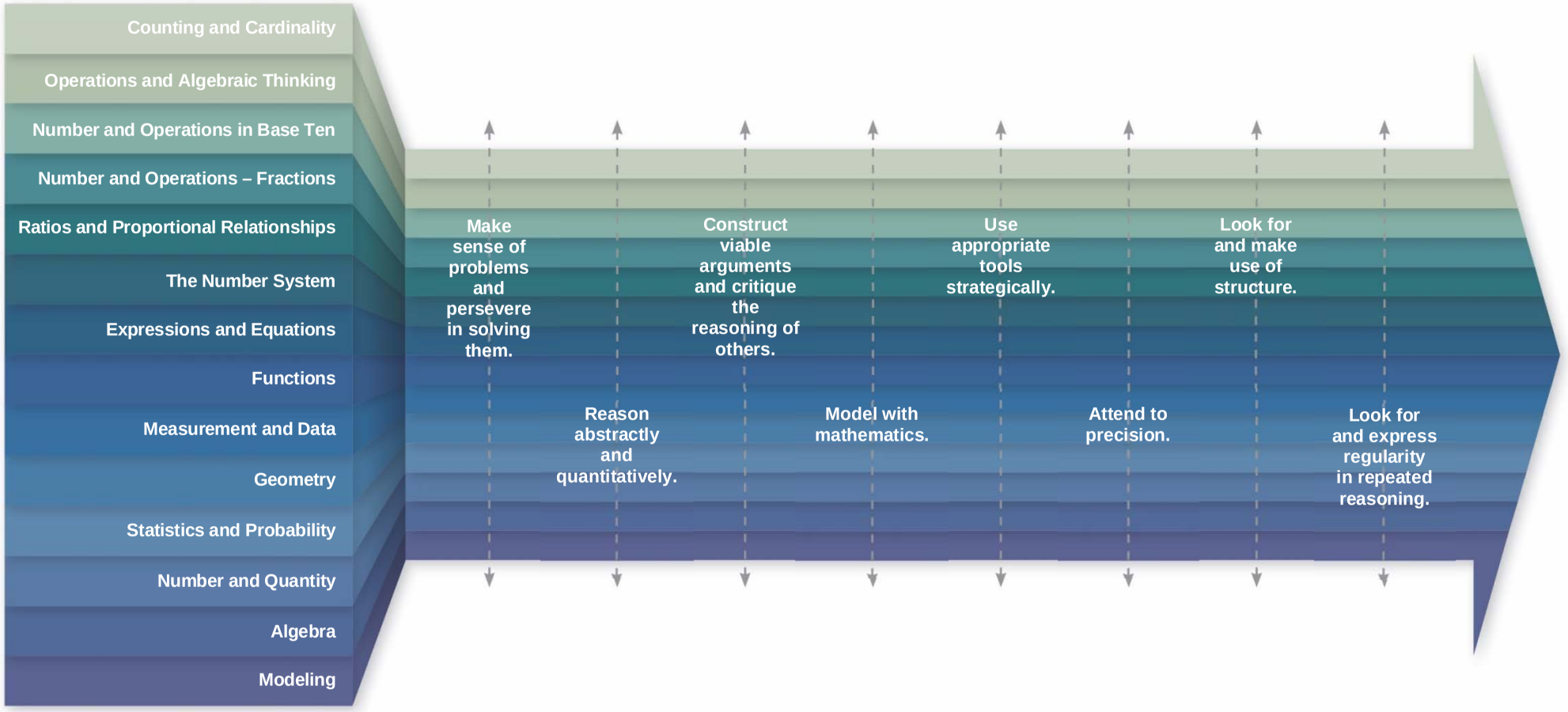
Section 9

NEW YORK STATE EDUCATION DEPARTMENT

New York State Next Generation

Mathematics Learning Standards

2017



Introduction

In 2015, New York State (NYS) began a process of review and revision of its current mathematics standards adopted in January of 2011. Through numerous phases of public comment, virtual and face-to-face meetings with committees consisting of NYS educators (Special Education, Bilingual Education and English as a New Language teachers), parents, curriculum specialists, school administrators, college professors, and experts in cognitive research, the *New York State Next Generation Mathematics Learning Standards (2017)* were developed. These revised standards reflect the collaborative efforts and expertise of all constituents involved.

The *New York State Next Generation Mathematics Learning Standards (2017)* reflect revisions, additions, vertical movement, and clarifications to the current mathematics standards. The Standards are defined as the knowledge, skills and understanding that individuals can and do habitually demonstrate over time because of instruction and learning experiences. These mathematics standards, collectively, are focused and cohesive—designed to support student access to the knowledge and understanding of the mathematical concepts that are necessary to function in a world very dependent upon the application of mathematics, while providing educators the opportunity to devise innovative programs to support this endeavor. As with any set of standards, they need to be rigorous; they need to demand a balance of conceptual understanding, procedural fluency and application and represent a significant level of achievement in mathematics that will enable students to successfully transition to post-secondary education and the workforce.

Context for Revision of the *NYS Next Generation Mathematics Learning Standards (2017)*

Changing expectations for mathematics achievement

Today's children are growing up in a world very different from the one even 15 years ago. Seismic changes in the labor market mean that we are living and working in a knowledge-based economy—one that demands advanced literacy and Science, Technology, Engineering and Mathematics (STEM) skills, whether for application in the private or public sector. Today, information moves through media at lightning speeds and is accessible in ways that are unprecedented; technology has eliminated many jobs while changing and creating others, especially those involving mathematical and conceptual reasoning skills. One characteristic of these fast-growing segment of jobs is that the employee needs to be able to solve unstructured problems while working with others in teams. At the same time, migration and immigration rates around the world bring diversity to schools and neighborhoods. The exponential growth in interactions and information sharing from around the world means there is much to process, communicate, analyze and respond to in the everyday, across all settings. For a great majority of jobs, conceptual reasoning and technical writing skills are integral parts to the daily routine.

To prepare students for the changes in the way we live and work, and to be sure that our education system keeps pace with what it means to be mathematically literate and what it means to collaboratively problem solve, we need a different approach to daily teaching and learning. We need content-rich standards that will serve as a platform for advancing children's 21st-century mathematical skills —their abstract reasoning, their collaboration skills, their ability to learn from peers and through technology, and their flexibility as a learner in a dynamic learning environment. Students need to be engaged in dialogue and learning experiences that allow complex topics and ideas to be explored from many angles and perspectives. They also need to learn how to think and solve problems for which there is no one solution—and learn mathematical skills along the way.

Increasingly Diverse Learner Populations

The need for a deeper, more innovative approach to mathematics teaching comes at a time when the system is already charged with building up language skills among the increasingly diverse population. Students who are English Language Learners (ELLs)/Multilingual Learners (MLLs) now comprise over 20% of the school-age population, which reflects significant growth in the past several decades. Between 1980 and 2009, this population increased from 4.7 to 11.2 million young people, or from 10 to 21% of the school-age population. This growth will likely continue in U.S. schools; by 2030, it is anticipated that 40% of the school-age population in the U.S. will speak a language other than English at home.[(1)] Today, in schools and districts across the U.S., many students other than those classified as ELLs are learning English as an additional language, even if not in the initial stages of language development—these children are often described as "language minority learners." Likewise, many students, large numbers of whom are growing up in poverty, speak a dialect of English that is different from the academic English found in school curriculum.[(2)] [(3)] [(4)]

Each of these groups—ELLs/MLLs, language minority learners, and students acquiring academic English—often struggle to access the language, and therefore the knowledge that fills the pages of academic texts, despite their linguistic assets. Therefore, the context for this new set of Mathematics Standards is that there is a pressing need to provide instruction that not only meets, but exceeds standards, as part of system-wide initiative to promote equal access to math skills for all learners while capitalizing on linguistic and cultural diversity.

All academic work does, to some degree, involve the academic language needed for success in school. For many students, including ELLs/MLLs, underdeveloped academic language affects their ability to comprehend and analyze texts, limits their ability to write and express their mathematical reasoning effectively, and can hinder their acquisition of academic content in all academic areas in which learning is demonstrated and assessed through oral and written language. If there isn't sufficient attention paid to building academic language across all content areas, students, including ELLs/MLLs, will not reach their potential and we will continue to perpetuate achievement gaps. The challenge is to design instruction that acknowledges the role of language; because language and knowledge are so inextricable.

In summary, today's children live in a society where many of their peers are from diverse backgrounds and speak different languages; one where technology is ubiquitous and central to daily life. They will enter a workforce and economy that demands critical thinking skills, and strong communication and social skills for full participation in society. This new society and economy has implications for today's education system—especially our instruction to foster a deeper and different set of communication and critical thinking skills, with significant attention to STEM.

Students with Disabilities and the Standards

One of the fundamental tenets guiding educational legislation (the *No Child Left Behind Act*, and *Every Student Succeeds Act*), and related policies over the past 15-years, is that all students, including students with disabilities, can achieve high standards of academic performance. A related trend is the increasing knowledge and skill expectations for PreK-Grade 12 students, especially in the area of reading and language arts, required for success in postsecondary education and 21st Century careers. Indeed, underdeveloped literacy skills have profound academic, social, emotional, and economic consequences for students, families, and society.

At the same time, the most recently available federal data[(5)] presents a portrait of the field reflecting both challenges and opportunities.

- *Students served under IDEA, Part B*: During the 2012-13 school year, there was a total of 5.83 million students with disabilities, ages 6-21; an increase from 5.67 million in 2010-11.
- *Access to the general education program*: More than 60 percent (62.1%) of students, ages 6 through 21 served under IDEA, Part B, were educated in the regular classroom 80% or more of the day, up from 60.5% in 2010-11.
- *Participation in state assessments*: Between 68.1 and 84.1 percent of students with disabilities in each of grades 3 through 8 and high school participated in the regular state assessment in reading based on grade-level academic achievement standards with or without accommodations.
- *English language arts proficiency*: The median percentages of students with disabilities in grades 3 through 8 and high school who were administered the 2012-13 state assessment in reading based on grade-level academic achievement standards who were proficient ranged from 25.4 to 37.3 percent.
- *Graduation*: Over sixty percent (65.1%) of students with disabilities graduated with a regular high school diploma.

Overall, the number of students with disabilities is increasing nationwide, as is their access to the general education curriculum, and participation in the state ELA and mathematics assessments. Attaining proficiency and graduating with a regular high school diploma are areas where significant improvements are needed.

Therefore, each student's individualized education program (IEP) must be developed in consideration of the State learning standards and should include information for teachers to effectively provide supports and services to address the individual learning needs of the student as they impact the student's ability to participate and progress in the general education curriculum. In addition to supports and services, special education must include specially designed instruction, which means adapting, as appropriate, the content, methodology or delivery of instruction to address the unique needs that result from the student's disability. By so doing, the teacher ensures each student's access to the general education curriculum so that he or she can meet the learning standards that apply to all students. The *Blueprint for Improved Results for Students with Disabilities* focuses on seven core evidence-based principles for students with disabilities to ensure they have the opportunity to benefit from high quality instruction and to

reach the same academic standards as all students. For additional information, please see the Office of Special Education's field advisory: *Blueprint for Improved Results for Students with Disabilities*.

Understanding the *NYS Next Generation Mathematics Learning Standards (2017)*

The *NYS Next Generation Mathematics Learning Standards (2017)* define what students should understand and be able to do as a result of their study of mathematics. To assess progress on the Standards, a teacher must assess whether the student has understood what has been taught and provide opportunities where a student can independently use and apply this knowledge to solve mathematical problems in similar or new contexts. While procedural skills are relatively straightforward to assess, teachers often ask: what does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is accurate or where a mathematical rule comes from. Correctly using language to articulate mathematical understanding plays a part in this justification. Making the distinction between mathematical understanding and procedural skill is critical when designing curriculum and assessment; both are important for the mastery of these standards. That is, there is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain what the mnemonic represents as a process for systematically approaching algebraic problems. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task, such as expanding $(a + b + c)(x + y)$.

The Standards set grade-specific standards but do not define the intervention methods or materials necessary to support students who are well below or well above grade-level expectations. It is also beyond the scope of the Standards to define the full range of supports appropriate for English Language Learners (ELLs)/Multilingual Learners (MLLs) and for Students with Disabilities. However, the department ensured that teachers of English Language Learners (ELLs)/Multilingual Learners (MLLs) and Students with Disabilities participated in the revision of the standards. The New York State Education Department (NYSED) has created two statewide frameworks, the *Blueprint for Improved Results for Students with Disabilities* and the *Blueprint for English Language Learner Success*, aimed to clarify expectations and to provide guidance for administrators, policymakers, and practitioners to prepare ELLs/MLLs and Students with Disabilities for success. These principles therein the frameworks are intended to enhance programming and improve instruction that would allow for students within these populations to reach the same standards as all students and leave school prepared to successfully transition to post school learning, living and working.

No set of grade-specific standards can fully reflect the variation in learning profiles, rates, and needs, linguistic backgrounds, and achievement levels of students in any given classroom. When designing and delivering mathematics instruction, educators must consider the cultural context and prior academic experiences of all students while bridging prior knowledge to new knowledge and ensuring that content is meaningful and comprehensible. In addition, as discussed above, educators must consider the relationship of language and content, and the vital role that language plays in obtaining and expressing mathematics content knowledge. The standards should be read as allowing for the widest possible range of students to participate fully from the outset, along with appropriate adaptations to ensure equitable access and maximum participation of all students.

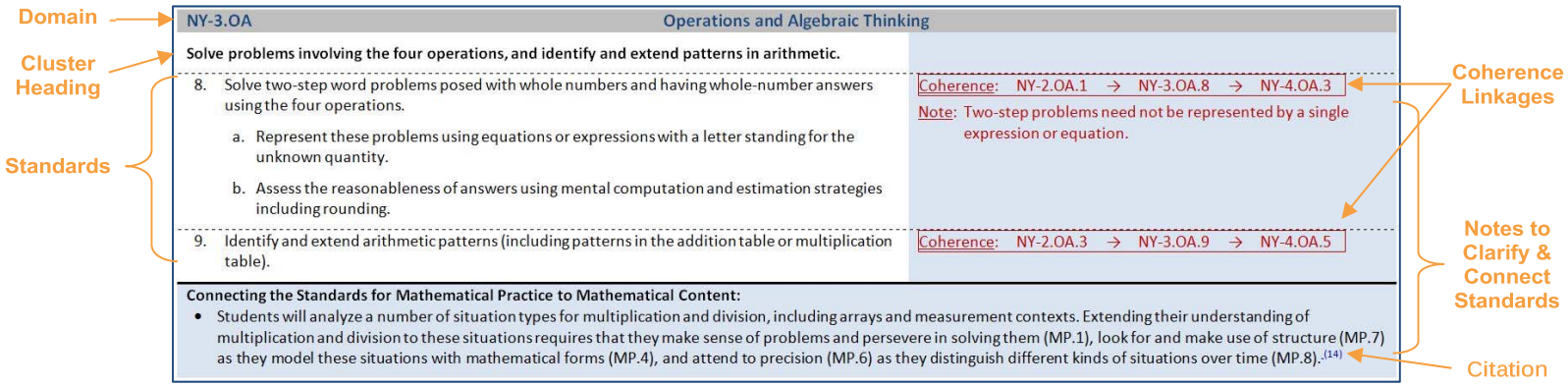
How to Read the P-8 Standards for Mathematical Content

**See High School – Introduction for how to read the High School Standards for Mathematical Content.*

The standards are organized by grade level from Prekindergarten through grade eight.

Standards	define what students should understand and be able to do.
Clusters	summarize groups of related standards. Note that standards from different clusters may sometimes be closely related, because mathematics is a connected subject.
Domains	are larger groups of related standards. Standards from different domains may sometimes be closely related.
Coherence Linkages	connect standards one grade level forward and/or back when there are very direct linking standards in those grades. For a more thorough analysis of how standards link to one another, see http://achievethecore.org/coherence-map/.
Citations	are indicated by a blue number when information was taken or adapted from another source. The number will match the source number in the *Works Cited* section at the end of this document. When viewing these standards electronically, the source information (including page number) will appear as hover-over text.

Prekindergarten through Grade Eight



The order in which the standards are presented is not necessarily the order in which the standards need to be taught. Standards from various domains are connected, and educators will need to determine the best overall design and approach, as well as the instructional strategies needed to support their learners to attain grade-level expectations and the knowledge articulated in the standards. That is, the standards do not dictate curriculum or teaching methods; learning opportunities and pathways will continue to vary across schools and school systems, and educators should make every effort to meet the needs of individual students, based on their pedagogical and professional impressions and information.

Pre-Kindergarten Overview

In Pre-Kindergarten, instructional time should focus on two areas: (1) developing a good sense of numbers using concrete objects including concepts of correspondence, counting, cardinality, and comparison; (2) describing shapes in their everyday environment. More learning time in Pre-Kindergarten should be devoted to exploring* and developing the sense of numbers than any other topic. Please note that while every standard/topic in the grade level has not been included in this overview, all standards should be included in instruction.

1. Through their learning in the ***Counting and Cardinality*** domain, students:
   - develop a sense of numbers and count to determine the number of objects;
   - understand that number words refer to quantity;
   - use 1:1 correspondence to solve problems by matching sets and comparing number amounts and in counting objects to 10 through a variety of experiences; and
   - understand that the last number name said tells the number of objects counted (cardinality) and they count to determine number amounts and compare quantities (using language such as more than, fewer than, or equal to (the same as) the number of objects in another group).
2. Through their learning in the ***Geometry*** and ***Measurement and Data*** domains, students:
   - describe the position of objects in space based on the relations of those objects (e.g., shape and special relations) using appropriate vocabulary;
   - identify and name basic two-dimensional shapes, such as triangles, rectangles, squares, and circles; and
   - use basic shapes and spatial reasoning to model objects in their everyday environment.

*Note: *Explore* indicates that the topic is an important concept that builds the foundation for progression toward mastery in later grades. Repeated experiences with these concepts, with immersion in the concrete, are vital.

Mathematical Practices

1. Make sense of problems and persevere in solving them.	5. Use appropriate tools strategically.
2. Reason abstractly and quantitatively.	6. Attend to precision.
3. Construct viable arguments and critique the reasoning of others.	7. Look for and make use of structure.
4. Model with mathematics.	8. Look for and express regularity in repeated reasoning.

NY-PK.CC	Counting and Cardinality	
Know number names and the count sequence.		
1. Count to 20.		Coherence: NY-PK.CC.1 → NY-K.CC.1
2. Represent a number of objects (0 - 5), with a written numeral 0–5 (with 0 representing a count of no objects).		Coherence: NY-PK.CC.2 → NY-K.CC.3 Note: Students can select the corresponding number card and/or write the numeral.

Note on Number Reversals:

- Learning to write numerals is generally more difficult than learning to read them. It is common for students to reverse numbers at this stage (e.g., writing Ɛ for 3).[8]

NY-PK.CC	Counting and Cardinality	
Count to tell the number of objects.		
3. Understand the relationship between numbers and quantities to 10; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. (1:1 correspondence) b. Explore and develop the concept that the last number name said tells the number of objects counted, (cardinality). The number of objects is the same regardless of their arrangement or the order in which they were counted.		Coherence: NY-PK.CC.3 → NY-K.CC.4
4a. Answer counting questions using as many as 10 objects arranged in a line, a rectangular array, and a circle. Answer counting questions using as many as 5 objects in a scattered configuration. 4b. Given a number from 1–10, count out that many objects.		Coherence: NY-PK.CC.4 → NY-K.CC.5 e.g., "How many _____ are there?"

Note on the Word *Explore*:

- *Explore* indicates that the topic is an important concept that builds the foundation for progression toward mastery in later grades. Repeated experiences with these concepts, with immersion in the concrete, are vital.

Within-Grade Connections:

- Much of the learning in prekindergarten—NY-PK.CC.5, all of NY-PK.OA.1, and NY-PK.MD.2—depends on the foundational ability to count to answer "how many?" (NY-PK.CC.4), which itself is grounded in NY-PK.CC.3. Therefore, work on NY-PK.CC.3 & 4 should likely begin at or near the beginning of the year.[9]

NY-PK.CC	Counting and Cardinality	
Compare numbers.		
5. Recognize whether the number of objects in one group is more than, fewer than, or equal to (the same as) the number of objects in another group. Note: Include groups with up to five objects.		Coherence: NY-PK.CC.5 → NY-K.CC.6 e.g., using matching and counting strategies
6. Identify "first" and "last" related to order or position.		Coherence: NY-PK.CC.6 → NY-K.CC.4d

NY-PK.OA Operations and Algebraic Thinking

Understand addition as adding to and understand subtraction as taking from.

1. Explore addition and subtraction by using objects, fingers, and responding to real world situations.

In the chart to the right, *Pre-Kindergarten students explore the two unshaded (white) subtypes for **Add To** and **Take From** situations.*

All four unshaded (white) subtypes are expectations in Kindergarten.

Grade 1 and 2 students work with all subtypes. Darker shading indicates the four difficult subtypes that students should work with in Grade 1 but need not master until Grade 2.

Coherence: NY-PK.OA.1 → NY-K.OA.1

e.g., If we have 3 apples and add two more, how many apples do we have all together?

Common Addition and Subtraction Situations

	Result Unknown	Change Unknown	Start Unknown
Add To	*A* bunnies sat on the grass. *B* more bunnies hopped there. How many bunnies are on the grass now? $A + B = \square$	*A* bunnies were on the grass. Some more bunnies hopped there. Then there were *C* bunnies. How many bunnies hopped over to the first *A* bunnies? $A + \square = C$	Some bunnies were sitting on the grass. *B* more bunnies hopped there. Then there were *C* bunnies. How many bunnies were on the grass before? $\square + B = C$
Take From	*C* apples were on the table. I ate *B* apples. How many apples are on the table now? $C - B = \square$	*C* apples were on the table. I ate some apples. Then there were *A* apples. How many apples did I eat? $C - \square = A$	Some apples were on the table. I ate *B* apples. Then there were *A* apples. How many apples were on the table before? $\square - B = A$
	Total Unknown	**Both Addends Unknown**	**Addend Unknown**
Put Together/ Take Apart	*A* red apples and *B* green apples are on the table. How many apples are on the table? $A + B = \square$	Grandma has *C* flowers. How many can she put in her red vase and how many in her blue vase? $C = \square + \square$	*C* apples are on the table. *A* are red and the rest are green. How many apples are green? $A + \square = C$ $C - A = \square$
	Difference Unknown	**Bigger Unknown**	**Smaller Unknown**
Compare	*"How many more?" version:* Lucy has *A* apples. Julie has *C* apples. How many more apples does Julie have than Lucy?	*Version with "More":* Julie has *B* more apples than Lucy. Lucy has *A* apples. How many apples does Julie have?	*Version with "More":* Julie has *B* more apples than Lucy. Julie has *C* apples. How many apples does Lucy have?
	"How many fewer?" version: Lucy has *A* apples. Julie has *C* apples. How many fewer apples does Lucy have than Julie? $A + \square = C$ $C - A = \square$	*Version with "Fewer":* Lucy has *B* fewer apples than Julie. Lucy has *A* apples. How many apples does Julie have? $A + B = \square$	*Version with "Fewer":* Lucy has *B* fewer apples than Julie. Julie has *C* apples. How many apples does Lucy have? $C - B = \square$ $\square + B = C$

Note on the Word *Explore*:

- *Explore* indicates that the topic is an important concept that builds the foundation for progression toward mastery in later grades. Repeated experiences with these concepts, with immersion in the concrete, are vital.

Connecting the Standards for Mathematical Practice to Mathematical Content:

- When students progress from drawing realistic (artistic) pictures of situations to diagramming addition and subtraction situations using circles or other symbols, and making connections between them, they are relating the concrete to the abstract (MP.2) and making their first mathematical models (MP.4).[9]
- A student choosing to use objects, fingers, or a math drawing to represent and solve a word problem is an example of the student using an appropriate tool strategically (MP.5).[9]

NY-PK.OA	Operations and Algebraic Thinking	
Understand simple patterns.		
2. Duplicate and extend simple patterns using concrete objects.		Coherence: NY-PK.OA.2 → NY-K.OA.6 e.g., What comes next?

Connecting the Standards for Mathematical Practice to Mathematical Content:

- When students duplicate and extend patterns (NY-PK.OA.2), they are noticing regularity and repeated reasoning (MP.8).

NY-PK.MD	Measurement and Data
Describe and compare measurable attributes.	
1. Identify measurable attributes of objects, such as length or weight, and describe them using appropriate vocabulary.	Coherence: NY-PK.MD.1 → NY-K.MD.1 e.g., small, big, short, tall, empty, full, heavy, and light

NY-PK.MD	Measurement and Data
Sort objects and count the number of objects in each category.	
2. Sort objects and shapes into categories; count the objects in each category. Note: Limit category counts to be less than or equal to 10.	Coherence: NY-PK.MD.2 → NY-K.MD.3

Within-Grade Connections:

- Sorting objects into categories and counting them (NY-PK.MD.2) offers a context for cardinal counting (NY-PK.CC.4) and for comparing numbers (NY-PK.CC.5).[9]

NY-PK.G	Geometry	
Identify and describe shapes (squares, circles, triangles, and rectangles).		
1. Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as top, bottom, up, down, above, below, in front of, behind, over, under, and next to.		Coherence: NY-PK.G.1 → NY-K.G.1
2. Name shapes regardless of size.		Coherence: NY-PK.G.2 → NY-K.G.2

NY-PK.G	Geometry	
Explore and create two- and three-dimensional objects.		
3. Explore two- and three-dimensional objects and use informal language to describe their similarities, differences, and other attributes.		Coherence: NY-PK.G.3 → NY-K.G.4
4. Create and build shapes from components.		Coherence: NY-PK.G.4 → NY-K.G.5 e.g., sticks and clay balls

Note on the Word *Explore*:

- *Explore* indicates that the topic is an important concept that builds the foundation for progression toward mastery in later grades. Repeated experiences with these concepts, with immersion in the concrete, are vital.

UPK Math Resource Guide for the Daily Routine

- Overview
- Comments and Questions for Posing Mathematical Challenges
- Math Resource Guide for the Daily Routine
- Math Scope and Sequence HighScope Resources
- Highlights from the HighScope Preschool Curriculum
- Children's Books with Math Content

"Mathematical experiences for very young children should build largely upon their play and the natural relationships between learning and life in their daily activities, interests, and questions."

--Clements (2004b, p. 59)

Math Resource Guide for the Daily Routine – Overview

- Children use math every day without realizing it.
- Simple age-appropriate activities such as putting puzzles together or asking, "Who is older?" is emerging math.
- The following documents will support teachers in setting the stage for math to be occurring in all components of the daily routine.

Comments and Questions for Posing Mathematical Challenges

HighScope Preschool Curriculum – Mathematics p. 23

I wonder what would happen if…

How do you know…?

Why do you think…?

What makes you sure?

How could you find out?

Perhaps it was because….

What else can you find that works like this?

I wonder why that happened.

…..tried something like that at snack time today. What happened?

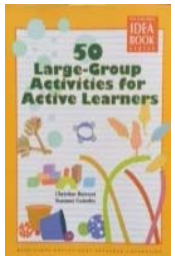
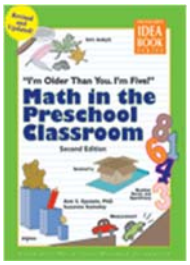
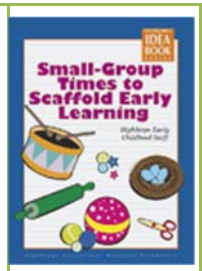
Let's try out your idea and see what happens.

Something doesn't seem right. Let's see if we can fix it.

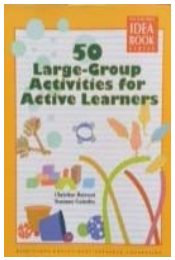
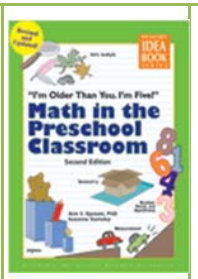
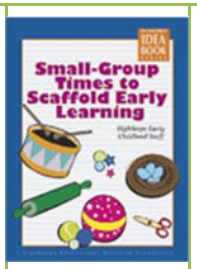
What would I need to do?

We don't have…..What else might work?

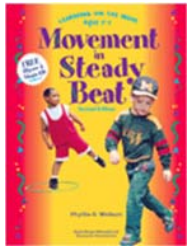
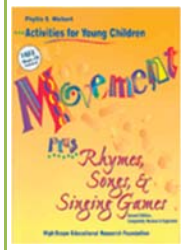
Math Resource Guide for the Daily Routine

DAILY ROUTINE	New HighScope Curriculum, Mathematics *Reference for Math Development and Strategies*							
Arrival/Greeting Time			p. 6-9, 36-37, 52-54		p. 96			
Message Board								
Meal Times					p. 2, 78, 99			
Planning and Recall					p. 46, 70, 74, 84	p. 208 – 223 (note Math ideas)		
Small Group		p. 59 - 77			p. 16, 22, 24, 28, 30, 32, 34 ,38, 42 50, 52, 54, 56, 58, 68, 80, 82, 86, 88, 90, 93, 102, 110, 112, 114, 116, 118		p. 47, 50, 53, 59, 62, 65, 67, 69, 72	p. 48, 52, 60, 78, 86, 134

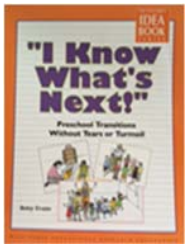
Math Resource Guide for the Daily Routine

DAILY ROUTINE	New HighScope Curriculum, Mathematics *Reference for Math Development and Strategies*							
Large Group				p. 16, 18, 28, 38, 56, 20, 80, 86, 94, 96, 100, 102, 108	p. 18, 60, 62, 66 72, 93, 104, 108			p. 76, 120
Work Time					p. 82, 96			
Clean up Time					p. 40, 48, 76, 78			
Outside					p. 26, 32, 36, 38, 48, 52, 64, 66, 78 80, 110			p. 66
Transitions					p. 78			
Rest Time								
All Parts of Day					Field trip/SGT p. 106			

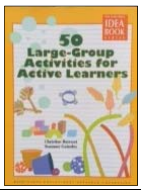
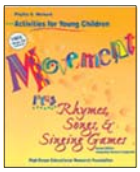
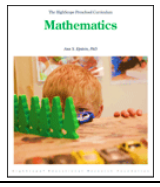
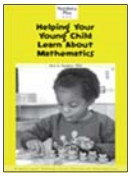
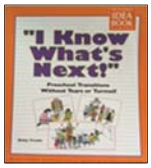
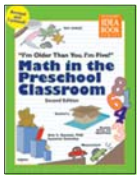
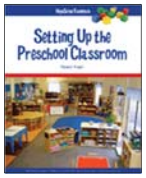
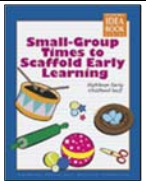
Math Resource Guide for the Daily Routine

DAILY ROUTINE					
Arrival/Greeting Time	p. 14, 21, 22, 23				
Message Board	p. 40				
Meal Times	p. 70				
Planning and Recall					
Small Group	p. 49-50		p. 6, 12, 18, 22, 64-65, 68-69, 70-71, 72-73, 80-81, 86-87, 92-93, 94-95	p. 16-19, 71	

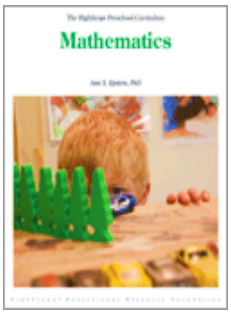
Math Resource Guide for the Daily Routine

DAILY ROUTINE					
Large Group		p. 16-17, 20-21, 37-38, 40-42, 85-87	p. 6, 12, 18, 22, 64-65 68-69, 70-71, 72-73, 80-81, 86-87, 92-93, 94-95		
Work Time				p. 31, 40, 76	
Clean up Time	p. 95-103				
Outside	p. 51-52				
Transitions					
Rest Time	p. 52-59				
All Parts of Day	p. 70-74, p. 78-82				

UPK Math Scope and Sequence
HighScope Resources

	50 Large Group Activities For Active Learners		Movement in Steady Beat
	Arts Smart, The Creative Arts in Preschool		Movement Plus Rhymes, Songs and Singing Games
	From Meaning to Message		(The) New HighScope Preschool Curriculum - Mathematics
	Helping Your Young Child Learn About Mathematics		New York State Next Generation Mathematics Learning Standards (2017)
	"I Know What's Next!" Preschool Transitions Without Tears or Turmoil		Numbers Plus Preschool Mathematics Curriculum Kit
	"I'm Older Than You. I'm Five!" Math in the Preschool Classroom		Setting Up the Preschool Classroom
	Lesson Plans for the First 30 Days		Small-Group Times to Scaffold Early Learning
	Making the Most of Plan, Do, Review		Story Starters for Group Times

Highlights from: ***The HighScope Preschool Curriculum, Mathematics***



Title	Author
10 Minutes till Bedtime	Peggy Rathmann
10 Little Rubber Ducks	Eric Carle
26 Letters and 99 Cents	Tana Hoban
123 NYC A Counting Book of New York City	Joanne Dugan
A Pair of Socks	Matthew Stewart
A String of Beads	Margarette Reid
Anno's Counting Book	Mitsumasa Anno
Bear in a Square	Stella Blackstone
Beep Beep Vroom Vroom	Stuart Murphy
Benny's Pennies	Pat Brisson
Big Bigger Biggest	Nancy Coffelt
Big Fat Hen	Keith Baker
Brown Rabbits Shape Book	Alan Baker
Can You Count Ten Toes	Lezlie Evans
Captain Invincible and the Space Shapes	Stuart Murphy
Chicka Chicka 1 2 3	Bill Martin
Color Farm	Lois Ehlert
Color Zoo	Lois Ehlert
Count and See	Tana Hoban
Counting Crocodiles	Judy Sierra
Cubes, Cones, Cylinders & Spheres	Tana Hoban
Dog's Colorful Day	Emma Dodd
Every Buddy Counts	Stuart J. Murphy
Fish Eyes: A Book You Can Count On	Lois Ehlert
Five Little Monkeys Sitting in a Tree	Eileen Christelow
Goldilocks and the 3 Bears	Paul Galdone
Good Night Moon 1 2 3	Margaret Wise Brown
Hannah's Collections	Marthe Jocelyn
How many Snails	Paul Giganti
I Spy Numbers	Jean Marzollo
Inch by Inch	Leo Lionni
Is it Larger? Is it Smaller?	Tana Hoban
Jack the Builder (Math Start)	Stuart J. Murphy
Just Enough Carrots	Stuart J. Murphy

Children's Books with Math Content

Title	Author
Let's Count	Tana Hoban
Let's Count It Out, Jesse Bear	Nancy Carlstrom
Max Found Two Sticks	B. Pinkney
Miranda's Day to Dance	Jackie Jasina Schaefer
More, Fewer, Less	Tana Hoban
More or Less a Mess	Sheila Keenan
Mouse Went Out to Get a Snack	Lyn Rossiter McFarlind
Mouse Shapes	Ellen Stoll Walsh
Norman Rockwell's Counting Book	Glorina Taborin
One Duck Stuck	Phyllis Root
Over in the Meadow	Ezra Jack Keates
Pizza Counting	Christina Dobson
Quack and Count	Keith Baker
Rabbit's Pajama Party	Stuart J. Murphy
Roar! A Noisy Counting Book	Pamela Edwards
Round is a Mooncake	Roseanne Thong
Shape of Things	Dayle Ann Dodds
So Many Circles, So Many Squares	Tana Hoban
Shapes, Shapes, Shapes	Tana Hoban
Ten Black Dots	Donald Crews
Ten Nine Eight	Molly Bang
Ten Red Apples	Pat Hutchins
The Best Bug Parade	Stuart J. Murphy
The Button Box	Margarette S. Reid
The Cheerios Counting Book	Barbara McGrath
The Doorbell Rang	Pat Hutchins
The Line Up Book	Marisabrina Russo
The Shape of Things	Dayle Ann Dodds
The Quilt	Ann Jonas
There Were Ten in the Bed	Karen Young
Tough Boris	Mem Fox
Under, Over, and Through	Tana Hoban
When a Line Bends A Shape Begins	Rhonda Gowler Green
Who Sank the Boat	Pamela Allen